GROUNDWATER MONITORING PROGRAM
2019 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

AECOM Technical Services

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2019 QUARTER TWO STATUS REPORT

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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 16, 2019 and June 22, 2019. This report presents the results of the tenth 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 was a Site-wide sampling event which included collection of groundwater samples from 33 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 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

Site-wide monitoring is conducted on an annual basis and includes groundwater monitoring at 34 locations. The June 2019 event was the third Site-wide sampling event since the completion of the PRB installation. 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 groundwater monitoring program will be carried out in accordance with the schedule and sampling protocol outlined in the SMP.

One monitoring well included in the annual sampling program, MW-B-3, was not sampled during the June 2019 event due to the fact that the well was dry. MW-B-3 sampling will be attempted during the next annual sampling event. The total number of wells sampled during the June 2019 event was 33.

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), will 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 June 2019 event 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.

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 groundwater 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, 10 groundwater samples were analyzed for dissolved hydrogen and dissolved acetylene (PACE Method AM20GAX), and 12 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 2019 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 2019 sampling event is included as Figure 3-1. Observed general groundwater flow direction in June 2019 was from northeast to southwest, which is similar to past sampling events.

Based on observed trends during the past sampling events groundwater elevation at the Site is subject to seasonal variability. The December and March sampling events exhibit lower groundwater elevations than the June and September sampling events. The similarities between the winter events and summer events indicate a seasonal groundwater level trend. Groundwater elevation data for the June 2019 sampling event indicate that groundwater levels are currently equal to top of the PRB wall at the north most monitoring well pairs along the PRB Meanwhile, the groundwater elevation levels are slightly above the top of the PRB for the southern-most monitoring well pairs (MW-32/33 and MW-34/35). 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 the June 2019 hydrogeologic conditions, was determined to be 0.0038 ft/ft. The hydraulic gradient for the past three sampling was 0.0044 ft/ft in December 2018, 0.0019 ft/ft in September 2018 and 0.0028 ft/ft in June 2018. The groundwater seepage velocity is the rate of solute transport through the open pore space in the soil. Based on the June 2019 hydraulic gradient of 0.0038 ft/ft and the range of hydraulic conductivities evaluated for the PRB design (15.66 ft/day to 193.8 ft/day), and assuming a porosity of 0.4, groundwater seepage velocity at the Site could vary between approximately 0.15 ft/day and 1.83 ft/day, which is within the range of estimated groundwater velocities used for the PRB design (0.128 ft/day-2.83 ft/day). Calculations for hydraulic gradient and velocity estimates are included in Appendix C.

Drums containing purge water from the June 2019 sampling event were removed from the Site on August 15, 2019 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 2019 semi-annual sampling event for the PRB monitoring compliance wells are presented in Table 3-2. MNA parameters were compared between compliance well pairs to observe changes in groundwater quality from upgradient to downgradient of the wall. Field parameter readings are primarily collected to demonstrate stabilization criteria as discussed in section 2.1, however they can also give insight as to subsurface conditions and served as indicators for reactions taking place.

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.

As described above, DO measurements during the June 2019 event were collected with two different instruments for comparative purposes – an optical probe (YSI Pro DSS) located in a flow through cell and a membrane probe (YSI 550A) placed within the monitoring well approximately 2 feet above the bladder pump used for purging. DO readings obtained with the two different meters in wells sampled during the June 2019 event are variable. For most wells DO readings were fairly similar for each probe, and for most compliance well pairs the 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. In some cases negative values were recorded, possibly due to instrument error. Periodically during the sampling event, field verification of the DO readings was performed by inserting the probes 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. Both sets of DO data are presented in Table 3-2. In some cases the DO membrane probe and the YSI were not showing similar results which could be due to unknown factors affecting groundwater geochemistry or field instrument variability and error.

During the June 2019 sampling event ORP levels were again variable but measurements showed decreases between each upgradient and downgradient pair. 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-33/32 and MW-35/34. 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 2019 groundwater results showed a general increase in methane, ethane and ethene in well pairs MW-32/33 and MW-34/35 when compared to their upgradient counterparts. For methane, there was a particularly large increase between upgradient and downgradient in monitoring well pair MW-32/33. The largest increase in methane, was seen in compliance monitoring well pairs in the middle of the PRB. Increased downgradient methane concentrations

began to be observed by mid-2017 and since then the methane levels have been relatively sustained, however the June 2019 results indicate that some locations are no longer showing elevated methane levels. 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 in the southern end of the walls 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 2019 event. During this event some 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.

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. The June 2018 results did not indicate the presence of 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, there were no detections.

The June 2019 event included sampling for dissolved hydrogen at the eight compliance wells to monitor for the expected geochemical conditions present from the CVOC reactions with the ZVI wall, as well as one upgradient location and one downgradient location to get a better idea of background dissolved hydrogen calculations. 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 (MW-15 and MW-24) also showed very low dissolved hydrogen concentrations, similar to those within the compliance monitoring well locations.

Dissolved iron and total iron were sampled for at all wells sampling during this quarter to evaluate the natural geochemistry at locations away from the wall, and 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 2019 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 since the installation of the PRB with only some minor increases throughout time.

3.3 Groundwater VOC Results

The VOC results from the June 2019 sampling event are presented in Table 3-2. 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 monitoring well compliance pairs, and semi-annual wells that exceed 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 2019 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. The groundwater samples collected during the June 2019 event on June 17, 2019 and June 18th, 2019 were received outside the optimal range of 4° ± 2° C. The samples were received on ice and the shipment container temperature was < 10° C. AECOM's data chemist carefully reviewed these results and determined that no data qualifications were required. 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 8 of the compliance wells, 7 of which were above or equal to the AWQS of 5 µg/L. One downgradient monitoring well location, MW-34, for the first time to date showed the TCE concentration to be below the AWQS.

- For the June 2019 event two 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 1.1 µg/L (MW-34) to 172 µg/L (MW-28).

- TCE was also detected at varying levels in many of the other wells that were sampled, including elevated levels of TCE at some locations 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 wells, as well as other CVOCs, for the June 2019 sampling event were consistent with previous groundwater sample results. However, as noted in the preceding bullet, there appears to be a decreasing trend in TCE concentrations at some downgradient compliance well pair locations.

- Wells with detectable levels of tetrachloroethene (PCE) were MW-14, MW-15, MW-17, MW-18, MW-20, MW-22 R, MW-28, and MW-29. The concentration of PCE measured in MW14, MW-22R, MW-28, and MW-29 were above the AWGS of 5 µg/L and the others were below the AWQS.

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 2019. These trend plots are included in Appendix F as Figures F-1 through F-4. 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. This observation is based on data collected over 11 monitoring wvents, in which a decreasing trend in TCE concentration is observed in three of the four downgradient compliance monitoring wells. This observation is supported by the Mann-Kendall Constituent Trend Analysis presented in Appendix G.

4 SUMMARY AND CONCLUSIONS

The June 2019 groundwater monitoring event was the second semi-annual sampling event and the tenth 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).

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. CVOC concentrations at downgradient well pair locations have in general been lower than their upgradient counterparts for the last several monitoring events. Continued observations of elevated methane and ethane concentrations at some downgradient monitoring wells, particularly in the center of the wall, indicate the presence of anaerobic biological activity within the subsurface in the vicinity of the PRB. While there had been increased TOC concentrations at the monitoring well compliance pairs noted in the previous sampling events it appears TOC has moved toward baseline conditions. Results from the June 2019 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 very prevalent at any of the other well pairs. TOC was not detected at this downgradient location as it was in the other downgradient well pair locations. 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 also is different in this area of the Site and the hydraulic gradient appears to be flat at times. 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 the on average the hydraulic gradient is consistent with the design. The PRB was designed based on a hydraulic gradient of 0.004 ft/ft which is similar to the estimated hydraulic gradient of 0.0038 ft/ft measured in June 2019. There is seasonal variability in groundwater elevation and hydraulic gradient which will be better understood as the groundwater monitoring program continues. 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). Based on the current gradient and estimated groundwater seepage velocity the groundwater flowing though the PRB should have traveled the distance between the compliance monitoring well pairs.

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 discussions on possible investigative actions with the USACE in order to work on a path forward to get clarity on groundwater geochemistry and hydrogeology around the PRB wall in order to help evaluate remedy effectiveness.

The next groundwater sampling event is scheduled for December 2019 and will include sampling from 12 locations.

AECOM proposes removing the following parameters from the sampling plan: dissolved hydrogen, dissolved acetylene, and total and dissolved iron. These parameters were added to the sampling plan to evaluate the reactivity of the ZVI. For reasons discussed above, their continued analysis is not warranted. Also, use of the second down-well DO meter will be discontinued since it is apparent that some unknown mechanism, possibly related to site-specific groundwater chemistry, is affecting the dissolved oxygen readings of both the down-well and flow-through DO meters.

5 REFERENCES

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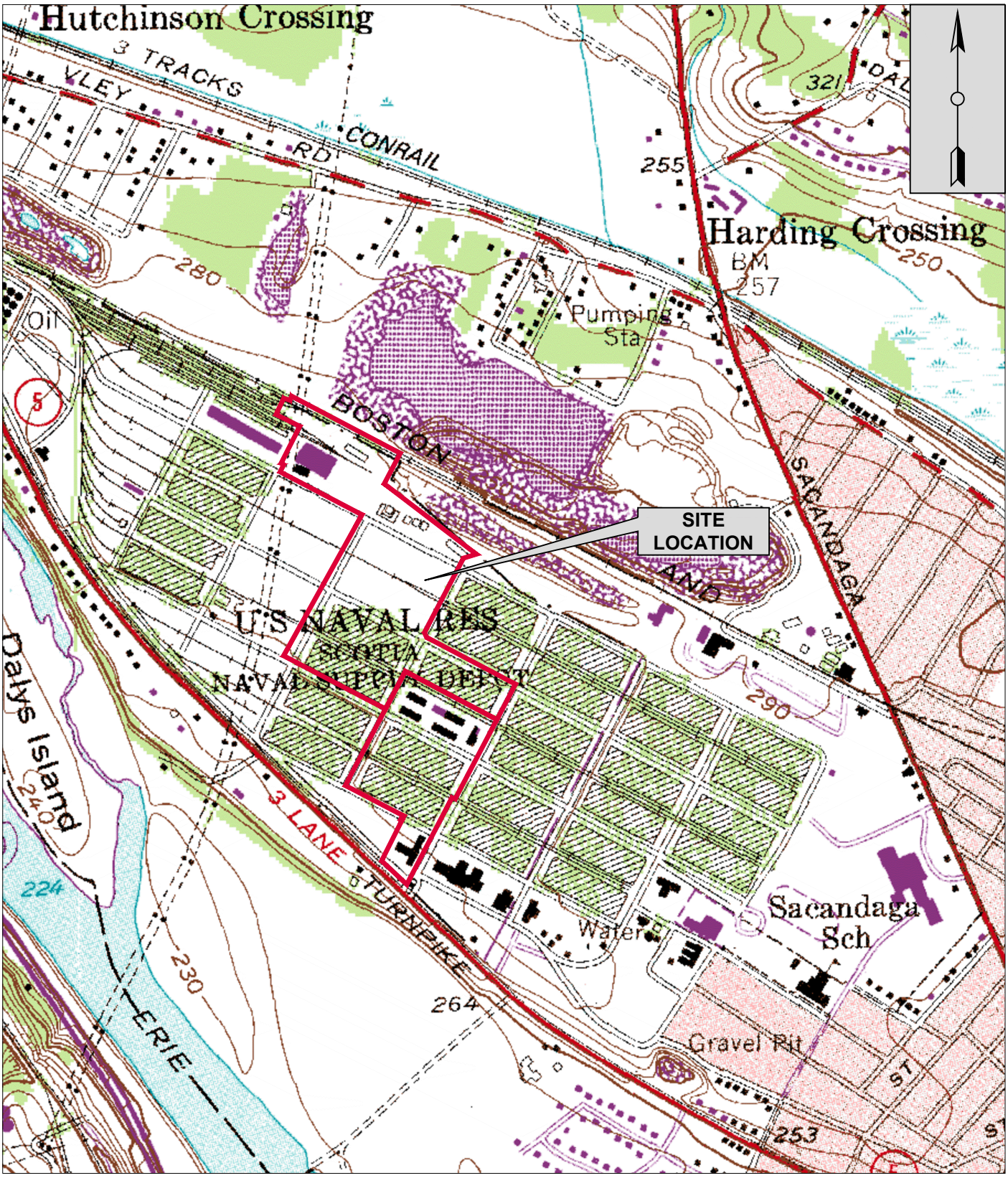
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Stone Environmental, 2013. Final Pre-Design Investigation Report, Defense Nation Stockpile Center Scotia Depot Site, Town of Glenville, NY, December.

FIGURES



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

0 1000' 2000'

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

US ARMY Corps
of Engineers

SITE LOCATION MAP

AECOM

Figure: 1-1

AECOM

Figure: 1-2

SITE LAYOUT MAP

US ARMY Corps of Engineers

2019 2ND QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: August 2019

250.0 FT. NATIONAL GRID POWER COMPANY EASEMENT

TOWERS

15.0 FT. (TYP.)

250.0 FT. (SHALLOW ZONE)

900.0 FT.

650.0 FT. (DEEP ZONE)

80.0 FT.

PROPERTY BOUNDARY (TYP.)

CONCRETE REMAINS

1st STREET

3rd 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

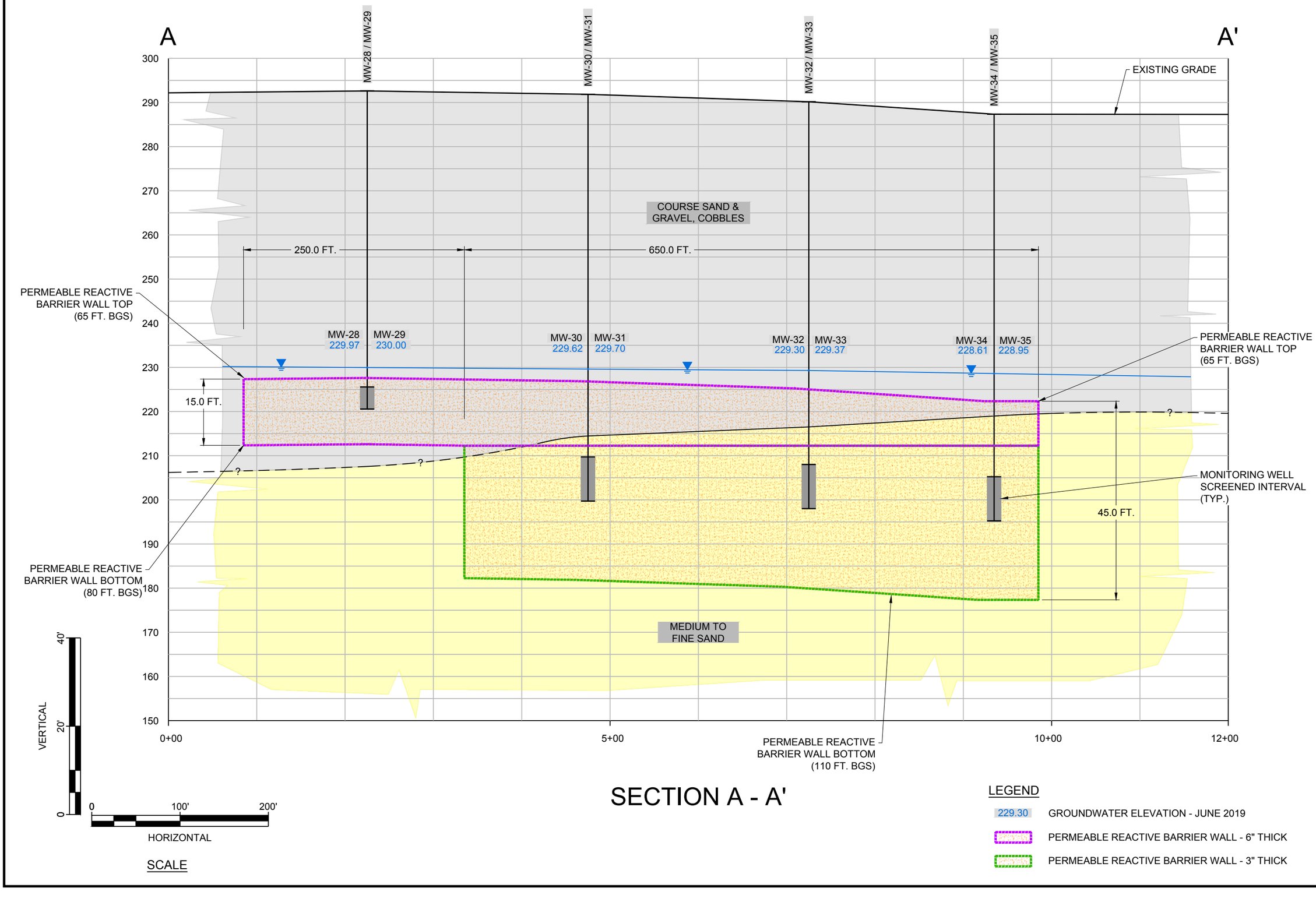
MW-2, MW-23, MW-20, MW-19, MW-21, MW-11R, MW-14, MW-17, MW-22R, MW-36, MW-18, GEP-2, GEP-4, GEP-3, GEP-1, MW-15, MW-28, MW-29, MW-30, MW-31, MW-12R, MW-8, MW-13, MW-24, MW-32, MW-33, MW-25, MW B-3, MW B-1R, MW-26, MW-34, MW-35, MW-5, MW-9, MW-6, MW-27, MW-7, MW-16

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'



SECTION A - A'

LEGEND

229.30 GROUNDWATER ELEVATION - JUNE 2019

PERMEABLE REACTIVE BARRIER WALL - 6" THICK

PERMEABLE REACTIVE BARRIER WALL - 3" THICK

AECOM

Figure: 2-1A

COMPLIANCE MONITORING WELLS AND PRB WALL PROFILE GROUNDWATER SECTION A - A' JUNE 2019

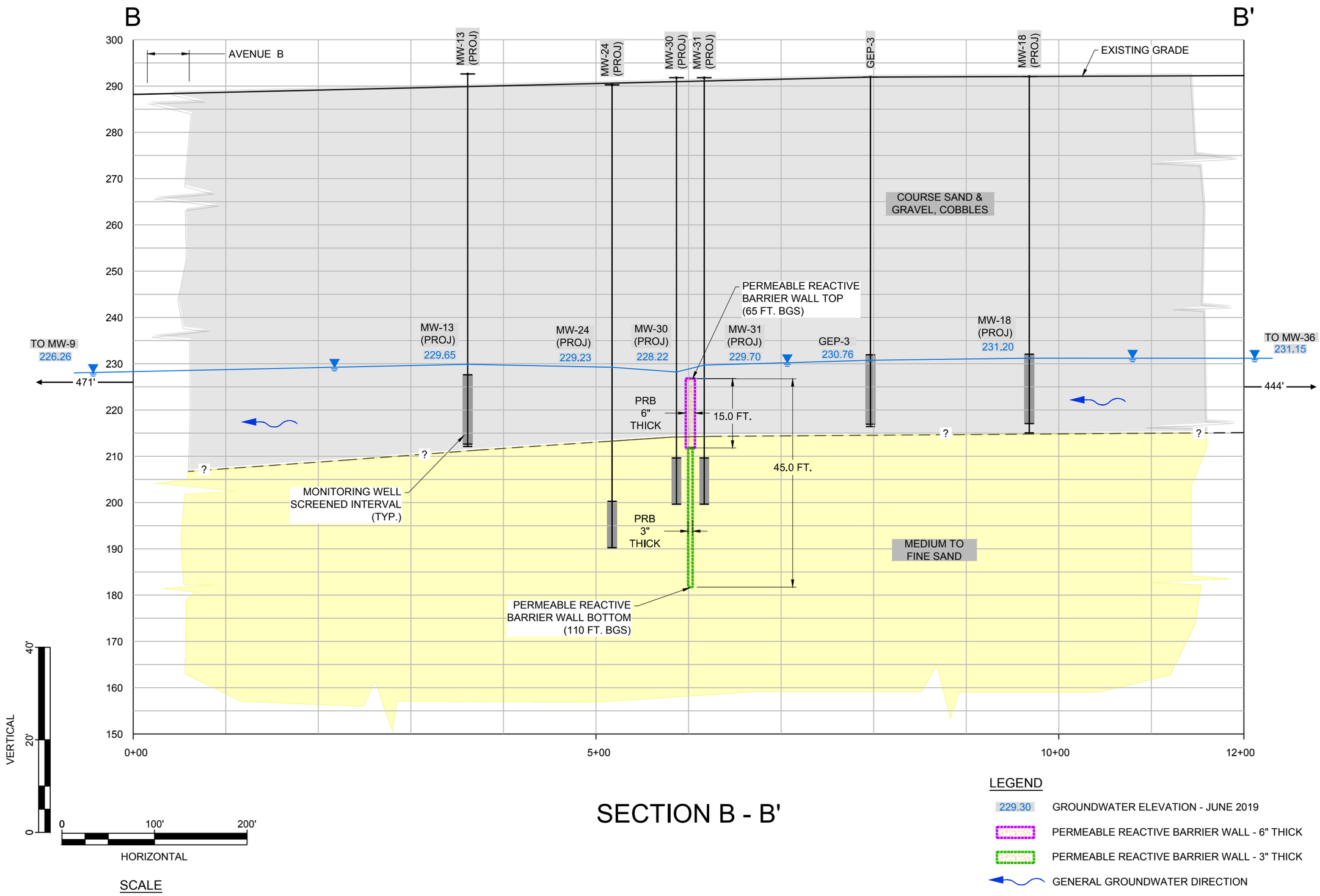
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2019 2ND QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: August 2019



AECOM

Figure: 2-1B

GROUNDWATER
SECTION B - B'
JUNE 2019

US ARMY Corps of Engineers

2018 4th QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2019

LEGEND

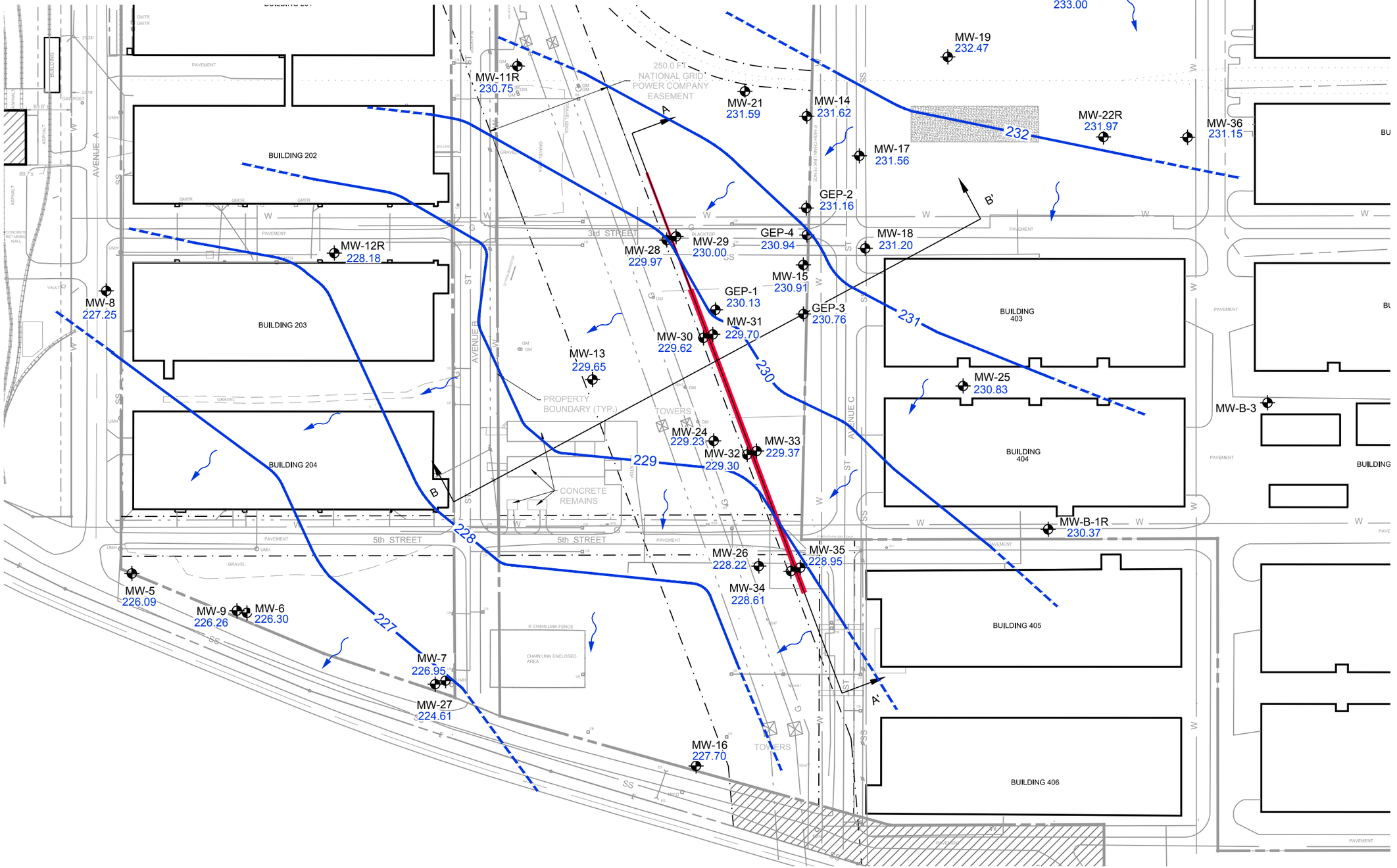
15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS

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

MW-6 MONITORING WELL WITH REPORTED GROUNDWATER ELEVATION (JUNE 2019)

GROUNDWATER CONTOUR - 1 FT. (JUNE 2019) (DASHED WHERE INFERRED)

GENERAL GROUNDWATER DIRECTION



POTENTIOMETRIC SITE MAP
JUNE 2019

AECOM

Figure: 3-1

US ARMY Corps of Engineers

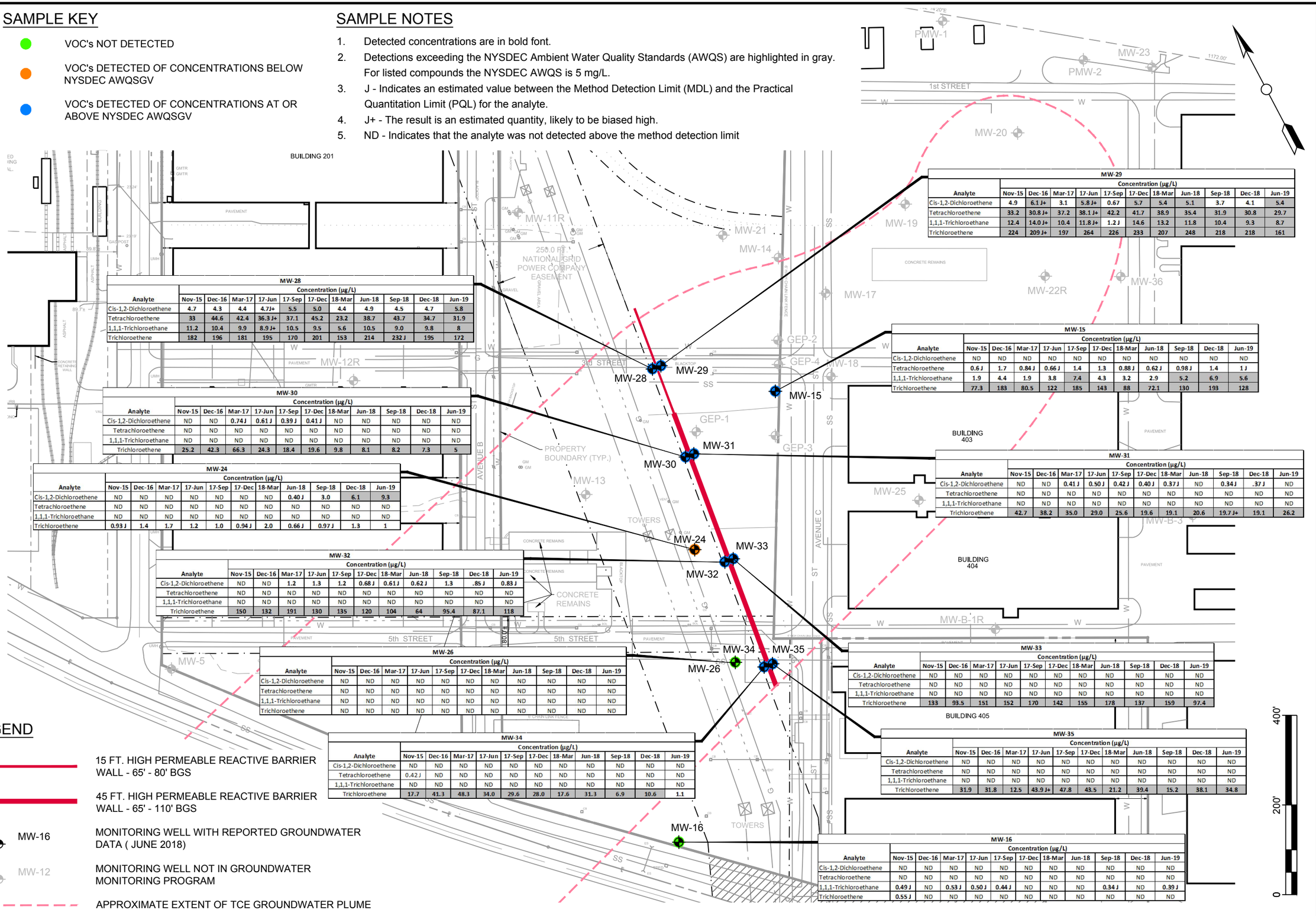
2019 2nd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2019

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	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
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
Tetrachloroethene	33	44.6	42.4	36.3 J+	37.1	45.2	23.2	38.7	43.7	34.7	31.9
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
Trichloroethene	182	196	181	195	170	201	153	214	232 J	195	172

MW-29

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
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
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
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
Trichloroethene	224	209 J+	197	264	226	233	207	248	218	218	161

MW-15

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
Cis-1,2-Dichloroethene	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
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
Trichloroethene	77.3	183	80.5	122	185	143	88	72.1	130	193	128

MW-30

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

MW-31

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
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
Tetrachloroethene	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
Trichloroethene	42.7	38.2	35.0	29.0	25.6	19.6	19.1	20.6	19.7 J+	19.1	26.2

MW-24

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	0.40 J	3.0	6.1	9.3
Tetrachloroethene	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
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

MW-32

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
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
Tetrachloroethene	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
Trichloroethene	150	132	191	130	135	120	104	64	95.4	87.1	118

MW-33

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

MW-26

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

MW-35

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

MW-34

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.42 J	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
Trichloroethene	17.7	41.3	48.3	34.0	29.6	28.0	17.6	31.3	6.9	10.6	1.1

MW-16

Analyte	Concentration (µg/L)										
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	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
Trichloroethene	0.55 J	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 2018)
- MW-12 — MONITORING WELL NOT IN GROUNDWATER MONITORING PROGRAM
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

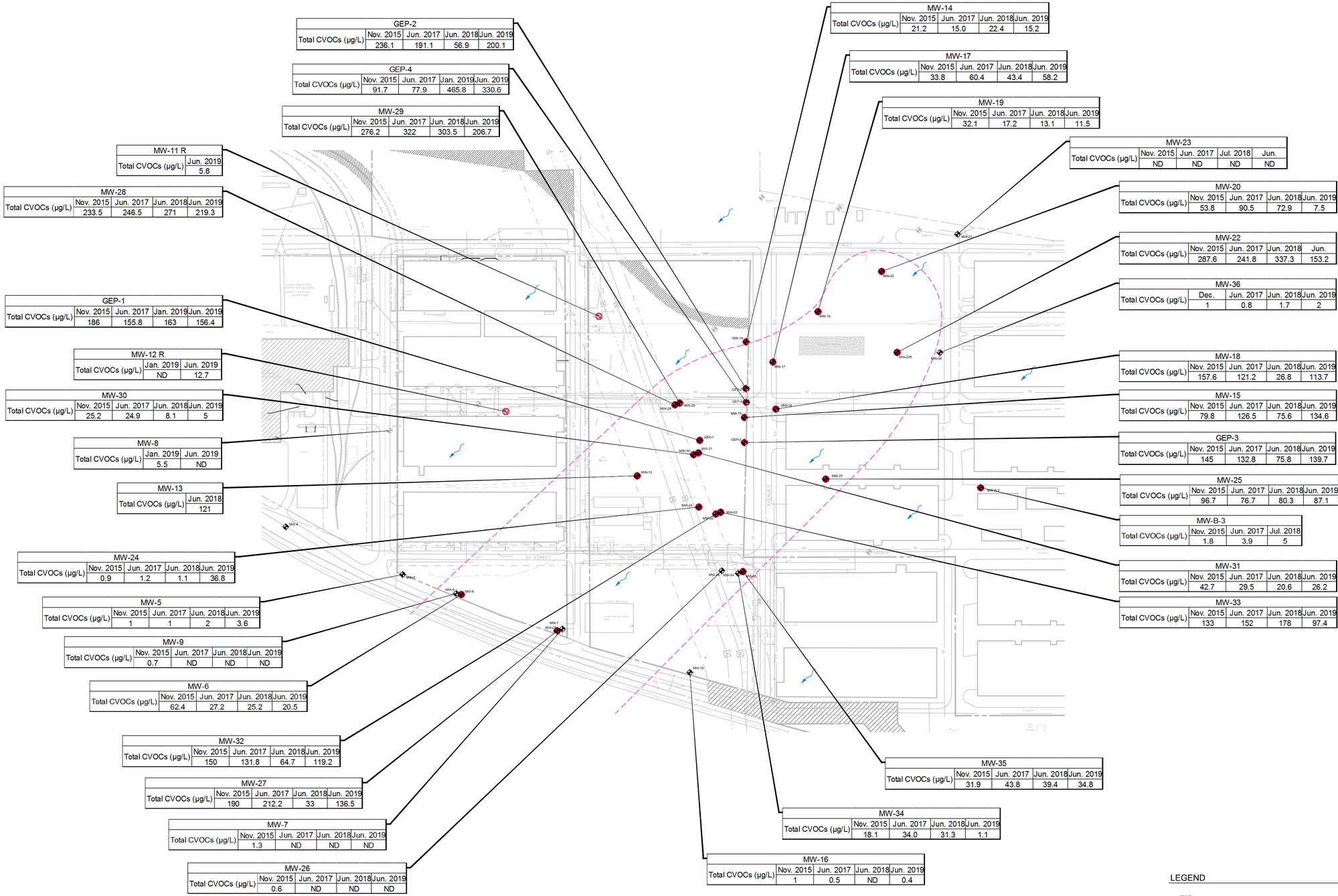
AECOM

Figure: 3-2

GROUNDWATER RESULTS
QUARTERLY MONITORING LOCATIONS
JUNE 2019

US ARMY Corps of Engineers

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



NOTES:

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

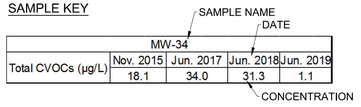
2) NE = COMPOUNDS NOT DETECTED ABOVE NYSDEC AWQS. FOR ALL LISTED COMPOUNDS THE NYSDEC AWQS EXCEEDANCE LEVEL IS 5 mg/L

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



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.

0 200' 400'

AECOM

Figure: 3-3

SITEWIDE GROUNDWATER TOTAL VOC RESULTS
ANNUAL MONITORING LOCATIONS
JUNE 2019

US ARMY
Corps
of Engineers

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

AECOM

Figure: 3-4

TCE ISOPACH CONCENTRATION MAP

0 200' 400'

US ARMY Corps of Engineers

2019 2nd QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: August 2019

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-25 80.3 — MONITORING WELL WITH TCE CONCENTRATION (ug/L)
- 100 — TCE CONCENTRATION ISOPACH INTERVAL (50 ug/L) (DASHED WHERE INFERRED)

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

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	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
B-1	48-68	-	287.14		-	57.34		-		dry	dry	dry	-	**227.74**	**-**	**-**	**229.80**	**-**	**-**	**-**	**-**	**-**	**-**	
B-1R	48-68			287.42									57.05											**230.37**
B-3	47.5-67.5	-	287.05		-	-		-	-	58.61	58.74	59.74	dry	**227.95**	**-**	**-**	**-**	**-**	**-**	**-**	**228.44**	**228.31**	**dry**	**dry**
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	**225.75**	**219.29**	**219.61**	**226.29**	**226.11**	**217.99**	**218.28**	**225.81**	**226.39**	**218.84**	**226.09**
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	**225.86**	**219.80**	**219.80**	**226.55**	**226.31**	**218.39**	**218.62**	**226.01**	**226.47**	**219.26**	**226.30**
MW-7	61-71	286.8	289.26		68.47	61.96	61.95	67.84	68.22	62.80	62.32	66.72	62.31	**226.28**	**223.16**	**220.79**	**227.30**	**227.31**	**221.42**	**221.04**	**226.46**	**226.94**	**222.54**	**226.95**
MW-8				293.03									65.78											**227.25**
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	**225.83**	**219.75**	**219.78**	**226.48**	**226.29**	**218.63**	**218.59**	**225.93**	**226.44**	**219.27**	**226.26**
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											**230.75**
MW-12R	60-80			292.34									64.16											**228.18**
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	**227.32**	**225.43**	**223.95**	**229.60**	**229.45**	**224.99**	**224.13**	**228.10**	**227.86**	**226.34**	**229.65**
MW-14	65-80	-	296.2		70.13	64.88	65.60	69.13	70.17	66.81	67.52	67.18	64.58	**228.08**	**226.56**	**226.07**	**231.32**	**230.60**	**227.07**	**226.03**	**229.39**	**228.68**	**229.02**	**231.62**
MW-15	65-80	-	293.67		68.35	63.07	63.49	67.00	68.20	64.88	65.32	65.42	62.76	**227.8**	**226.27**	**225.32**	**230.60**	**230.18**	**226.67**	**225.47**	**228.79**	**228.35**	**228.25**	**230.91**
MW-16	55-70	-	288.33		66.38	60.7	60.28	63.72	65.13	62.14	61.36	63.17	60.63	**226.39**	**225.38**	**221.95**	**227.63**	**228.05**	**224.61**	**223.20**	**226.19**	**226.97**	**225.16**	**227.70**
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	**228.08**	**226.55**	**225.99**	**231.15**	**230.58**	**227.25**	**226.04**	**229.26**	**228.64**	**228.98**	**231.56**
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	**227.94**	**226.46**	**225.68**	**230.75**	**230.38**	**227.09**	**225.76**	**228.90**	**228.48**	**228.62**	**231.20**
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	**228.43**	**226.85**	**227.13**	**231.93**	**231.25**	**228.04**	**226.87**	**229.87**	**229.01**	**230.17**	**232.47**
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	**228.71**	**227.01**	**227.83**	**232.33**	**231.65**	**228.62**	**227.45**	**230.20**	**229.21**	**230.73**	**233.00**
MW-21	57-72	-	296.52		70.55	65.19	65.40	69.70	-	-	67.85	67.61	64.93	-	-	-	-	-	-	-	-	**228.67**	**228.91**	**231.59**
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											**231.97**
MW-23	63-78	-	300.54		72.14	67.98	68.55	-	-	70.70	71.23	70.76	67.34	**228.9**	**227.06**	**228.40**	**232.56**	**231.99**	**-**	**-**	**229.84**	**229.31**	**229.78**	**233.20**
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	**226.79**	**225.30**	**223.60**	**229.05**	**228.83**	**225.12**	**223.99**	**227.43**	**227.32**	**226.39**	**229.23**
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	**227.16**	**225.82**	**224.82**	**229.65**	**229.69**	**226.70**	**225.13**	**227.78**	**227.67**	**227.84**	**230.83**
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	**226.06**	**224.75**	**222.60**	**228.01**	**228.10**	**224.65**	**223.26**	**226.43**	**226.59**	**225.57**	**228.22**
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	**225.5**	**223.44**	**219.65**	**226.43**	**226.32**	**220.97**	**220.39**	**225.21**	**225.80**	**221.21**	**224.61**
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	**227.07**	**225.41**	**224.31**	**229.79**	**229.19**	**225.53**	**224.44**	**228.07**	**227.62**	**227.01**	**229.97**
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	**227.05**	**225.38**	**224.33**	**229.82**	**229.19**	**225.23**	**224.43**	**228.09**	**227.64**	**227.07**	**230.00**
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	**226.98**	**225.35**	**223.98**	**229.44**	**229.04**	**225.28**	**224.28**	**227.80**	**227.52**	**226.70**	**229.62**
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	**226.95**	**225.40**	**224.12**	**229.52**	**229.11**	**225.40**	**224.34**	**227.84**	**227.55**	**226.85**	**229.70**
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	**226.86**	**225.45**	**223.70**	**229.05**	**228.93**	**225.42**	**224.18**	**227.45**	**227.39**	**226.60**	**229.30**
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	**226.89**	**225.51**	**223.80**	**229.11**	**229.05**	**225.54**	**224.26**	**227.51**	**227.42**	**226.68**	**229.37**
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	**226.73**	**225.48**	**223.35**	**228.66**	**228.77**	**225.51**	**223.89**	**227.03**	**227.21**	**226.37**	**228.61**
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	**226.69**	**225.46**	**223.40**	**228.68**	**228.81**	**225.56**	**224.08**	**227.04**	**227.26**	**226.47**	**228.95**
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	**227.8**	**226.12**	**226.26**	**230.49**	**231.38**	**227.94**	**225.96**	**229.13**	**228.09**	**229.00**	**231.15**
GEP-1	59.6-74.6	-	294.98	295.2	70.55	65.06	-	69.30	70.33	-	-	67.72	65.07	**227.36**	**-**	**224.43**	**229.92**	**-**	**225.68**	**224.65**	**-**	**-**	**227.26**	**230.13**
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	**227.9**	**226.38**	**225.59**	**230.84**	**230.33**	**226.83**	**225.67**	**229.02**	**228.50**	**228.51**	**231.16**
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	**227.81**	**226.31**	**225.26**	**230.50**	**230.12**	**226.67**	**225.43**	**228.72**	**228.35**	**228.11**	**230.76**
GEP-4	60.15-75.15	-	295.62	292.88	70.23	65.01	65.50	68.98	-	-	-	-	61.94	**227.73**	**226.22**	**225.39**	**230.61**	**230.12**	**226.64**	**-**	**-**	**-**	**-**	**230.94**

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
		Upgradient										
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**1.9**	**4.4**	**1.9**	**3.8**	**7.4**	**4.3**	**3.2**	**2.9**	**5.2**	**6.9**	**5.6**
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
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	**0.44 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**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.48 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	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**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**77.3**	**183**	**80.5**	**122**	**185**	**143**	**87.8**	**72.1**	**130**	**193**	**128**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4**	**1.5**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.10**	**0.26**	**0.06 J**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**182**	**212**	**201**	**217**	**229**	**216**	**223**	**209**	**236**	**224**	**169**
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**
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**
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**
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
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
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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	10.4
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

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
		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
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**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	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
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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.55 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
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.15**	NA	**0.07**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	NA	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**248**	**312**	**317**	**322**	**480**	**322**	**295**	**317**	**339**	**321**	**303**
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**
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**
Sulfate (mg/L)	NS	**35.2**	**44.8**	**65.3**	**75.5**	**64.8**	**119**	**123**	**27.3**	**28.7**	**46.0**	**41.9**
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
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
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
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+**
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
Turbidity (NTU)	NS	8.01	14.8	7.71	4.40	199	30.9	8.14	10.77	20.50	1.53	7.58
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.2	10.17
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

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
		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
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.37 J**	0.75 U	0.75 U	**0.55 J**	**26.5**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	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**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.7**	**1.2**	**1.0**	**0.94 J**	**2.0**	**0.66 J**	**0.97 J**	**1.3**	**1.0**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.4**	**1.9**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	**1.4**	**1.1**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**205**	**195**	**282**	**352**	**313**	**159**	**200**	**185**	**134**
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-**
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
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**
Methane (µg/L)	NS	**0.82**	**1.6**	**1.7**	**2.2**	**7.8**	**431**	**927**	**1.3 J+**	**13.9**	**102**	**179**
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**
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**
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+**
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
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
ORP (MeV)	NS	-80.2	-93.2	-111.3	-108.6	-169.9	-83.1	-127.6	-147.3	-162.2	-185.0	-149
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.25
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

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
		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
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	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
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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	**0.57 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
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	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
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	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
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.61**	**0.23**	**1.1**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.43**	**0.029 J**	**0.15**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**204**	**197**	**196**	**223**	**317**	**204**	**196**	**225**	**178**	**179**	**174**
Chloride (mg/L)	NS	**45.2**	**44.9**	**53.4**	**133**	**86.2**	**56.7**	**32.3**	**49.1**	**21**	**48.3**	**32.2**
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
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**
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**
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
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
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**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3	-0.19
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

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
		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
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**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	**0.46 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
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**
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
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**0.61 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**
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**
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**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	**0.47 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
Trichloroethene (TCE)	5	**182**	**196**	**181**	**195**	**170**	**201**	**153**	**214**	**232 J**	**195**	**172**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**3.7**	**2.7**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.045 U	**0.024 J**	0.045 U
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 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**
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**
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
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**
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
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
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
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+**
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
Turbidity (NTU)	NS	209	1.5	2.07	-3	61.1	229.80	8.52	1.32	0.02	0.59	0.02
ORP (MeV)	NS	273	71.2	77.1	97.4	32.1	19.0	-16.3	11.1	120.9	81.7	176.4
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	10.41
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

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-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
		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
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**
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
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
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**
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**
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
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**
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**
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**
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
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
Trichloroethene (TCE)	5	**224**	**209 J**	**197**	**264**	**226**	**233**	**207**	**248**	**218**	**218**	**161**
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
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.8**	**2**	**1.5**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.062 J**	**0.14**	**0.13**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.040 U	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**327**	**301**	**258**	**361**	**374**	**348**	**360**	**370**	**374**	**380**	**342**
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**
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**
Sulfate (mg/L)	NS	**29.2**	**24.9**	**20.1**	**13.8**	**16.1**	**22.7**	**15**	**21**	**11.8**	**21.0**	**12.9**
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
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
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
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**
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
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
ORP (MeV)	NS	-25.1	60.9	46.1	120	41.7	33.7	2.8	52.3	90.9	98.6	169.6
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.6	9.12
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

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
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**25.2**	**42.3**	**66.3**	**24.3**	**18.4**	**19.6**	**9.8**	**8.1**	**8.2**	**7.3**	**5.0**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**12**	**36**	**8.5**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.16**	**0.087**	**0.93**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.040 U	**0.33**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**143**	**319**	**210**	**154**	**104**	**347**	**141**	**58**	**59**	**51**	**65**
Chloride (mg/L)	NS	**38.4**	**182**	**136**	**49.6**	**35.3**	**87.3**	**43.6**	**38.8**	**40.7**	**39.2**	**37.6**
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
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
Methane (µg/L)	NS	**47.4**	**146**	**870**	**3210**	**3560**	**12900**	**5860**	**3700**	**4410**	**3790**	**91.6**
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
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
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**
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
Turbidity (NTU)	NS	58.2	3.55	3.82	3	69.1	16.1	3.12	950.5	0.02	1.36	0.81
ORP (MeV)	NS	-278.4	-166.3	-166.9	-173.3	-212.2	-170.1	-122.8	12.1	-217.6	-208.4	-164
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	-0.41
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

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
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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
		Upgradient										
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**42.7**	**38.2**	**35.0**	**29.0**	**25.6**	**19.6**	**19.1**	**20.6**	**19.7 J+**	**19.1**	**26.2**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**4.1**	**1.9**	**2**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.76**	**0.87**	**0.72**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.04 U	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**178**	**222**	**381**	**150**	**132**	**119**	**143**	**169**	**169**	**172**	**142**
Chloride (mg/L)	NS	**41.9**	**56.6**	**98.5**	**31.0**	**31.7**	**36.3**	**50.6**	**39.9**	**32**	**34.6**	**45.9**
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
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**
Methane (µg/L)	NS	**20.7**	**3.5**	**106**	**56.5**	**29.1**	**59.4**	**34.4**	**120**	**90.6**	**126**	**99.3**
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**
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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.24
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

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well										
		MW-32										
		11/30/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/13/2017	3/14/2018	6/21/2018	9/20/2018	12/19/2018	6/20/2019
		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
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	**0.40 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**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**1.2**	**1.3**	**1.2**	**0.68 J**	**0.61 J**	**0.62 J**	**1.3**	**0.85 J**	**0.83 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
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**150**	**132**	**191**	**130**	**135**	**120**	**104**	**64.1**	**95.4**	**87.1**	**118**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**7.4**	**2.2**	**3.7**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.51**	**1.0**	**0.47**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	**0.024 J**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**196**	**277**	**214**	**129**	**129**	**141**	**162**	**128**	**129**	**158**	**134**
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-**
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
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**
Methane (µg/L)	NS	**6.8**	**16.5**	**309**	**817**	**835**	**233 J**	**583**	**130**	**2650**	**407**	**2190**
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**
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**
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+**
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
Turbidity (NTU)	NS	180	5.92	4.01	5.10	3.91	5.11	1.36	0.02	0.02	1.60	0.02
ORP (MeV)	NS	-234.2	-107.7	-140.7	-238.7	-149.4	-181.9	-106.4	-149.4	-201	-180.0	-165.3
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4	-0.39
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

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
		Upgradient										
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**133**	**93.5**	**151**	**152**	**170**	**142**	**155**	**178**	**137**	**159**	**97.4**
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
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**2.1**	**3.3**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	**0.071**	**0.32**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.045 J**	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**
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**
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**
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**
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**
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
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**
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+**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3	3.82
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

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
		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
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	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
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
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
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**17.7**	**41.3**	**48.3**	**34.0**	**29.6**	**28.0**	**17.6**	**31.3**	**6.9**	**10.6**	**1.1**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.1**	**3.1**	**2.2**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	**0.07**	**0.33 J**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.04 U	**0.18**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**99**	**191**	**597**	**201**	**197**	**203**	**174**	**226**	**183**	**162**	**194**
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-**
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
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
Methane (µg/L)	NS	**14.5**	**1.2**	**1780**	**12.4**	**88.1**	**531**	**1260**	**35**	1.5 U	**737**	**419**
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**
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**
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**
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
Turbidity (NTU)	NS	44.7	3.23	4.59	-4	4.40	4.20	5.63	1.4	0.02	4.26	5.55
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2	-0.15
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

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
		Upgradient										
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	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
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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**31.9**	**31.8**	**12.5**	**43.8 J**	**47.8**	**43.5**	**21.2**	**39.4**	**15.2**	**38.1**	**34.8**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.6**	**2.1**	**1.4**
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.45**	**0.12**	**0.61**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	**0.09**	0.04 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**181**	**223**	**51**	**202**	**192**	**210**	**171**	**197**	**115**	**195**	**174**
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-**
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**
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**
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**
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
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
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+**
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
Turbidity (NTU)	NS	381	5.99	16.3	38.2	31.91	13.81	11.00	25.8	33.8	4.49	12.1
ORP (MeV)	NS	-404	-167.9	-68.4	-10.6	30	0.40	57.10	69.5	65.6	45.4	-37.1
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	1.35
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

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	11/10/2015	6/21/2017	6/20/2018	6/18/2019	11/9/2015	6/23/2017	6/20/2018	6/18/2019	11/9/2015	6/21/2017	1/23/2019	6/18/2019	11/13/2015	6/22/2017	7/18/2018	11/12/2015	6/20/2017	6/19/2018	6/17/2019
		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	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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**	**19.7**	**16.3**	**3.7**	**19.6**	**0.93 J**	**1.2**	**0.58 J**	**2.1**	**5.1**	**4.7**	**18.9**	**13.9**	0.75 U	0.75 U	0.75 U	**0.51 J**	**0.41 J**	0.75 U	**0.48 J**
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
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
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.56 J**	**0.68 J**	0.75 U	**0.92 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
1,1-Dichloroethene (1,1-DCE)	5	**0.43 J**	0.75 U	**0.39 J**	**0.41 J**	**1.1**	**1.1**	0.75 U	**0.69 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.2**	**0.73 J**	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
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	**0.65 J**	**0.39 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**2.0**	**3.1**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.35 J**	**1.2**	**1.8**	**1.1**	**3.3**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.47 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	**1.0**	**0.45 J**	0.75 U	**0.51 J**	**3.5**	**3.2**	**0.80 J**	**4.6**	**1.1**	**0.57 J**	**0.36 J**	**0.55 J**	**0.68 J**	**0.80 J**	**3.6**	**3.2**	**1.8**	**3.9**	**5.0**	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
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
Trichloroethene (TCE)	5	**180**	**152 J+**	**157**	**150**	**210**	**167**	**51.3**	**171**	**143**	**131**	**74.9**	**137**	**85.9**	**72.4**	**441**	**312**	0.75 U	0.75 U	0.75 U	**0.46 J**	**0.58 J**	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	223	NA	NA	NA	**335**	NA	NA	NA	**217**	NA	NA	NA	**227**	NA	NA	NA	**110**	NA	NA	**221**	NA	NA	NA
Chloride (mg/L)	NS	13.2	NA	NA	NA	**5.6**	NA	NA	NA	**15.4**	NA	NA	NA	**22.5**	NA	NA	NA	**155**	NA	NA	**197**	NA	NA	NA
Nitrate (mg/L)	NS	1.0	NA	NA	NA	**0.38 J**	NA	NA	NA	**0.79**	NA	NA	NA	**0.71**	NA	NA	NA	**0.66 J+**	NA	NA	**6.7**	NA	NA	NA
Sulfate (mg/L)	NS	10.2	NA	NA	NA	**9.9**	NA	NA	NA	**10.8**	NA	NA	NA	**13.2**	NA	NA	NA	**25.3**	NA	NA	**36.7 J**	NA	NA	NA
Methane (µg/L)	NS	0.32 J	NA	NA	NA	**0.33 J**	NA	NA	NA	**0.16 J**	NA	NA	NA	**0.4 J**	NA	NA	NA	**0.39 J**	NA	NA	**0.19 J**	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	0.5 U	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	0.75 U	NA	NA	NA
Total Organic Carbon (mg/L)	NS	3.4	NA	NA	NA	**2.9**	NA	NA	NA	**0.47 J**	NA	NA	NA	**2.7**	NA	NA	NA	**5.2**	NA	NA	**7.3**	NA	NA	NA
Field Parameters																								
pH (pH Unit)	NS	7.52	8.31	7.34	7.21	7.18	6.6	7.57	7.16	7.69	7.40	7.40	7.46	7.67	7.39	7.22	7.27	7.86	8.31	7.4	7.37	6.19	7.10	7.50
Turbidity (NTU)	NS	33.1	45.6	5.82	15	28.2	0	107	23	13.9	113.1	78.7	54	41.8	9.4	3.24	7.14	4.95	8	217.9	23.9	4.7	0.02	0.02
ORP (MeV)	NS	141.8	203.5	124.1	251.6	180.3	336.1	61.1	185.1	131.4	171.5	31.2	152.1	110.7	109.9	106.8	262.5	157.4	180.2	218.0	74.3	26.3	85.9	290.8
Conductivity (mS/cm)	NS	0.308	0.396	0.536	0.435	0.371	0.476	0.417	0.543	0.329	0.363	0.364	0.385	0.363	0.51	0.72	0.575	0.461	0.385	0.124	0.654	0.701	1.59	10.73
Dissolved Oxygen YSI (mg/L)	NS	19.53	9.9	-22 *	8.27	30.01	8.63	11.49	8.26	114.75	9.44	8.91	8.19	14.93	5.05	-22.74 *	7.86	19.91	10.1	9.06	17.86	12.4	9.60	4.34
Groundwater Elevation (ft)	NS	224.81	NA	NA	230.13	227.90	230.84	229.02	231.16	227.81	292.97	228.72	230.76	227.73	230.61	NA	230.94	227.95	NA	228.44	225.75	226.29	225.81	226.09

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	11/11/2015	6/20/2017	6/18/2018	6/17/2019	1/23/2019	6/17/2019	11/12/2015	6/20/2017	6/19/2018	6/24/2019
		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
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.1**	**0.77 J**	0.75 J	**0.55 J**	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
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**0.45 J**	**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
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**59.8**	**26**	**24.4**	**19.9**	**1.3**	0.75 U	0.75 U	0.75 U	**3.4 J**	0.75 U	**0.68 J**	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	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	**353**	NA	NA	NA	NA	NA	**186**	NA	NA	NA
Chloride (mg/L)	NS	**28.4**	NA	NA	NA	**26.7**	NA	NA	NA	NA	NA	**12**	NA	NA	NA
Nitrate (mg/L)	NS	**1.7**	NA	NA	NA	**1.1**	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA
Sulfate (mg/L)	NS	**23.2 J**	NA	NA	NA	**15**	NA	NA	NA	NA	NA	**56.7 J**	NA	NA	NA
Methane (µg/L)	NS	0.25 U	NA	NA	NA	**1.7**	NA	NA	NA	NA	NA	**2.7**	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	NA	NA	0.75 U	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**5.5**	NA	NA	NA	**5.5**	NA	NA	NA	NA	NA	**3.3**	NA	NA	NA
Field Parameters															
pH (pH Unit)	NS	7.3	7.30	7.31	7.33	7.76	7.04	7.29	6.58	7.55	7.5	7.82	6.64	6.96	7.54
Turbidity (NTU)	NS	2.76	3.9	0.02	1.39	4.64	7.4	33.8	19.5	0.02	0.02	3.75	0.1	8.11	4
ORP (MeV)	NS	151.8	121.4	111.2	295	165.8	126.4	-46.0	27.1	93.60	295.9	-121.4	-1.0	-22.0	-34.7
Conductivity (mS/cm)	NS	0.317	0.419	0.358	9.23	0.32	0.732	0.85	1.573	0.465	8.25	0.237	0.386	0.39	0.183
Dissolved Oxygen YSI (mg/L)	NS	24.39	8.9	9.98	5.48	11.81	7.38	9.00	8.07	-16.2 *	4.22	0	0.59	0.44	0.45
Groundwater Elevation (ft)	NS	225.86	226.55	226.01	226.30	226.28	227.30	222.54	226.95	NA	227.25	225.83	226.48	225.93	226.26

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	1/23/2019	6/17/2019	6/20/2018	11/12/2015	6/21/2017	6/20/2018	6/18/2019	11/9/2015	12/14/2016	6/21/2017	6/20/2018	6/20/2019	11/11/2015	12/12/2016	6/20/2017	6/19/2018	6/24/2019	11/16/2015	6/23/2017	6/20/2018	6/18/2019
			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
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.53 J**	0.75 U	**2.1**	**4.0**	**3.9**	**1.2**	**2.5**	**1.1**	**1.9**	**4.4**	**3.8**	**2.9**	**5.6**	**0.49 J**	0.75 U	**0.50 J**	0.75 U	**0.39 J**	**17**	**22**	**19.8**	**22.1**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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
1,1-Dichloroethane (1,1-DCA)	5	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	**0.63 J**	**1.1**	**0.84 J**	**0.95 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	**0.44 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
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
Carbon Tetrachloride	5	**5.3**	0.75 U	**4.8**	0.75 U	0.75 U	0.75 U	**0.49 J**	**0.54 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	**0.45 J**	**0.42 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	**2.4**	**0.85 J**	**1.9**	**0.63 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	**1.0**	**2.1**	**1.8**	**2.3**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	**0.79 J**	0.75 U	**10.8**	**10.5**	**13.8**	**10.9**	**0.60 J**	**1.7**	**0.66 J**	**0.62 J**	**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	**0.49 J**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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
Trichloroethene (TCE)	5	0.75 U	0.75 U	**5.0**	**117**	**3.7**	**2.4**	**3.7**	**2.0**	**77.3**	**183**	**122**	**72.1**	**128**	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	**15.2**	**35.2**	**20.5**	**31.9**
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
MNA Parameters																							
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	**<0.50**	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	NA	NA	NA	NA	**242**	NA	NA	NA	**182**	**212**	**217**	**209**	**169**	**248**	**312**	**322**	**317**	**303**	**310**	NA	NA	NA
Chloride (mg/L)	NS	NA	NA	NA	NA	**26.4**	NA	NA	NA	**28.9**	**14.3**	**40.1**	**46.4**	**43.4**	**13.6**	**9.0**	**20.2**	**3.9**	**5.5**	**4.9**	NA	NA	NA
Nitrate (mg/L)	NS	NA	NA	NA	NA	**0.96**	NA	NA	NA	**0.58**	**0.56**	**0.52**	**0.48**	**0.56**	**1.6**	**1.6**	**3.7**	**2**	**1.3**	**0.96**	NA	NA	NA
Sulfate (mg/L)	NS	NA	NA	NA	NA	**21 J**	NA	NA	NA	**12.3**	**12.4**	**20.5**	**15.2**	**12**	**35.2**	**44.8**	**75.5**	**27.3**	**41.9**	**14.3**	NA	NA	NA
Methane (µg/L)	NS	NA	NA	NA	NA	**0.86**	NA	NA	NA	**0.19 J**	0.5 U	0.5 U	**1.3 J+**	1.5 U	0.25 U	0.5 U	0.5 U	1.1 U	**1.5 U**	**0.13 J**	NA	NA	NA
Ethane (µg/L)	NS	NA	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	0.5 U	NA	NA	NA
Ethene (µg/L)	NS	NA	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	0.75 U	NA	NA	NA
Total Organic Carbon (mg/L)	NS	NA	NA	NA	NA	**6**	NA	NA	NA	**0.55 J**	**0.57 J**	**0.21 J**	**0.41 J**	**1.0 U**	**3.6**	**0.96 J**	**0.67 J**	**1.2**	**1.6 J+**	**2.7**	NA	NA	NA
Field Parameters																							
pH (pH Unit)	NS	7.46	7.50	7.36	7.27	7.39	7.28	7.01	7.49	7.73	7.31	7.42	7.62	7.48	7.64	7.27	6.57	7.89	7.19	7.38	7.13	7.15	7.22
Turbidity (NTU)	NS	8.46	0.02	13.8	14.4	136	5	3.80	294	11.1	7	2.1	153.0	4.49	8.01	14.8	4.4	10.77	7.58	9.02	3.1	30.7	11.8
ORP (MeV)	NS	273.5	87.0	58.8	28.5	119.4	122.6	52.1	154	91.4	54.6	114.6	67.2	102	137.6	139.9	298.7	16.2	299.9	118.6	159.7	134.1	143.4
Conductivity (mS/cm)	NS	189.6	0.476	0.991	0.401	0.302	0.479	0.426	0.438	0.358	0.25	0.5	0.369	0.445	0.361	0.388	0.486	0.441	0.218	0.257	0.462	0.423	0.565
Dissolved Oxygen YSI (mg/L)	NS	8.27	-20.24 *	7.77	8.62	14.94	-13.54	6.7	7.26	31.45	8.04	4.9	6.72	7.98	22.27	9.5	10.82	11.71	9.28	16.42	9.99	8.7	8.49
Groundwater Elevation (ft)	NS	230.75	NA	228.18	228.10	228.08	231.32	229.39	231.62	227.80	226.27	230.60	228.79	230.91	226.39	225.38	227.63	226.19	227.70	228.08	231.15	229.26	231.56

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	11/16/2015	6/21/2017	6/19/2018	6/18/2019	11/17/2015	6/22/2017	6/19/2018	6/21/2019	11/16/2015	6/22/2017	6/21/2018	6/21/2019	11/17/2015	6/22/2017	7/18/2018	6/21/2019
		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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.7**	**2.4**	0.75 U	**2.5**	**2.1**	**2.9**	**1.7**	**2.5**	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	0.75 U
Tetrachloroethene (PCE; PERC)	5	**1.6**	**1.8**	0.75 U	**1.2**	0.75 U	0.75 U	0.75 U	0.75 U	**1.5**	**3.7**	**3.0**	**0.47 J**	**5.6**	**3.8 J**	**6.3**	**5.2**	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	0.75 U
Trichloroethene (TCE)	5	**153**	**117**	**26.8**	**110**	**30**	**14.3**	**11.4**	**9.0**	**52.3**	**86.8**	**69.9**	**7.0 J**	**282**	**238**	**331**	**148**	0.75 U	0.75 U	1 UJ	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 UJ	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	1 UJ	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
Acetylene	NS	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	**267**	NA	NA	NA	**260**	NA	NA	NA	**246**	NA	NA	NA	**211**	NA	NA	NA
Chloride (mg/L)	NS	**16.9**	NA	NA	NA	**3.9**	NA	NA	NA	**2.3**	NA	NA	NA	2 U	NA	NA	NA	**27.6**	NA	NA	NA
Nitrate (mg/L)	NS	0.50 U	NA	NA	NA	**0.48**	NA	NA	NA	**0.74**	NA	NA	NA	**4.5**	NA	NA	NA	**0.66**	NA	NA	NA
Sulfate (mg/L)	NS	**13.2**	NA	NA	NA	**9.8**	NA	NA	NA	**7.7 J**	NA	NA	NA	**7.2**	NA	NA	NA	**30.4 J**	NA	NA	NA
Methane (µg/L)	NS	**1.1**	NA	NA	NA	**0.65**	NA	NA	NA	**1.4 J**	NA	NA	NA	0.25 U	NA	NA	NA	**0.17 J**	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**9.5**	NA	NA	NA	**5**	NA	NA	NA	**3.9**	NA	NA	NA	**2.2**	NA	NA	NA	**2.5**	NA	NA	NA
Field Parameters																					
pH (pH Unit)	NS	7.72	7.03	7.82	7.5	7.62	7.82	6.87	7.29	7.40	7.83	7.08	7.42	7.63	7.18	7.57	7.72	7.53	6.60	7.43	7.38
Turbidity (NTU)	NS	40.1	3.8	2.33	2.08	35.4	19.4	30.8	13.6	85.7	26.3	30.8	4.25	3.79	40.1	120	57.9	13	15.1	Over Range	10.2
ORP (MeV)	NS	88.7	298.7	38.5	271.3	93.0	297.8	141.6	285.1	184.8	136.1	103.5	95.5	115.6	178.4	88.6	81.7	134.3	169.4	189.4	269.4
Conductivity (mS/cm)	NS	0.301	0.394	0.402	0.438	0.244	0.428	0.382	0.523	0.264	0.36	0.331	0.447	0.224	0.36	0.342	0.392	0.273	0.405	0.463	0.173
Dissolved Oxygen YSI (mg/L)	NS	18.46	6.33	12.25	7.58	14.23	8.82	8.80	7.87	17.61	9.46	9.55	9.12	16.55	11.11	9.92	8.06	12.71	9.07	9.07	10.42
Groundwater Elevation (ft)	NS	227.94	230.75	228.90	231.20	228.43	231.93	229.87	232.47	228.71	232.33	230.20	233.00	228.29	231.27	229.26	231.97	228.90	232.56	229.84	233.20

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	11/16/2015	6/21/2017	6/21/2018	6/21/2019	11/17/2015	12/13/2016	6/26/2017	6/20/2018	6/20/2019	11/11/2015	6/23/2017	6/19/2018	6/17/2019	12/2/2015	6/22/2017	6/21/2018	6/21/2019
		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	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
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
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	**0.81 J**	**0.73 J**	**0.34 J**	**0.49 J**	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
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	**26.5**	0.75 U	0.75 U	0.75 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	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
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
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.40 J**	**9.3**	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	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	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	**0.57 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	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.2**	**0.66 J**	**1.0**	**96.7**	**76.7**	**80.3**	**87.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**189**	**211**	**32.6**	**136**	**1.0**	**0.81 J**	**1.7**	**2.0**
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
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
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**195**	**159**	**134**	**198**	NA	NA	NA	**204**	**197**	**223**	**225**	**174**	**282**	NA	NA	NA	**197**	NA	NA	NA
Chloride (mg/L)	NS	**36.3**	**38.5**	**41.0**	**37.1**	**29.1 J-**	**16.3**	NA	NA	NA	**45.2**	**44.9**	**133**	**49.1**	**32.2**	**13.8**	NA	NA	NA	**46.6**	NA	NA	NA
Nitrate (mg/L)	NS	**0.90**	0.06 U	0.2 U	0.06 U	0.06 U	**0.52**	NA	NA	NA	0.06 U	**0.04 J**	0.02 U	0.06 U	0.06 U	**1.2**	NA	NA	NA	0.06 U	NA	NA	NA
Sulfate (mg/L)	NS	**15.5**	**21.4**	**22.1**	**21.5**	**3**	**9**	NA	NA	NA	**25.1**	**24.6**	**20.9**	**16.3**	**9.5**	**22**	NA	NA	NA	**21.2 J-**	NA	NA	NA
Methane (µg/L)	NS	**0.82**	**1.6**	**2.2**	**1.3 J+**	**179**	**0.45 J**	NA	NA	NA	**34.8**	**2.7**	**2.1**	**80**	**112**	**0.24 J**	NA	NA	NA	**25.6**	NA	NA	NA
Ethane (µg/L)	NS	**0.34 J**	0.5 U	0.5 U	0.5 U	**14.7**	0.5 U	NA	NA	NA	0.50 U	0.5 U	0.5 U	0.5 U	3.3 U	0.5 U	NA	NA	NA	**2.7**	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	0.75 U	0.8 U	**0.2 J**	**1.7 J**	0.75 U	NA	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	0.75 U	NA	NA	NA	**1.2 J**	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**0.79 J**	**4.5**	**2 J+**	**5.6**	NA	NA	NA	**9.3**	**2.6**	**30.7**	**0.5 J**	**6.4**	**2.9**	NA	NA	NA	**1.7**	NA	NA	NA
Field Parameters																							
pH (pH Unit)	NS	7.75	7.22	7.78	7.95	7.53	7.85	7.51	7.80	7.47	7.52	7.22	7.23	7.57	7.6	7.50	7.87	7.31	7.1	7.76	8.05	7.86	7.61
Turbidity (NTU)	NS	9.33	13.9	35.2	19.5	1.74	30.9	1.5	128	8.98	68.3	21.8	0.4	36.2	9.3	86.8	1.9	2.60	4.48	66.7	6.3	17.2	0.26
ORP (MeV)	NS	-80.2	-93.2	-108.6	-147.3	-149	85.4	97.5	101.1	200.3	-103.6	-28.9	-26.9	-75.3	-108.6	169.9	310.7	3.10	4.48	-224.3	-71.7	85.5	160.4
Conductivity (mS/cm)	NS	0.327	0.57	0.365	0.204	0.333	0.201	0.446	0.349	0.2	0.324	0.59	0.63	0.415	0.423	0.411	0.429	0.58	114.17	0.282	0.422	7.86	0.215
Dissolved Oxygen YSI (mg/L)	NS	0.94	0.44	1.2	11.71	0.29	11.25	4.6	7.6	8.22	0	0.33	0.62	1.38	0.3	21.89	5.3	1.31	1.07	5.29	1.08	3.27	2.33
Groundwater Elevation (ft)	NS	226.79	225.30	229.05	227.43	229.23	227.16	229.65	227.78	230.83	226.06	224.75	228.01	226.43	228.22	225.50	226.43	221.21	224.61	227.80	230.49	229.13	231.15

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	12/1/2015	12/14/2016	6/27/2017	6/22/2018	6/19/2019	12/1/2015	12/13/2016	6/26/2017	7/18/2018	6/19/2019	12/1/2015	12/14/2016	6/26/2017	6/21/2018	6/19/2019
		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	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
1,1,1-Trichloroethane (1,1,1-TCA)	5	**11.2**	**10.4**	**8.9 J+**	**10.5**	**8.0**	**12.4**	**14.0** J+	**11.8 J+**	**11.8**	**8.7**	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
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 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
1,1,2-Trichloroethane	1	**0.46 J**	0.75 U	1.0 U	**0.44 J**	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
1,1-Dichloroethane (1,1-DCA)	5	**1.0**	**0.77 J**	**1.0 J+**	**0.86 J**	**1.2**	**0.97 J**	3.8 U	**1.0 J+**	**0.84 J**	**1.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.53 J**	**0.43 J**	**0.38 J**	**0.39 J**	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
1,2-Dichloroethane (EDC)	0.6	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
Carbon Tetrachloride	5	**0.61 J**	0.75 U	0.75 U	**0.75 J**	**0.36 J**	0.75 U	3.8 U	0.75 U	**0.82 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
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.7**	**4.3**	**4.7 J+**	**4.9**	**5.8**	**4.9**	**6.1** J+	**5.8 J+**	**5.1**	**5.4**	0.75 U	0.75 U	**0.61 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.50 J**	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**36.3 J+**	**38.7**	**31.9**	**33.2**	**30.8** J+	**38.1 J+**	**35.4**	**29.7**	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
Toluene	5	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
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	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
Trichloroethene (TCE)	5	**182**	**196**	**195**	**214**	**172**	**224**	**209** J+	**264**	**248**	**161**	**25.2**	**42.3**	**24.3**	**8.1**	**5.0**	**42.7**	**38.2**	**29.0**	**20.6**	**26.2**
Vinyl Chloride (VC)	2	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
MNA Parameters																					
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	**8.5**	NA	NA	NA	NA	**2**
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	1.0 U	**<0.50**	NA	NA	NA	1.0 UJ	**<0.50**	NA	NA	NA	1 U	**<0.50**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**352**	**316**	**352**	**422**	**325**	**327**	**301**	**361**	**370**	**342**	**143**	**319**	**154**	**58**	**65**	**178**	**222**	**150**	**169**	**142**
Chloride (mg/L)	NS	**22.1**	**32.4**	**29.0**	**33.1**	**41.6**	**28.2**	**28.4**	**49.4**	**28**	**38.9**	**38.4**	**182**	**49.6**	**38.8**	**37.6**	**41.9**	**56.6**	**31**	**39.9**	**45.9**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**1.5**	**0.58**	0.20 U	**0.1 J**	**0.26**	**1.3 J**	**0.38**	**0.26**	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
Sulfate (mg/L)	NS	**22.4**	**20.9**	**13.0**	**23.1**	**13.6**	**29.2**	**24.9**	**13.8**	**21**	**12.9**	**35.9**	**2.9**	2.0 U	**0.34 J**	2.0 U	**26.3**	**10.9**	**5.6**	**7.8**	**10.2**
Methane (µg/L)	NS	**3.4**	**3.0**	**1.0**	**1800**	1.5 U	**13.9**	**0.62**	0.05 U	**210**	1.5 U	**47.4**	**146**	**3210**	**3700**	**91.6**	**20.7**	**3.5**	**56.5**	**120**	**99.3**
Ethane (µg/L)	NS	0.5 U	**3.6**	0.5 U	0.5 U	3.3 U	**0.81 J**	0.5 U	0.5 U	0.5 U	3.3 U	**4.7**	**5.4**	**36.7**	**52**	3.3 U	**2.2**	**1.5**	**2.7**	**5.7**	**3.0 J**
Ethene (µg/L)	NS	0.75 U	**1.3 J**	0.75 U	0.75 U	2.4 U	**0.59 J**	0.75 U	0.75 U	0.75 U	2.4 U	**2.2**	**3.3**	**12.7**	**6.3**	2.4 U	**0.91 J**	**0.84 J**	**3.2**	**2.4**	2.4 U
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.76 J**	**4.1**	**1.6 J+**	**2.3**	**1.4**	**0.92 J**	**3.2**	**5.3**	**2.2**	**225**	**75.2**	**9.7 J**	**7.7**	**2.1**	**43.9**	**2.8**	**2.1**	1.0 U
Field Parameters																					
pH (pH Unit)	NS	6.83	7.03	7.05	7.33	6.84	7.06	7.02	7.02	7.33	6.96	8.91	6.83	7.77	8.28	7.8	7.80	7.20	9.79	7.83	7.8
Turbidity (NTU)	NS	209	1.5	-3	1.32	0.02	82.4	0.62	2.8	15.2	3.43	58.2	3.55	3	950.5	0.81	51.7	8.03	4.6	2.6	0.69
ORP (MeV)	NS	273.2	71.2	97.4	11.1	176.4	-25.1	60.9	120.2	52.3	169.6	-278.4	-166.3	-173.3	12.1	-164	-319.7	-163.1	-283.2	-155.1	-165.3
Conductivity (mS/cm)	NS	0.324	0.366	0.554	7.33	0.613	0.325	0.354	0.619	0.61	0.63	0.21	1.41	0.32	0.238	0.23	0.243	0.348	0.28	0.324	0.402
Dissolved Oxygen YSI (mg/L)	NS	6.75	3.94	7.59	0.63	0.89	4.29	6.17	7.12	2.98	2.23	3.7	0.29	0.48	0.98	0.28	1.29	0.28	0.7	0.22	0.15
Groundwater Elevation (ft)	NS	227.07	225.41	229.79	228.07	229.97	227.05	225.38	229.82	228.09	230.00	226.98	225.35	229.44	227.80	229.62	226.95	225.40	229.52	227.84	229.70

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	11/24/2015	12/14/2016	6/26/2017	6/21/2018	6/19/2019	11/24/2015	12/13/2016	6/26/2017	6/20/2018	6/20/2019	11/24/2015	12/15/2016	6/26/2017	6/20/2018	6/20/2019
		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
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
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
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
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
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
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
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
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	**1.2**	**1.3**	**0.62 J**	**0.83 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
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	**0.42 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
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
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
Trichloroethene (TCE)	5	**150**	**191**	**130**	**64.1**	**118**	**133**	**93.5**	**152**	**178**	**97.4**	**17.7**	**41.3**	**34.0**	**31.3**	**1.1**	**31.9**	**31.8**	**43.8 J+**	**39.4**	**34.8**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	**3.3**	NA	NA	NA	NA	**2.2**	NA	NA	NA	NA	**1.4**
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	1 U	**<0.50**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**196**	**214**	**129**	**128**	**134**	**172**	**218**	**205**	**215**	**172**	**99**	**191**	**201**	**226**	**194**	**181**	**223**	**202**	**197**	**174**
Chloride (mg/L)	NS	**35.6**	**84.6**	**38.0**	**29.5**	**24.1 J-**	**41.8**	**43.2**	**22.8**	**22.5**	**21.2**	**48.5**	**62.3**	**15.7**	**16.3**	**6.6 J-**	**42.2**	**53.9**	**17.1**	**15.7**	**21.2 J-**
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	**0.32**	**0.42**	**0.42**	**0.56**	**0.06 J**	0.2 U	0.06 U	0.06 U	0.06 U	**0.040 J**	**0.66**	**0.64**	**0.38**
Sulfate (mg/L)	NS	**21.1**	**0.68 J**	2 U	**2.3**	**8.6**	**25.1**	**8.2**	**11.8**	**14.3**	**10.9**	**64.3**	**23.8**	**13.4**	**11.2**	2.0 U	**48.1**	**7.2**	**13.6**	**10.7**	**9.8**
Methane (µg/L)	NS	**6.8**	**309**	**817**	**130**	**2190**	**64**	**3.4**	**16**	**17**	**4.7**	**14.5**	**1.2**	**12.4**	**35**	**419**	**13.8**	**0.90**	**7.2**	**23**	**38.3**
Ethane (µg/L)	NS	**0.5 J**	**19.3**	**35.9**	**2**	**12.1**	**7**	**0.25 J**	0.5 U	0.5 U	3.3 U	**2.2**	0.5 U	0.5 U	0.5 U	**0.77 J**	**2.9**	0.5 U	0.5 U	0.5 U	3.3 U
Ethene (µg/L)	NS	0.75 U	**10.3**	**15.6**	**0.25 J**	**1.7 J**	**3.6**	**0.48 J**	0.75 U	0.75 U	**1.2 J**	**1.8**	0.75 U	0.75 U	0.75 U	**1.1 J**	**1.6**	0.75 U	0.75 U	0.75 U	2.4 U
Total Organic Carbon (mg/L)	NS	**2.6**	**98**	**22**	**6.4**	**1.4 J+**	**8.1**	**30.9**	**0.54 J**	**1.6**	**1.8 J+**	**5.9**	**12**	**3.3**	**0.93 J**	**8.3**	**7.7**	**18.3**	**0.75** J	**0.6 J**	**1.2 J+**
Field Parameters																					
pH (pH Unit)	NS	8.00	7.54	9.28	8.03	7.77	8.39	7.18	8.8	7.66	7.21	12.68	7.14	7.26	7.30	8.91	9.68	7.09	7.66	7.55	7.42
Turbidity (NTU)	NS	180	4.01	5.1	0.02	0.02	23.1	9.31	3.4	2.78	7.84	44.7	3.23	-4	1.4	5.55	381	5.99	38.2	25.8	12.1
ORP (MeV)	NS	-234.2	-140.7	-238.7	-149.4	-165.3	-471.2	-126.8	44.9	17.6	2.8	-185.4	-8.4	-139.4	-76.3	-140.1	-404	-167.9	-10.6	69.5	-37.1
Conductivity (mS/cm)	NS	0.239	0.64	0.261	0.206	0.32	0.247	0.303	0.35	0.382	0.374	0.361	0.63	0.332	0.332	0.368	0.287	0.329	0.324	0.335	0.361
Dissolved Oxygen YSI (mg/L)	NS	0.64	1.77	2.5	8.26	0.3	0.92	0.41	2.99	3.41	0.65	6.9	1.12	0.46	1.31	0.35	0.79	0.41	3.67	3.54	1.82
Groundwater Elevation (ft)	NS	226.86	223.70	229.05	227.45	229.30	226.89	225.51	229.11	227.51	229.37	226.73	225.48	228.66	227.03	228.61	226.69	225.46	228.68	227.04	228.95

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: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-5 Date: 06/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-5 061719 QA/QC Collected? MS/MSD

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	74.82	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.89	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						
Time	24 hr	1635	1640	1645	1650	1655	1700	1705
Water Level (0.33)	feet	63.89	63.79	63.80	63.79	63.80	63.79	63.78
Volume Purged	gal	.15	.30	.91	1.10	1.15	1.30	1.51
Flow Rate	mL/min	310	310	310	310	310	310	310
Turbidity (+/- 10%) .58	NTU	~~[illegible]~~	1.65	0.50	.02	.02	.02	.02
Dissolved Oxygen (+/- 10%)	%	87.1	83.6	81.4	80.6	80.9	80.4	80.4
Dissolved Oxygen (+/- 10%)	mg/L	4.25	4.29	4.38	4.39	4.38	4.36	4.34
Eh / ORP (+/- 10)	MeV	273.1	276.7	282.9	288.0	289.0	290.0	290.8
Specific Conductivity (+/- 3%)	mS/cm[c]	1324	1334	1291	1295	1295	1302	1301
Conductivity (+/- 3%)	mS/cm	11.95	11.43	10.77	10.61	10.68	10.74	10.73
pH (+/- 0.1)	pH unit	7.52	7.52	7.50	7.50	7.50	7.51	7.50
Temp (+/- 0.5)	C°	21.2	19.5	16.5	15.7	15.8	15.9	15.9
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None
Dissolved Oxygen Downhole	%	105.3	104.9	104.6	104.2	104.1	103.8	103.4
Dissolved Oxygen Downhole	mg/L	11.02	11.03	11.03	11.01	10.99	10.99	10.94

Comments:

Sample @ 1710

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-6 Date: 06/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-6 061719 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	71.51	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.19	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

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

Conversion factors to determine V given C

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

Water Quality Readings Collected Using YSI Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1330	1335	1340	1345	1350	1355 ✓	1400 ✓	1405 ✓
Water Level (0.33)	feet	62.15	62.19	62.14	62.11	62.14	62.15	62.14	62.11
Volume Purged	gal	.04	.61	.81	1.00	1.15	1.41	1.69	1.89
Flow Rate	mL/min	270	270	270	270	270	270	270	270
Turbidity (+/- 10%)	NTU	3.04	4.08	1.71	2.67	1.71	1.65	1.43	1.91
Dissolved Oxygen (+/- 10%)	%	91.6	90.0	88.7	89.1	89.6	90.8	91.0	92.0
Dissolved Oxygen (+/- 10%)	mg/L	5.52	5.41	5.37	5.35	5.36	5.39	5.44	5.48
Eh / ORP (+/- 10)	MeV	255.8	267.1	276.2	285.9	287.9	290.6	293.0	295.0
Specific Conductivity (+/- 3%)	mS/cm^c	1050	1065	1073	1092	1089	1092	1102	1101
Conductivity (+/- 3%)	mS/cm	8.98	9.02	9.02	9.11	9.15	9.22	9.16	9.23
pH (+/- 0.1)	pH unit	7.34	7.33	7.33	7.33	7.33	7.33	7.33	7.33
Temp (+/- 0.5)	C°	17.4	17.1	16.6	16.5	16.4	16.8	16.3	16.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	104.6	104.2	103.8	103.6	103.6	103.6	103.6	103.4
Dissolved Oxygen Downhole	mg/L	11.25	11.26	11.25	11.27	11.27	11.27	11.27	11.27

Comments:

sample @ 1410

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-7 Date: 06/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-7 061719 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	112.56	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.98	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1110	1115	1120	1125	1130	1135	1140	1145
Water Level (0.33)	feet	66.16	66.29	66.25	66.30	66.25	66.30	66.32	66.30
Volume Purged	gal	.5	1.10	1.41	1.75	1.90	2.01	2.41	2.67
Flow Rate	mL/min	270	270	270	270	270	270	270	270
Turbidity (+/- 10%)	NTU	7.50	6.22	6.36	5.91	5.31	5.11	5.09	4.48
Dissolved Oxygen (+/- 10%)	%	17.2	16.9	17.5	18.5	20.4	20.4	20.7	20.4
Dissolved Oxygen (+/- 10%)	mg/L	.90	.88	.89	.93	1.04	1.05	1.06	1.07
Eh / ORP (+/- 10)	MeV	181.6	199.7	205.5	211.1	220.5	222.3	227.7	4.48
Specific Conductivity (+/- 3%)	mS/cm[c]	120.7	120.55	120.44	120.77	120.59	120.91	120.11	120.82
Conductivity (+/- 3%)	mS/cm	112.54	111.49	115.81	116.71	114.23	114.95	114.13	114.17
pH (+/- 0.1)	pH unit	7.06	7.07	7.07	7.07	7.08	7.09	7.09	7.10
Temp (+/- 0.5)	C°	21.5	21.4	22.9	23.2	22.2	22.3	22.3	22.7
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	98.4	98.5	98.5	98.5	98.5	98.5	98.5	98.5
Dissolved Oxygen Downhole	mg/L	10.53	10.56	10.56	10.57	10.57	10.57	10.57	10.57

Comments:

Sample time @ 1155

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-8 Date: 06/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-8 061719 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth: 75.85 feet
2. D = Riser Diameter (I.D.): ~~65.78~~ feet
3. W = Depth to Water: 65.78 feet
4. C = Column of Water in Well: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. 3(V) = Target Purge Volume _____ gal

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

Conversion factors to determine V given C

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

Water Quality Readings Collected Using YSI Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1510	1515	1520	1525	1530	1535	1540	1545
Water Level (0.33)	feet	65.81	65.91	65.71	65.70	65.64	65.61	65.61	65.60
Volume Purged	gal	.4	.8	1.00	1.15	1.30	2.01	2.17	2.31
Flow Rate	mL/min	251	251	251	251	251	251	251	251
Turbidity (+/- 10%)	NTU	2.28	1.00	0.58	.02	.02	.04	.05	.02
Dissolved Oxygen (+/- 10%)	%	70.0	67.7	67.6	67.0	66.7	66.2	66.9	66.5
Dissolved Oxygen (+/- 10%)	mg/L	4.38	4.31	4.28	4.27	4.26	4.22	4.26	4.22
Eh / ORP (+/- 10)	MeV	274.1	282.9	287.8	290.0	292.6	294.1	295.0	295.9
Specific Conductivity (+/- 3%)	mS/cm[c]	9995	9932	9916	9925	9921	9913	9915	9920
Conductivity (+/- 3%)	mS/cm	8.39	8.24	8.26	8.25	8.20	8.23	8.23	8.25
pH (+/- 0.1)	pH unit	7.53	7.51	7.50	7.50	7.50	7.50	7.50	7.50
Temp (+/- 0.5)	C°	16.6	16.0	16.3	16.1	15.9	16.1	16.1	16.1
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	80.1	79.9	80.0	80.0	80.1	80.1	80.1	80.2
Dissolved Oxygen Downhole	mg/L	8.48	8.47	8.48	8.49	8.50	8.50	8.50	8.50

Comments:

sample @ 1550

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-9 Date: 06/24/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-9 062419 QA/QC Collected? ———

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	120	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.20	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1650	1655	1700	1705	1710	1715	1720
Water Level (0.33)	feet	62.20	62.24	62.24	62.23	62.10	62.15	62.14
Volume Purged	gal	.70	1.40	.30	.45	.60	.75	1.15
Flow Rate	mL/min	130	130	130	130	130	130	130
Turbidity (+/- 10%)	NTU	8.3	4.48	3.38	3.32	3.86	4.21	4.00
Dissolved Oxygen (+/- 10%)	%	70.6	14.6	7.1	5.6	5.2	4.8	4.5
Dissolved Oxygen (+/- 10%)	mg/L	6.29	1.41	.70	.55	.51	.47	.45
Eh / ORP (+/- 10)	MeV	118.1	-3.0	-26.6	-27.1	-31.6	-32.5	-34.7
Specific Conductivity (+/- 3%)	mS/cm[c]	225.0	223.2	222.0	222.0	221.9	221.1	221.2
Conductivity (+/- 3%)	mS/cm	212.4	189.0	184.7	184.9	183.9	183.1	183.3
pH (+/- 0.1)	pH unit	7.57	7.48	7.50	7.51	7.52	7.52	7.54
Temp (+/- 0.5)	C°	26.5	17.0	16.4	16.2	16.0	16.0	16.0
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	1.7	.8	.7	.6	.6	.5	.6
Dissolved Oxygen Downhole	mg/L	.19	.08	.08	.07	.07	.06	.07

Comments:

Sample @ 1725

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-27 Date: 6/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-27 06719 QA/QC Collected? No

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	69.34	feet
2. D = Riser Diameter (I.D.):	2"	feet
3. W = Depth to Water:	62.31	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1235	1240	1245	1250	1255	1300	1305	1310
Water Level (0.33)	feet	62.25	62.30	62.31	62.33	62.26	62.37	62.25	62.34
Volume Purged	gal	0.25	0.30	0.10	0.15	0.10	0.15	0.10	0.10
Flow Rate	mL/min	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
Turbidity (+/- 10%)	NTU	10.3	18.7	23.1	28.4	30.9	27.4	24.7	19.5
Dissolved Oxygen (+/- 10%)	%	81.5	81.5	82.0	81.1	81.3	81.6	82.1	81.5
Dissolved Oxygen (+/- 10%)	mg/L	8.07	8.07	8.10	8.05	8.03	8.08	8.11	8.07
Eh / ORP (+/- 10)	MeV	-2.0	4.3	12.7	17.1	20.9	22.4	25.5	27.1
Specific Conductivity (+/- 3%)	mS/cm^c_i	1956	1976	2026	1987	1956	1939	1935	1925
Conductivity (+/- 3%)	mS/cm	1.574	1.603	1.611	1.615	1.602	1.589	1.585	1.573
pH (+/- 0.1)	pH unit	6.61	6.57	6.56	6.57	6.57	6.58	6.58	6.58
Temp (+/- 0.5)	C°	15.6	15.5	15.6	15.4	15.6	15.5	15.4	15.5
Color	Visual	Clear	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	88.5	90.3	92.3	93.5	94.0	94.4	94.7	94.8
Dissolved Oxygen Downhole	mg/L	7.74	8.43	9.13	9.50	9.73	9.91	10.00	10.06

Comments:

Sample @ 1315

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW12 Date: 6/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW12061719 QA/QC Collected? No

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	19.37	feet
2. D = Riser Diameter (I.D.):	1"	feet
3. W = Depth to Water:	14.16	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1500	1505	1510	1515	1520	1525	1530	1535
Water Level (0.33)	feet	64.09	64.10	64.10	64.10	64.10	64.10	64.10	64.10
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.10
Flow Rate	mL/min	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Turbidity (+/- 10%)	NTU	608	6.92	6.35	5.46	3.80	217	281	104
Dissolved Oxygen (+/- 10%)	%	85.2	83.9	85.3	85.7	84.3	83.6	83.1	83.0
Dissolved Oxygen (+/- 10%)	mg/L	7.78	7.64	7.68	7.51	7.29	7.60	7.58	7.41
Eh / ORP (+/- 10)	MeV	28.1	33.2	34.1	37.2	37.8	32.0	41.7	37.4
Specific Conductivity (+/- 3%)	mS/cm[c]	1136	1141	1150	1172	1151	1313	1187	1191
Conductivity (+/- 3%)	mS/cm	1.016	1.036	1.037	1.061	1.216	1225	1.234	1.053
pH (+/- 0.1)	pH unit	7.24	7.23	7.23	7.24	7.27	7.28	7.29	7.30
Temp (+/- 0.5)	C°	19.2	20.1	20.2	21.2	22.1	20.5	22.3	21.0
Color	Visual	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	96.6	94.5	95.6	98.0	98.9	98.9	99.3	98.9
Dissolved Oxygen Downhole	mg/L	10.14	9.93	10.06	10.30	10.45	10.42	10.46	10.42

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW12 Date: 6/17/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW12 061719 QA/QC Collected? no

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	79.37	feet
2. D = Riser Diameter (I.D.):	2"	feet
3. W = Depth to Water:	64.16	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						
Time	24 hr	1540	1545	1550	1555	1600	1605	1610
Water Level (0.33)	feet	64.10	64.10	64.10	64.10	64.10	64.10	64.10
Volume Purged	gal	0.10	0.10	0.10	0.05	0.10	0.10	0.10
Flow Rate	mL/min	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Turbidity (+/- 10%)	NTU	84.5	~~83.5~~	51.2	26.3	54.8	21.5	13.8
Dissolved Oxygen (+/- 10%)	%	84.6	~~83.5~~	84.4	83.5	83.7	~~83.5~~	~~83.7~~
Dissolved Oxygen (+/- 10%)	mg/L	7.43	7.48	7.83	7.44	7.81	7.83	7.77
Eh / ORP (+/- 10)	MeV	43.0	46.6	50.2	51.1	52.4	51.6	48.8
Specific Conductivity (+/- 3%)	mS/cm^c	1155	1152	1122	1153	1135	1123	1140
Conductivity (+/- 3%)	mS/cm	1.078	1029	1.140	1057	0.988	0.979	0.991
pH (+/- 0.1)	pH unit	7.30	7.31	7.32	7.34	7.35	7.35	7.36
Temp (+/- 0.5)	C°	21.6	21.0	20.6	19.8	18.2	18.2	18.1
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	98.5	98.2	97.7	98.8	97.8	98.7	98.0
Dissolved Oxygen Downhole	mg/L	10.37	10.35	10.30	10.40	10.30	10.41	10.33

Comments:

Sample @ 1617

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP-3 Date: 6/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: GEP3 061819 QA/QC Collected? no

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	74.58	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.21	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						✓	✓
Time	24 hr	0910	0915	0920	0925	0930	0935	0940	0945
Water Level (0.33)	feet	62.19	62.20	62.18	62.18	62.18	62.18	62.18	62.18
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5
Turbidity (+/- 10%)	NTU	168	149	124	117	91	84	67	61
Dissolved Oxygen (+/- 10%)	%	81.1	80.3	79.1	80.2	80.3	79.3	78.4	79.4
Dissolved Oxygen (+/- 10%)	mg/L	8.38	8.33	8.25	8.35	8.30	8.29	8.16	8.16
Eh / ORP (+/- 10)	MeV	101.7	111.2	122.6	127.7	132.5	136.8	141.9	147.5
Specific Conductivity (+/- 3%)	mS/cm^c	501	500	501	502	503	505	504	504
Conductivity (+/- 3%)	mS/cm	0.394	0.391	0.391	0.391	0.392	0.393	0.394	0.392
pH (+/- 0.1)	pH unit	7.49	7.48	7.47	7.46	7.46	7.46	7.46	7.46
Temp (+/- 0.5)	C°	13.8	13.6	13.5	13.4	13.5	13.4	13.5	13.4
Color	Visual	cloudy	cloudy	cloudy	cloudy	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	99.8	101.1	99.2	100.8	101.5	100.6	100.5	100.7
Dissolved Oxygen Downhole	mg/L	10.85	11.02	10.84	11.04	11.11	11.01	11.01	11.05

Comments:

sample @ 0955

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP 3 Date: 6/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: GEP3 061819 QA/QC Collected? no

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	✓ Readings							
Time	24 hr	0950							
Water Level (0.33)	feet	62.19							
Volume Purged	gal	0.10							
Flow Rate	mL/min	285							
Turbidity (+/- 10%)	NTU	54							
Dissolved Oxygen (+/- 10%)	%	78.9							
Dissolved Oxygen (+/- 10%)	mg/L	8.19							
Eh / ORP (+/- 10)	MeV	152.1							
Specific Conductivity (+/- 3%)	mS/cm[c]	505							
Conductivity (+/- 3%)	mS/cm	0.395							
pH (+/- 0.1)	pH unit	7.46							
Temp (+/- 0.5)	C°	13.6							
Color	Visual	clear							
Odor	Olfactory	—							
Dissolved Oxygen Downhole	%	101.1							
Dissolved Oxygen Downhole	mg/L	11.10							

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP-1 Date: 06/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: GEP-1 061819 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	76.95	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.07	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	0840	0845	0850	0855	0900	0905	0910	
Water Level (0.33)	feet	65.07	65.04	65.05	65.03	65.03	65.04	65.04	
Volume Purged	gal	.10	.15	.21	.65	.85	1.01	1.51	
Flow Rate	mL/min	220	220	220	220	220	220	220	
Turbidity (+/- 10%)	NTU	12.0	11.4	13.02	10.6	14.1	13.9	15.0	
Dissolved Oxygen (+/- 10%)	%	83.5	82.3	81.3	80.7	80.2	79.9	78.8	
Dissolved Oxygen (+/- 10%)	mg/L	8.68	8.56	8.49	8.42	8.40	8.37	8.27	
Eh / ORP (+/- 10)	MeV	193.4	206.1	224.2	249.7	256.1	260.8	251.6	
Specific Conductivity (+/- 3%)	mS/cm[c]	561	562	565	565	566	565	565	
Conductivity (+/- 3%)	mS/cm	438.4	438.7	438.8	440.1	439.0	437.6	435.9	
pH (+/- 0.1)	pH unit	7.19	7.19	7.18	7.18	7.19	7.19	7.21	
Temp (+/- 0.5)	C°	13.5	13.5	13.4	13.4	13.3	13.2	13.1	
Color	Visual	clear	clear	clear	clear	clear	clear	clear	
Odor	Olfactory	None	None	None	None	None	None	None	
Dissolved Oxygen Downhole	%	99.6	99.7	99.8	99.9	99.9	99.9	99.9	
Dissolved Oxygen Downhole	mg/L	10.25	10.32	10.46	10.57	10.59	10.62	10.67	

Comments:

Sample time @ 0915

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP-4 Date: 06/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: GEP-4 061819 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	67.38	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.94	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1100	1105	1110	1115	1120	1125	1130	1135
Water Level (0.33)	feet	61.94	61.91	62.00	61.94	61.93	61.93	61.95	61.95
Volume Purged	gal	.09	1.13	1.26	1.51	1.75	1.91	2.13	2.41
Flow Rate	mL/min	240	240	240	240	240	240	240	240
Turbidity (+/- 10%)	NTU	36.6	26.7	20.2	17.0	14.8	11.2	9.56	8.01
Dissolved Oxygen (+/- 10%)	%	77.4	75.4	75.5	75.2	75.1	75.0	74.9	75.0
Dissolved Oxygen (+/- 10%)	mg/L	8.14	7.94	7.94	7.93	7.91	7.93	7.91	7.91
Eh / ORP (+/- 10)	MeV	184.9	220.1	229.5	235.3	245.9	252.7	257.7	259.1
Specific Conductivity (+/- 3%)	mS/cm[c]	700	672	674	674	672	673	672	669
Conductivity (+/- 3%)	mS/cm	505	519	517	518	514	516	516	515
pH (+/- 0.1)	pH unit	7.30	7.27	7.27	7.27	7.27	7.27	7.27	7.27
Temp (+/- 0.5)	C°	13.0	12.9	12.9	12.9	12.9	12.8	12.8	12.9
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	97.3	95.3	94.6	94.5	99.7	100.2	100.1	99.7
Dissolved Oxygen Downhole	mg/L	10.16	10.11	10.09	10.10	10.73	10.77	10.77	10.71

Comments:

Sample @ 1150

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP-4 cont. Date: _____

Samplers: Alex Golden, Jason Klein

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings								
Time	24 hr	1140								
Water Level (0.33)	feet	61.94								
Volume Purged	gal	2.00								
Flow Rate	mL/min	240								
Turbidity (+/- 10%)	NTU	7.14								
Dissolved Oxygen (+/- 10%)	%	74.7								
Dissolved Oxygen (+/- 10%)	mg/L	7.86								
Eh / ORP (+/- 10)	MeV	262.5								
Specific Conductivity (+/- 3%)	mS/cm[c]	6669								
Conductivity (+/- 3%)	mS/cm	515								
pH (+/- 0.1)	pH unit	7.27								
Temp (+/- 0.5)	C°	13.0								
Color	Visual	clear								
Odor	Olfactory	None								
Dissolved Oxygen Downhole	%	99.3								
Dissolved Oxygen Downhole	mg/L	10.71								

Comments:

Sample @ 1150

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-18 Date: 06/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-18 061819 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	70.42	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	60.75	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1310	1315	1320	1325	1330	1335 ✓	1340 ✓	1345 ✓
Water Level (0.33)	feet	60.75	60.79	60.79	60.75	60.75	60.76	60.76	60.75
Volume Purged	gal	—	.15	.32	.61	.85	1.01	1.26	1.47
Flow Rate	mL/min	160	160	160	160	160	160	160	160
Turbidity (+/- 10%)	NTU	1.98	1.76	1.82	2.55	2.64	2.32	2.48	2.08
Dissolved Oxygen (+/- 10%)	%	86.6	86.2	84.9	83.3	82.4	80.9	80.2	79.3
Dissolved Oxygen (+/- 10%)	mg/L	8.35	8.31	8.21	8.04	7.97	7.82	7.67	7.58
Eh / ORP (+/- 10)	MeV	206.6	224.9	234.3	250.0	255.0	263.6	268.9	271.3
Specific Conductivity (+/- 3%) 494	mS/cm[c]	~~840.7~~	453	498	503	505	506	512	515
Conductivity (+/- 3%) 384	mS/cm	~~873.6~~	421	471	426.1	427.9	428.3	438.4	438.1
pH (+/- 0.1)	pH unit	7.61	7.57	7.55	7.53	7.52	7.51	7.50	7.50
Temp (+/- 0.5)	C°	17.1	17.0	17.1	17.0	17.0	16.8	17.4	17.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	96.7	96.8	96.7	96.8	96.8	96.6	96.6	96.6
Dissolved Oxygen Downhole	mg/L	9.76	9.82	9.91	10.04	10.09	10.16	10.22	10.25

Comments:

Sample @ 1350

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-19 Date: 06/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-19 061819 QA/QC Collected? ~~—~~

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	74.45	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.86	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1445	1450	1455	1500	1505	1510	1515
Water Level (0.33)	feet	62.86	62.87	62.85	62.86	62.87	62.86	62.86
Volume Purged	gal	.09	1.13	1.15	1.37	1.61	1.79	2.15
Flow Rate	mL/min	110	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	32.0	21.6	18.8	16.5	15.1	13.8	13.6
Dissolved Oxygen (+/- 10%)	%	85.8	80.9	79.2	80.3	81.3	80.9	82.6
Dissolved Oxygen (+/- 10%)	mg/L	8.07	7.78	7.73	7.76	7.76	7.77	7.87
Eh / ORP (+/- 10)	MeV	218.5	255.9	266.2	275.1	279.3	282.1	285.1
Specific Conductivity (+/- 3%)	mS/cm[c]	613	614	603	606	607	607	608
Conductivity (+/- 3%)	mS/cm	532	510	512	515	520	518	523
pH (+/- 0.1)	pH unit	7.35	7.29	7.29	7.29	7.28	7.28	7.29
Temp (+/- 0.5)	C°	18.4	17.2	16.5	16.8	17.5	17.3	17.8
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	96.6	96.6	96.7	96.8	96.9	96.9	97.2
Dissolved Oxygen Downhole	mg/L	10.63	10.65	10.69	10.70	10.74	10.74	10.77

Comments:

Sample @ 1520

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-29 Date: 06/19/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-29 061919 QA/QC Collected? ~

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	71.19	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.29	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						✓	✓
Time	24 hr	0845	0850	0855	0900	0905	0910	0915	0920
Water Level (0.33)	feet	62.10	62.10	62.10	62.10	62.10	62.10	62.10	62.10
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	140	140	140	140	140	140	140	140
Turbidity (+/- 10%)	NTU	20.4	18.5	15.3	11.6	9.02	7.27	6.29	5.24
Dissolved Oxygen (+/- 10%)	%	45.0	28.0	22.4	21.8	21.7	21.7	21.7	21.6
Dissolved Oxygen (+/- 10%)	mg/L	4.52	2.84	2.27	2.21	2.20	2.20	2.20	2.20
Eh / ORP (+/- 10)	MeV	206.9	204.7	190.8	187.0	185.1	182.1	176.0	173.3
Specific Conductivity (+/- 3%)	mS/cm^c	537	732	776	776	777	777	778	778
Conductivity (+/- 3%)	mS/cm	2432	0.585	0.621	0.622	0.623	0.623	0.622	0.623
pH (+/- 0.1)	pH unit	6.93	6.92	6.94	6.94	6.94	6.95	6.95	6.96
Temp (+/- 0.5)	C°	14.8	14.7	14.5	14.6	14.6	14.6	14.5	14.5
Color	Visual	cloudy	cloudy	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	84.0	83.9	83.6	83.3	83.2	83.1	83.1	82.9
Dissolved Oxygen Downhole	mg/L	9.16	9.16	9.17	9.15	9.14	9.15	9.14	9.12

Comments:

Sample 0930

Hydrogen 25 min bubble time

Sample @ 1030

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-29 cont Date: sept 1

Samplers: Alex Golden, Jason Klein

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	✓	Readings						
Time	24 hr	0925							
Water Level (0.33)	feet	62.10							
Volume Purged	gal	0.10							
Flow Rate	mL/min	140							
Turbidity (+/- 10%)	NTU	5.43							
Dissolved Oxygen (+/- 10%)	%	22.1							
Dissolved Oxygen (+/- 10%)	mg/L	2.23							
Eh / ORP (+/- 10)	MeV	169.6							
Specific Conductivity (+/- 3%)	mS/cm[c]	~~TAC~~							
Conductivity (+/- 3%)	mS/cm	0.630							
pH (+/- 0.1)	pH unit	6.96							
Temp (+/- 0.5)	C°	15.0							
Color	Visual	clear							
Odor	Olfactory	—							
Dissolved Oxygen Downhole	%	82.7							
Dissolved Oxygen Downhole	mg/L	7.12							

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-28 Date: 06/19/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-28 061919 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	71.12	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.28	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	0925	0930	0935	0940	0945	0950	0955	1000
Water Level (0.33)	feet	62.28	62.25	62.24	62.24	62.25	62.25	62.24	62.25
Volume Purged	gal	.15	.31	.61	.93	1.40	1.61	1.99	2.15
Flow Rate	mL/min	115	115	115	115	115	115	115	115
Turbidity (+/- 10%)	NTU	7.15	6.10	1.74	0.36	.02	.02	.32	.02
Dissolved Oxygen (+/- 10%)	%	12.0	8.7	8.9	8.3	8.1	8.1	8.4	9.1
Dissolved Oxygen (+/- 10%)	mg/L	1.18	.85	.86	.82	.80	.80	.83	.89
Eh / ORP (+/- 10)	MeV	115.4	140.9	149.3	150.0	164.5	169.7	173.1	176.4
Specific Conductivity (+/- 3%)	mS/cm^c	736	739	741	739	740	741	740	740
Conductivity (+/- 3%)	mS/cm	617	620	627	611	612	611	611	613
pH (+/- 0.1)	pH unit	6.79	6.79	6.79	6.80	6.82	6.83	6.85	6.84
Temp (+/- 0.5)	C°	16.3	16.5	17.1	16.1	15.9	15.9	15.9	16.0
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	97.5	97.5	97.6	97.6	97.7	97.7	97.7	97.7
Dissolved Oxygen Downhole	mg/L	10.36	10.37	10.38	10.38	10.41	10.41	10.41	10.41

Comments: sample @ 1015

$\left(\frac{107\ mL}{56\ sec}\right)\left(\frac{60\ sec}{1\ min}\right) = 114.64 \sim 115\ \frac{mL}{min}$ Hydrogen = 30 min cycle

* brown discoloration on tubing

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW130 Date: 06/9/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-30 061919 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	91.35	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.91	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

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

Conversion factors to determine V given C

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

Water Quality Readings Collected Using YSI Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1310	1315	1320	1325	1330	1335	1340	1345
Water Level (0.33)	feet	61.91	61.99	62.00	62.05	62.08	62.07	62.07	62.07
Volume Purged	gal	.15	.30	.45	.67	.93	1.10	1.19	1.50
Flow Rate	mL/min								
Turbidity (+/- 10%)	NTU	1.88	.62	0.46	1.66	1.08	0.73	0.94	.81
Dissolved Oxygen (+/- 10%)	%	11.6	6.9	5.5	4.1	3.5	3.3	3.3	2.9
Dissolved Oxygen (+/- 10%)	mg/L	1.11	.67	.53	.40	.34	.32	.33	.28
Eh / ORP (+/- 10)	MeV	-120.1	-152.4	-164.6	-165.7	-165.1	-167.1	-164.8	-164.0
Specific Conductivity (+/- 3%)	mS/cm^c	276.2	299.3	303.2	300.0	287.4	278.2	278.2	278.4
Conductivity (+/- 3%)	mS/cm	235.1	256.1	258.9	251.6	238.2	230.2	229.9	230.6
pH (+/- 0.1)	pH unit	7.74	7.74	7.68	7.71	7.76	7.77	7.78	7.80
Temp (+/- 0.5)	C°	18.6	17.3	17.4	16.3	16.0	15.7	15.8	16.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	-2.9	-3.1	-3.3	-3.5	-3.5	-3.6	-3.7	-3.7
Dissolved Oxygen Downhole	mg/L	-.32	-.35	-.35	-.38	-.39	-.40	-.40	-.41

Comments:

Sample @ 1350

*black at end of tubing

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-35 Date: 06/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-35 062019 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	92.33	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	58.09	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						✓	✓
Time	24 hr	1100	1105	1110	1115	1120	1125	1130	1135
Water Level (0.33)	feet	58.09	58.09	58.09	58.09	58.09	58.09	58.09	58.09
Volume Purged	gal	.10	.20	.35	.50	.75	1.10	1.40	1.70
Flow Rate	mL/min	120	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	50.9	37.9	28.2	24.0	19.4	15.7	12.7	14.0
Dissolved Oxygen (+/- 10%)	%	23.5	13.6	13.5	14.0	14.8	15.0	16.4	17.1
Dissolved Oxygen (+/- 10%)	mg/L	2.40	1.38	1.37	1.42	1.57	1.58	1.66	1.73
Eh / ORP (+/- 10)	MeV	10.4	-24.7	-28.3	-28.1	-31.3	-35.9	-37.1	-39.9
Specific Conductivity (+/- 3%)	mS/cm[c]	449.8	447.1	446.8	447.1	446.7	447.3	448.5	448.7
Conductivity (+/- 3%)	mS/cm	327.2	357.1	358.8	359.2	358.2	358.2	360.1	361.1
pH (+/- 0.1)	pH unit	7.42	7.38	7.38	7.39	7.39	7.40	7.40	7.41
Temp (+/- 0.5)	C°	15.2	14.6	14.4	14.7	14.6	14.6	14.7	14.8
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	
Dissolved Oxygen Downhole	%	10.3	9.4	9.4	10.0	10.2	10.9	11.8	12.0
Dissolved Oxygen Downhole	mg/L	1.13	1.04	1.02	1.09	1.13	1.19	1.21	1.31

Comments:

sample @ 1145
Hydrogen @

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-38 cont Date: _____

Samplers: Alex Golden, Jason Klein

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	✓ Readings								
Time	24 hr	1140								
Water Level (0.33)	feet	58.09								
Volume Purged	gal	2.00								
Flow Rate	mL/min	120								
Turbidity (+/- 10%)	NTU	12.1								
Dissolved Oxygen (+/- 10%)	%	18.0								
Dissolved Oxygen (+/- 10%)	mg/L	1.82								
Eh / ORP (+/- 10)	MeV	-37.1								
Specific Conductivity (+/- 3%)	mS/cm[c]	449.1								
Conductivity (+/- 3%)	mS/cm	361.4								
pH (+/- 0.1)	pH unit	7.42								
Temp (+/- 0.5)	C°	14.8								
Color	Visual	clear								
Odor	Olfactory	—								
Dissolved Oxygen Downhole	%	12.2								
Dissolved Oxygen Downhole	mg/L	1.35								

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-31 Date: 06/19/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-31 061919 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	_____	feet	
2. D = Riser Diameter (I.D.):	_____	feet	
3. W = Depth to Water:	61.89	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						
Time	24 hr	1220	1225	1230	1235	1240	1245	1250
Water Level (0.33)	feet	68.81	68.82	68.81	68.81	68.81	68.81	68.80
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	138	138	138	138	138	138	138
Turbidity (+/- 10%)	NTU	2.04	1.72	0.82	1.20	0.80	1.22	0.69
Dissolved Oxygen (+/- 10%)	%	24.0	10.1	5.3	3.3	2.3	1.7	1.5
Dissolved Oxygen (+/- 10%)	mg/L	2.42	0.98	0.52	0.31	0.22	0.17	0.15
Eh / ORP (+/- 10)	MeV	-89.9	-129.8	-145.9	-155.7	-160.6	-163.0	-165.3
Specific Conductivity (+/- 3%)	mS/cm^c	322.5	428.1	470.1	471.1	481.7	481.2	483.2
Conductivity (+/- 3%)	mS/cm	0.280	0.356	0.393	0.398	0.400	0.401	0.402
pH (+/- 0.1)	pH unit	7.35	7.66	7.74	7.76	7.77	7.80	7.80
Temp (+/- 0.5)	C°	17.0	16.2	16.3	16.2	16.3	16.2	16.2
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	-2.0	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Dissolved Oxygen Downhole	mg/L	-0.22	-0.23	-0.23	-0.23	-0.23	-0.23	-0.24

Comments:

Sample @ 1305

Hydrogen @ 1340

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW33 Date: 6/19/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW33 061919 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	92.32	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	60.54	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1450	1500	1505	1510	1515	1520	1525	1530
Water Level (0.33)	feet	60.50	60.50	60.50	60.50	60.50	60.50	60.50	60.50
Volume Purged	gal	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	114	114	114	114	114	114	114	114
Turbidity (+/- 10%)	NTU	5.14	2.88	2.65	3.41	3.18	3.62	4.08	5.75
Dissolved Oxygen (+/- 10%)	%	36.0	17.0	14.5	11.5	10.6	8.7	8.0	6.8
Dissolved Oxygen (+/- 10%)	mg/L	3.23	1.61	1.28	1.03	0.95	0.79	0.73	0.62
Eh / ORP (+/- 10)	MeV	33.2	34.6	33.5	26.5	23.8	18.8	15.7	7.8
Specific Conductivity (+/- 3%)	mS/cm^c	404.8	403.0	403.7	404.5	405.0	405.7	406.7	413.6
Conductivity (+/- 3%)	mS/cm	0.367	0.366	0.367	0.371	0.369	0.368	0.367	0.369
pH (+/- 0.1)	pH unit	7.22	7.18	7.16	7.16	7.17	7.17	7.17	7.19
Temp (+/- 0.5)	C°	20.1	20.2	21.6	20.5	20.4	20.1	19.9	19.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	38.7	40.6	42.4	43.1	43.2	40.4	39.5	37.1
Dissolved Oxygen Downhole	mg/L	4.16	4.42	4.59	4.68	4.69	4.41	4.30	4.05

Comments:

sample @ 1545

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW33 Date: 6/19/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW33 061919 QA/QC Collected? No

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	92.32	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	60.54	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1535	1540						
Water Level (0.33)	feet	60.50	60.50						
Volume Purged	gal	0.10	0.10						
Flow Rate	mL/min	114	114						
Turbidity (+/- 10%)	NTU	6.14	4.84						
Dissolved Oxygen (+/- 10%)	%	6.9	7.0						
Dissolved Oxygen (+/- 10%)	mg/L	0.64	0.65						
Eh / ORP (+/- 10)	MeV	4.9	2.8						
Specific Conductivity (+/- 3%)	mS/cm^c	418.0	422.5						
Conductivity (+/- 3%)	mS/cm	0.371	0.374						
pH (+/- 0.1)	pH unit	7.90	7.21						
Temp (+/- 0.5)	C°	19.1	18.9						
Color	Visual	clear	clear						
Odor	Olfactory	—	—						
Dissolved Oxygen Downhole	%	35.4	34.9						
Dissolved Oxygen Downhole	mg/L	3.87	3.82						

Comments:

Sample @ 1545

H @ 1545

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-32 Date: 06/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-32 062019 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	91.60	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.00	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	0840	0845	0850	0855	0900	0905	0910	0915
Water Level (0.33)	feet	61.00	60.35	60.35	60.35	60.35	60.35	60.35	60.35
Volume Purged	gal	.15	.30	.45	.60	.90	1.20	1.50	1.75
Flow Rate	mL/min	135	135	135	135	135	135	135	135
Turbidity (+/- 10%)	NTU	1.39	0.02	0.04	0.02	0.02	0.02	0.54	.02
Dissolved Oxygen (+/- 10%)	%	5.1	4.5	4.7	3.7	3.3	3.1	3.1	3.0
Dissolved Oxygen (+/- 10%)	mg/L	.51	.45	.47	.36	.33	.31	.31	.30
Eh / ORP (+/- 10)	MeV	-157.3	-156.3	-160.0	-164.8	-164.8	-164.0	-164.6	-165.3
Specific Conductivity (+/- 3%)	mS/cm[c]	339.6	410.1	425.1	413.6	411.4	401.9	394.8	391.1
Conductivity (+/- 3%)	mS/cm	276.9	334.7	346.0	338.1	334.3	328.1	323.7	320.7
pH (+/- 0.1)	pH unit	7.60	7.68	7.70	7.71	7.72	7.74	7.76	7.77
Temp (+/- 0.5)	C°	15.2	15.3	15.3	15.4	15.3	15.3	15.5	15.5
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	-2.3	-2.7	-3.0	-3.2	-3.3	-3.4	-3.5	-3.5
Dissolved Oxygen Downhole	mg/L	-.26	-.29	-.33	-.35	-.36	-.37	-.38	-.39

Comments: Sample @ 0920

H Sample @ 0950

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-26 Date: 06/20/2019

Samplers: Alex Golden, Jason Klein, Tom Quackenbush

Sample Number: MW-26 062019 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	108.70	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	58.30	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
[redacted]	
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	[redacted]	3-inch	4-inch	6-inch
V (gal / ft)	0.041		0.37	0.65	1.5

Water Quality Readings Collected Using YSI Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1410	1415	1420	1425	1430	1435	1440	1445
Water Level (0.33)	feet	58.30	58.29	58.29	58.29	58.29	58.29	58.29	58.29
Volume Purged	gal	.10	.25	.55	.85	1.0	1.3	1.6	1.9
Flow Rate	mL/min	130	130	130	130	130	130	130	130
Turbidity (+/- 10%)	NTU	6.68	8.89	7.62	7.07	6.08	7.76	9.47	7.76
Dissolved Oxygen (+/- 10%)	%	59.2	11.9	8.0	6.7	6.0	5.3	4.9	4.4
Dissolved Oxygen (+/- 10%)	mg/L	5.64	1.10	.76	0.63	.0.55	0.50	0.47	0.42
Eh / ORP (+/- 10)	MeV	180.0	155.8	129.0	107.9	97.5	84.8	68.7	56.8
Specific Conductivity (+/- 3%)	mS/cm[c]	317.1	313.2	312.6	312.7	313.3	313.3	314.7	317.8
Conductivity (+/- 3%)	mS/cm	290.6	275.0	272.0	271.5	272.5	271.0	271.8	272.1
pH (+/- 0.1)	pH unit	7.27	7.12	7.11	7.11	7.12	7.12	7.14	7.14
Temp (+/- 0.5)	C°	21.7	18.8	18.3	18.2	18.2	17.8	17.8	17.5
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	
Dissolved Oxygen Downhole	%	-1.5	-1.5	-1.6	-1.6	-1.6	-1.6	-1.8	-1.8
Dissolved Oxygen Downhole	mg/L	-.17	-1.7	-.18	-0.18	-0.18	-0.18	-0.20	-0.19

Comments:

sampling @ 1530

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-26 cont. Date: 06/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1450	1455	1500	1505	1510	1515	1520	1525
Water Level (0.33)	feet	58.29	58.29	58.30	58.15	58.16	68.16	58.16	58.15
Volume Purged	gal	2.2	2.5	2.70	2.85	2.97	3.07	3.14	3.28
Flow Rate	mL/min	130	130	130	130	130	130	130	130
Turbidity (+/- 10%)	NTU	9.21	9.18	11.6	11.09	11.10	10.9	9.9	9.3
Dissolved Oxygen (+/- 10%)	%	5.9	4.6	3.9	3.7	3.7	3.4	3.2	3.2
Dissolved Oxygen (+/- 10%)	mg/L	0.55	0.44	.37	.35	.35	.32	.30	.30
Eh / ORP (+/- 10)	MeV	63.2	30.2	-23.8	-25.4	-88.2	-101.8	-102.0	-108.6
Specific Conductivity (+/- 3%)	mS/cm[c]	311.9	328.4	365.1	393.4	452.0	475.8	480.1	484.2
Conductivity (+/- 3%)	mS/cm	276.1	284.2	316.1	341.0	393.9	414.9	419.7	423.2
pH (+/- 0.1)	pH unit	7.14	7.18	7.30	7.43	7.48	7.50	7.58	7.60
Temp (+/- 0.5)	C°	18.2	17.9	18.2	18.1	18.1	18.3	18.3	18.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	-1.6	-1.8	-1.7	-1.7	-1.7	-1.7	-1.8	-1.7
Dissolved Oxygen Downhole	mg/L	-0.18	-0.20	-.19	-.19	-.19	-.19	-.19	-.19

Comments:

Sampling @ 1530

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-23 Date: 6/21/19

Samplers: ~~Alex Golden~~, Jason Klein, Tom Quackenbush, Greg Dunlavey

Sample Number: MW-23 062119 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	81.05	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.34	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings						
Time	24 hr	1426	1431	1436	1441	1446	1451	1456
Water Level (0.33)	feet	67.59	67.58	67.57	67.57	67.55	67.55	67.54
Volume Purged	gal	0	.25	.5	.75	1	1.25	1.5
Flow Rate	mL/min	300	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	28.1	18.4	16.9	11.2	12.4	9.85	10.2
Dissolved Oxygen (+/- 10%)	%	107.6	110.3	102.2	101.0	105.3	105.9	106.6
Dissolved Oxygen (+/- 10%)	mg/L	10.34	10.36	10.70	10.54	10.56	10.51	10.42
Eh / ORP (+/- 10)	MeV	248.4	263.8	263.2	263.3	266.5	267.3	269.4
Specific Conductivity (+/- 3%)	mS/cm[c]	203.0	~~202.9~~	202.5	205.7	205.1	206.5	207.2
Conductivity (+/- 3%)	mS/cm	162.9	176.2	160.2	159.9	166.7	169.3	173.2
pH (+/- 0.1)	pH unit	7.44	7.37	7.39	7.38	7.37	7.38	7.38
Temp (+/- 0.5)	C°	16.5	16.1	13.6	13.4	13.3	13.4	13.3
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None
Dissolved Oxygen Downhole	%							
Dissolved Oxygen Downhole	mg/L							

Comments:

Sample @ 1456

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-36 Date: 6/21/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-36 062119 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	79.15	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.21	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1104	1109	1114	1119	1124	1129	1134	1139
Water Level (0.33)	feet	61.19	61.18	61.30	61.29	61.15	61.21	6.18	61.26
Volume Purged	gal	0	.25	0.5	0.75	1	1.25	1.5	1.75
Flow Rate	mL/min	250	300	300	300	300	300	300	300
Turbidity (+/- 10%)	NTU	17.2	9.49	6.88	4.81	1.99	1.11	1.56	1.29
Dissolved Oxygen (+/- 10%)	%	81.1	66.6	61.4	36.3	30.4	29.0	26.6	25.9
Dissolved Oxygen (+/- 10%)	mg/L	8.04	6.42	5.91	3.49	2.91	2.76	2.54	2.52
Eh / ORP (+/- 10)	MeV	213.6	217.8	214.3	205.0	194.9	186.4	156.3	162.1
Specific Conductivity (+/- 3%)	mS/cm[c]	130.3	184.9	218.5	247.9	252.3	254.6	254.2	253.6
Conductivity (+/- 3%)	mS/cm	109.0	159.3	185.0	211.3	215.3	219.8	214.1	213.4
pH (+/- 0.1)	pH unit	7.98	7.57	7.55	7.59	7.60	7.60	7.61	7.61
Temp (+/- 0.5)	C°	17.1	17.0	17.8	17.3	17.3	18.3	16.7	16.6
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None	None
Dissolved Oxygen Downhole	%								
Dissolved Oxygen Downhole	mg/L								

Comments: # Downhole D.O. probe not turning on.

Sample @ 1155

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-36 Date: 6/21/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-36 062119 QA/QC Collected? —

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	✓	✓	✓	Readings				
Time	24 hr	1144	1149	1154					
Water Level (0.33)	feet	61.16	61.21	61.17					
Volume Purged	gal	~~2~~ 2	2.25	2.5					
Flow Rate	mL/min	300	300	300					
Turbidity (+/- 10%)	NTU	0.86	0.95	0.26					
Dissolved Oxygen (+/- 10%)	%	25.1	24.3	24.1					
Dissolved Oxygen (+/- 10%)	mg/L	2.44	2.35	2.33					
Eh / ORP (+/- 10)	MeV	164.6	163.5	160.4					
Specific Conductivity (+/- 3%)	mS/cm^c	255.1	255.3	255.7					
Conductivity (+/- 3%)	mS/cm	215.0	214.1	215.6					
pH (+/- 0.1)	pH unit	7.61	7.61	7.61					
Temp (+/- 0.5)	C°	16.7	16.8	16.8					
Color	Visual	Clear	Clear	Clear					
Odor	Olfactory	None	None	None					
Dissolved Oxygen Downhole	%								
Dissolved Oxygen Downhole	mg/L								

Comments:

Sample @ 1155

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-11 Date: 06/24/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-11 062419 QA/QC Collected? —

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	79.76	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	64.91	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

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

Conversion factors to determine V given C

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

Water Quality Readings Collected Using YSI Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1125	1130	1135	1140	1145	1150	1155	1200
Water Level (0.33)	feet	64.91	64.92	64.94	64.91	64.91	64.91	64.91	64.92
Volume Purged	gal	.15	.30	.45	.60	.85	1.00	1.41	1.69
Flow Rate	mL/min	134	134	134	134	134	134	134	134
Turbidity (+/- 10%)	NTU	387	234	125	75.1	61.9	40.0	25.4	19.5
Dissolved Oxygen (+/- 10%)	%	88.7	85.0	84.0	85.2	84.5	84.1	85.3	84.0
Dissolved Oxygen (+/- 10%)	mg/L	8.64	8.35	8.32	8.47	8.34	8.33	8.34	8.22
Eh / ORP (+/- 10)	MeV	122.0	142.7	173.9	199.4	215.8	230.6	240.0	~~230.8~~ 247.1
Specific Conductivity (+/- 3%)	mS/cm[c]	228.7	230.0	238.2	240.6	236.6	233.5	231.3	230.8
Conductivity (+/- 3%)	mS/cm	191.9	191.2	197.3	196.9	195.3	194.7	193.1	192.9
pH (+/- 0.1)	pH unit	7.47	7.41	7.38	7.38	7.39	7.41	7.42	7.43
Temp (+/- 0.5)	C°	16.6	16.2	16.2	15.6	15.9	16.2	16.3	16.3
Color	Visual	murky	murky	LBrown	LBrown	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	93.4	94.4	94.8	94.3	94.1	93.7	93.7	93.6
Dissolved Oxygen Downhole	mg/L	9.89	10.01	10.05	10.02	10.01	9.99	9.98	9.98

Comments:

Sample @ 1240

* tubing added

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-11 cont. Date:

Samplers: Alex Golden, Jason Klein

Sample Number: QA/QC Collected?

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1205	1210	1215	1220	1225	1230	1235
Water Level (0.33)	feet	64.91	64.92	64.91	64.91	64.91	64.92	64.93
Volume Purged	gal	2.50	2.75	3.00	4.00	4.40	4.91	5.15
Flow Rate	mL/min	134	134	134	134	134	134	134
Turbidity (+/- 10%)	NTU	22.0	17.0	12.7	13.0	8.5	9.09	8.46
Dissolved Oxygen (+/- 10%)	%	85.0	85.7	84.1	84.5	84.1	84.9	86.6
Dissolved Oxygen (+/- 10%)	mg/L	8.41	8.45	8.20	8.25	8.26	8.30	8.27
Eh / ORP (+/- 10)	MeV	261.6	259.3	267.6	270.4	269.2	270.0	273.5
Specific Conductivity (+/- 3%)	mS/cm[c]	230.2	229.7	228.6	228.3	228.4	228.1	227.7
Conductivity (+/- 3%)	mS/cm	192.8	190.1	191.2	190.7	189.8	190.0	189.6
pH (+/- 0.1)	pH unit	7.43	7.44	7.45	7.45	7.45	7.46	7.46
Temp (+/- 0.5)	C°	16.5	16.0	16.3	16.4	16.2	16.5	16.2
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	93.6	93.5	93.4	93.5	93.5	93.4	93.4
Dissolved Oxygen Downhole	mg/L	9.97	9.97	9.96	9.96	9.96	9.96	9.95

Comments:

Sample @ 1210

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-16 Date: 06/24/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW-16 062419 QA/QC Collected? MS/MSD

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	69.50	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	60.63	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings ✓					✓	✓
Time	24 hr	1320	1325	1330	1335	1340	1345	1350
Water Level (0.33)	feet	60.63	60.32	60.63	60.63	60.63	60.63	60.63
Volume Purged	gal	.10	.25	.40	.55	.91	1.15	1.30
Flow Rate	mL/min	108	108	108	108	108	108	108
Turbidity (+/- 10%)	NTU	32.2	13.2	7.32	7.73	7.66	8.0	7.58
Dissolved Oxygen (+/- 10%)	%	99.6	95.0	95.1	96.7	93.0	93.0	93.1
Dissolved Oxygen (+/- 10%)	mg/L	8.95	9.23	9.18	9.07	9.11	9.25	9.28
Eh / ORP (+/- 10)	MeV	220.3	263.7	269.8	280.8	292.4	299.3	299.9
Specific Conductivity (+/- 3%)	mS/cm[c]	275.0	266.0	265.3	265.1	269.0	266.8	267.1
Conductivity (+/- 3%)	mS/cm	275.2	224.0	224.5	227.0	224.5	219.6	218.5
pH (+/- 0.1)	pH unit	7.25	7.15	7.16	7.17	7.18	7.19	7.19
Temp (+/- 0.5)	C°	28.0	16.8	17.1	17.2	16.9	15.9	15.4
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	97.7	96.0	95.0	94.4	93.9	93.8	93.7
Dissolved Oxygen Downhole	mg/L	10.18	10.21	10.16	10.16	10.14	10.15	10.17

Comments:

Sample @ 1355

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: GEP-2 Date: 6/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: GEP-2 06/18/19 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	77.78	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	64.86	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1115	1125	1130	1135	1140	1145	1150
Water Level (0.33)	feet	64.85	64.85	64.85	64.92	64.89	64.90	64.86
Volume Purged	gal	0.1	0.1	0.1	0.1	0.1	0.10	0.10
Flow Rate	mL/min	310	310	310	310	310	310	310
Turbidity (+/- 10%)	NTU	40	33	35	25	22	21.0	23.0
Dissolved Oxygen (+/- 10%)	%	80.6	78.5	79.3	79.3	77.9	79.0	78.8
Dissolved Oxygen (+/- 10%)	mg/L	8.37	8.21	8.30	8.25	8.08	7.99	8.26
Eh / ORP (+/- 10)	MeV	167.2	175.6	177.9	180.5	182.7	185.0	185.1
Specific Conductivity (+/- 3%)	mS/cm	702	703	700	700	700	703	699
Conductivity (+/- 3%)	mS/cm	0.548	0.545	0.543	0.546	0.548	0.566	0.543
pH (+/- 0.1)	pH unit	7.18	7.16	7.17	7.17	7.16	7.16	7.16
Temp (+/- 0.5)	C°	13.5	13.2	13.3	13.5	13.6	14.4	13.5
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	95.6	95.6	95.4	95.4	95.3	95.2	95.2
Dissolved Oxygen Downhole	mg/L	10.57	10.57	10.55	10.54	10.53	10.52	10.53

Comments:

sample @ 1152

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW14 Date: 6/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW14 061819 QA/QC Collected? no

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	78.58	feet	
2. D = Riser Diameter (I.D.):		feet	
3. W = Depth to Water:	64.58	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1335	1340	1345	1350	1355	1400	1405	1410
Water Level (0.33)	feet	64.57	64.59	64.58	64.57	64.57	64.57	64.58	64.82
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	294	294	294	294	294	294	294	294
Turbidity (+/- 10%)	NTU	39	9	7.59	9.29	5.55	3.38	3.65	3.09
Dissolved Oxygen (+/- 10%)	%	83.3	78.5	75.5	73.8	74.0	74.2	73.7	73.0
Dissolved Oxygen (+/- 10%)	mg/L	8.02	7.91	7.49	7.30	7.18	7.33	7.34	7.26
Eh / ORP (+/- 10)	MeV	134.5	137.2	142.3	147.6	152.4	152.5	153.1	154.0
Specific Conductivity (+/- 3%)	mS/cm^c	545	544	540	540	541	538	539	536
Conductivity (+/- 3%)	mS/cm	0.463	0.452	0.443	0.447	0.452	0.445	0.440	0.438
pH (+/- 0.1)	pH unit	7.53	7.52	7.52	7.49	7.46	7.36	7.49	7.49
Temp (+/- 0.5)	C°	16.9	16.3	15.7	16.0	16.4	15.9	15.5	15.4
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	85.0	86.9	87.6	88.4	88.2	87.7	88.3	88.8
Dissolved Oxygen Downhole	mg/L	9.16	9.45	9.54	9.63	9.63	9.60	9.67	9.72

Comments:

sample @ 1415

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW17 Date: 06/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW17 061819 QA/QC Collected? no

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	71.32	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	60.49	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1505	1510	1515	1520	1525	1530	1535	1540
Water Level (0.33)	feet	60.50	60.50	60.50	60.50	60.50	60.50	60.50	60.50
Volume Purged	gal	0.10	0.16	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	267	267	267	267	267	267	267	267
Turbidity (+/- 10%)	NTU	533	23.9	17.1	8.63	15.9	10.5	14.6	6.85
Dissolved Oxygen (+/- 10%)	%	94.0	91.8	91.8	91.0	89.8	89.7	90.4	88.7
Dissolved Oxygen (+/- 10%)	mg/L	8.49	8.73	8.76	8.64	8.65	8.61	8.59	8.51
Eh / ORP (+/- 10)	MeV	101.5	109.5	113.2	122.5	128.3	133.3	136.6	138.8
Specific Conductivity (+/- 3%)	mS/cm[c]	687	662	663	663	665	662	662	666
Conductivity (+/- 3%)	mS/cm	0.622	0568	0.568	0.571	0.565	0.564	0.570	0.569
pH (+/- 0.1)	pH unit	7.28	7.22	7.22	7.22	7.22	7.22	7.21	7.21
Temp (+/- 0.5)	C°	20.1	18.4	17.4	17.1	17.1	17.2	17.8	17.8
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	92.8	91.7	91.3	91.2	91.1	90.7	90.6	90.5
Dissolved Oxygen Downhole	mg/L	10.14	10.05	10.07	10.05	10.06	10.03	10.01	10.01

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW17 Date: 6/18/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW17 06/18/19 QA/QC Collected? no

Purging / Sampling Method: Low Flow with 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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1545	1550	1555					
Water Level (0.33)	feet	60.50	60.48	60.47					
Volume Purged	gal	0.10	0.10	0.10					
Flow Rate	mL/min	267	267	267					
Turbidity (+/- 10%)	NTU	11.9	12.6	11.8					
Dissolved Oxygen (+/- 10%)	%	89.0	87.5	88.7					
Dissolved Oxygen (+/- 10%)	mg/L	8.65	8.43	8.49					
Eh / ORP (+/- 10)	MeV	126.5	141.9	143					
Specific Conductivity (+/- 3%)	mS/cm^c	667	663	661					
Conductivity (+/- 3%)	mS/cm	0.561	0.561	0.565					
pH (+/- 0.1)	pH unit	7.23	7.23	7.22					
Temp (+/- 0.5)	C°	16.9	17.0	17.4					
Color	Visual	clear	clear	clear					
Odor	Olfactory	—	—	—					
Dissolved Oxygen Downhole	%	90.7	90.8	90.6					
Dissolved Oxygen Downhole	mg/L	10.03	10.04	10.05					

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW 24 Date: 6/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW24 062019 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	105.41	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.22	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings				✓	✓		
Time	24 hr	0825	0830	0835	0840	0845	0850		
Water Level (0.33)	feet	63.25	63.25	63.25	63.25	63.25	63.25		
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10		
Flow Rate	mL/min	132	132	132	132	132	132		
Turbidity (+/- 10%)	NTU	3.93	2.67	3.81	2.43	2.17	1.74		
Dissolved Oxygen (+/- 10%)	%	4.6	4.3	3.3	3.2	3.3	3.0		
Dissolved Oxygen (+/- 10%)	mg/L	0.45	0.42	0.33	0.32	0.32	0.29		
Eh / ORP (+/- 10)	MeV	-153.6	-151.0	-151.8	-149.6	-149.6	-149.0		
Specific Conductivity (+/- 3%)	mS/cm[c]	402.0	401.3	399.3	399.1	399.0	398.5		
Conductivity (+/- 3%)	mS/cm	0.336	0.334	0.333	0.333	0.334	0.333		
pH (+/- 0.1)	pH unit	7.50	7.51	7.52	7.52	7.52	7.53		
Temp (+/- 0.5)	C°	16.5	16.2	16.3	16.3	16.5	16.5		
Color	Visual	clear	clear	clear	clear	clear	clear		
Odor	Olfactory	—	—	—	—	—	—		
Dissolved Oxygen Downhole	%	-2.1	-2.2	-2.2	-2.3	-2.3	-2.3		
Dissolved Oxygen Downhole	mg/L	-0.25	-0.24	-0.24	-0.25	-0.25	-0.25		

Comments:

Sample @ 0855

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW34 Date: 6/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW34 062019 QA/QC Collected? yes

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	88.18	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	58.44	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1105	1110	1115	1120	1125	1130		
Water Level (0.33)	feet	58.78	58.76	58.79	58.75	58.75	58.75		
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10		
Flow Rate	mL/min	128	128	128	128	128	128		
Turbidity (+/- 10%)	NTU	6.90	5.13	4.87	5.11	4.06	5.55		
Dissolved Oxygen (+/- 10%)	%	6.9	3.9	3.3	2.5	2.1	3.7		
Dissolved Oxygen (+/- 10%)	mg/L	0.66	0.37	0.32	0.24	0.20	0.35		
Eh / ORP (+/- 10)	MeV	-142.3	-141.2	-140.8	-127.6	-136.0	-140.1		
Specific Conductivity (+/- 3%)	mS/cm^c	429.1	427.4	427.4	427.5	427.0	426.8		
Conductivity (+/- 3%)	mS/cm	0.367	0.367	0.367	0.364	0.367	0368		
pH (+/- 0.1)	pH unit	8.95	8.93	8.92	8.92	8.91	8.91		
Temp (+/- 0.5)	C°	17.5	17.6	17.6	17.3	17.7	17.8		
Color	Visual	clear	clear	clear	clear	clear	clear		
Odor	Olfactory	—	—	—	—	—	—		
Dissolved Oxygen Downhole	%	-1.8	-1.9	-1.9	-2.2	-2.0	-1.3		
Dissolved Oxygen Downhole	mg/L	-0.20	-0.20	-0.20	-0.24	-0.21	-0.15		

Comments:

sample @ 1140

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-15 Date: 6/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW15 QA/QC Collected? no

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	81.75	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.76	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1400	1405	1410	1415	1420	1425	1430	1435
Water Level (0.33)	feet	62.74	62.74	62.74	62.74	62.74	62.74	62.74	62.75
Volume Purged	gal	0.1	0.1	0.1	0.1	0.1	0.10	0.10	0.10
Flow Rate	mL/min	137	137	137	137	137	137	137	137
Turbidity (+/- 10%)	NTU	102.9	76.3	63.1	40.5	23.0	14.7	9.15	6.56
Dissolved Oxygen (+/- 10%)	%	82.8	80.8	81.2	80.9	79.5	80.5	80.4	80.1
Dissolved Oxygen (+/- 10%)	mg/L	8.05	7.96	7.99	8.03	7.89	8.02	8.00	7.99
Eh / ORP (+/- 10)	MeV	54.4	68.9	76.5	85.0	90.4	93.5	96.5	98.5
Specific Conductivity (+/- 3%)	mS/cm^c	554	553	551	549	549	550	551	550
Conductivity (+/- 3%)	mS/cm	0.466	0.458	0456	0.452	0452	0.450	0.449	0.449
pH (+/- 0.1)	pH unit	7.50	7.49	7.48	7.47	7.47	7.47	7.44	7.46
Temp (+/- 0.5)	C°	17.1	16.4	15.9	15.8	15.7	15.6	15.5	15.2
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory								
Dissolved Oxygen Downhole	%	93.8	93.8	94.0	93.9	93.8	94.0	94.0	94.2
Dissolved Oxygen Downhole	mg/L	10.33	10.34	10.36	10.35	10.34	10.39	10.36	10.41

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW15 Date: 6/20/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW15062019 QA/QC Collected? No

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	91.75	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	62.76	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1440	1445						
Water Level (0.33)	feet	62.75	62.75						
Volume Purged	gal	0.10	0.10						
Flow Rate	mL/min	137	137						
Turbidity (+/- 10%)	NTU	5.63	4.49						
Dissolved Oxygen (+/- 10%)	%	80.1	79.5						
Dissolved Oxygen (+/- 10%)	mg/L	8.00	7.98						
Eh / ORP (+/- 10)	MeV	101.4	102.0						
Specific Conductivity (+/- 3%)	mS/cm^c	558	550						
Conductivity (+/- 3%)	mS/cm	0.450	0.445						
pH (+/- 0.1)	pH unit	7.47	7.48						
Temp (+/- 0.5)	C°	15.5	15.2						
Color	Visual	clear	clear						
Odor	Olfactory	—	—						
Dissolved Oxygen Downhole	%	94.2	94.1						
Dissolved Oxygen Downhole	mg/L	10.41	10.40						

Comments:

Sample @ 1505

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW22 Date: 6/21/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW22 062119 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	77.81	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	64.38	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1100	1105	1110	1115	1120	1125	1130	1135
Water Level (0.33)	feet	64.4	64.4	64.4	64.4	64.38	64.38	64.38	64.38
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Flow Rate	mL/min	148	142	142	142	142	142	142	142
Turbidity (+/- 10%)	NTU	683	458	332	211	136	116	94.4	91.3
Dissolved Oxygen (+/- 10%)	%	94.8	92.5	90.3	88.3	88.3	86.6	84.9	84.5
Dissolved Oxygen (+/- 10%)	mg/L	9.30	9.19	8.95	8.70	8.66	8.54	8.37	8.34
Eh / ORP (+/- 10)	MeV	37.1	46.3	56.7	63.0	65.7	69.1	71.4	71.4
Specific Conductivity (+/- 3%)	mS/cm[c]	496.7	494.8	490.5	489.2	486.9	485.2	482.1	482.2
Conductivity (+/- 3%)	mS/cm	0.416	0.406	0.404	0.405	0.405	0.402	0.401	0.401
pH (+/- 0.1)	pH unit	8.09	7.99	7.97	7.91	7.88	7.82	7.77	7.77
Temp (+/- 0.5)	C°	15.9	15.8	15.7	16.0	16.1	16.1	16.2	16.1
Color	Visual	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—
Dissolved Oxygen Downhole	%	95.8	96.2	96.7	98.0	98.3	96.7	98.6	98.7
Dissolved Oxygen Downhole	mg/L	10.56	10.61	10.67	10.83	10.85	10.91	10.89	10.91

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW22 Date: 6/21/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW22 062119 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	77.81	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	64.38	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1140	1145	1150	1155	1200			
Water Level (0.33)	feet	64.38	64.38	64.38	64.38	64.38			
Volume Purged	gal	0.10	0.10	0.10	0.10	0.10			
Flow Rate	mL/min	142	142	142	142	142			
Turbidity (+/- 10%)	NTU	89.1	68.5	59.0	59.1	57.9			
Dissolved Oxygen (+/- 10%)	%	84.1	83.2	81.5	81.4	81.3			
Dissolved Oxygen (+/- 10%)	mg/L	8.26	8.19	8.09	8.06	8.06			
Eh / ORP (+/- 10)	MeV	72.0	75.0	79.3	80.3	81.7			
Specific Conductivity (+/- 3%)	mS/cm^c	482.7	480.0	476.8	477.0	475.6			
Conductivity (+/- 3%)	mS/cm	0.400	0.397	0.392	0.391	0.392			
pH (+/- 0.1)	pH unit	7.77	7.76	7.73	7.72	7.72			
Temp (+/- 0.5)	C°	16.0	15.8	15.7	15.6	15.7			
Color	Visual	clear	clear	clear	clear	clear			
Odor	Olfactory								
Dissolved Oxygen Downhole	%	98.9	99.5	99.6	99.3	99.4			
Dissolved Oxygen Downhole	mg/L	10.93	11.00	11.01	10.98	10.98			

Comments:

sample @ 1205

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW20 Date: 6/21/19

Samplers: Alex Golden, Jason Klein

Sample Number: MW20 QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	72.02	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	1350	1355	1400	1405	1410	1415		
Water Level (0.33)	feet	65.6	65.6	65.6	65.6	65.6	65.6		
Volume Purged	gal	0.1	0.1	0.1	0.1	0.1	0.1		
Flow Rate	mL/min	125	125	125	125	125	125		
Turbidity (+/- 10%)	NTU	22.3	6.91	6.19	6.37	5.89	9.25		
Dissolved Oxygen (+/- 10%)	%	95.8	91.8	90.8	91.2	93.4	93.2		
Dissolved Oxygen (+/- 10%)	mg/L	9.00	8.75	8.44	8.42	8.82	9.12		
Eh / ORP (+/- 10)	MeV	41.4	65.9	76.3	82.5	92.1	95.5		
Specific Conductivity (+/- 3%)	mS/cm^c	550	541	544	544	542	536		
Conductivity (+/- 3%)	mS/cm	0.465	0.470	0.480	0.477	0.471	0.477		
pH (+/- 0.1)	pH unit	7.41	7.37	7.36	7.35	7.37	7.42		
Temp (+/- 0.5)	C°	17.5	17.6	19.0	18.7	18.1	16.3		
Color	Visual	Clear	clear	clear	clear	clear	clear		
Odor	Olfactory	—	—	—	—	—	—		
Dissolved Oxygen Downhole	%	104.7	104.2	103.9	103.7	102.7	102.2		
Dissolved Oxygen Downhole	mg/L	11.41	11.38	11.36	11.36	11.27	11.25		

Comments:

Sample @ 1420 + DUP

Monitoring Well Purging / Sampling Form

Project Name and Number: Former Scotia Navy Depot 60440641

Monitoring Well Number: MW-25 Date: 6/21/2019

Samplers: ~~Alex Golden~~ Jason Klein, Tom QuackenbushL, Greg Dunlavey

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: Low Flow with Bladder Pump

1. L = Well Depth:	74.65	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	57.28	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 Pro DSS, Geotech Turbidity Meter, YSI 550A DO Meter

Parameter	Units	Readings							
Time	24 hr	0925	0930	0935	0940	0945	0950		
Water Level (0.33)	feet	~~57.28~~	57.28	57.28	57.28	57.28	57.28		
Volume Purged	gal	0.0	0.2	0.4	0.6	0.8	1.0		
Flow Rate	mL/min	250	250	250	250	250	250		
Turbidity (+/- 10%)	NTU	18.4	12.7	22.0	10.1	9.93	8.98		
Dissolved Oxygen (+/- 10%)	%	85.5	81.6	81.1	80.6	80.5	80.2		
Dissolved Oxygen (+/- 10%)	mg/L	8.56	8.36	8.31	8.27	8.26	8.22		
Eh / ORP (+/- 10)	MeV	201.4	207.3	213.0	217.0	220.1	200.3		
Specific Conductivity (+/- 3%)	mS/cm[c]	232.8	229.9	230.1	230.7	230.2	231.4		
Conductivity (+/- 3%)	mS/cm	186.0	182.7	183.6	183.0	183.8	183.5		
pH (+/- 0.1)	pH unit	7.47	7.46	7.46	7.46	7.47	7.47		
Temp (+/- 0.5)	C°	14.6	14.2	14.4	14.1	14.2	14.1		
Color	Visual	Clear	clear	clear	Clear	clear	clear		
Odor	Olfactory	–	–	–	–				
Dissolved Oxygen Downhole	%	81.6	81.8	82.3	82.7	83.4	84.0		
Dissolved Oxygen Downhole	mg/L	8.95	8.98	9.04	9.08	9.16	9.22		

Comments:

APPENDIX B: Field Calibration Forms

Calibration Log

Site: Scotia
Personnel: Jason Klein

Date: 06/17/19 **Time:** 0930 **Instrument:** YSI

PH1	4.63	-> 4.00	ORP	193	-> 220
PH2	7.63	-> 7.01	Cond.	662	-> 1413
PH3	10.00	-> 10.00	Turb.		

Date: 6/18/19 **Time:** 0735 **Instrument:** YSI

PH1	3.69	-> 4.00	ORP	193.4	-> 220.0
PH2	6.99	-> 7.02	Cond.	2975	-> 1413
PH3	9.96	-> 10.00	Turb.	0.0	

Date: 6/20/19 **Time:** 0730 **Instrument:** YSI

PH1	3.99	-> 4.00	ORP	216.6	-> 220
PH2	6.93	-> 7.00	Cond.	1431	-> 1413
PH3	9.99	-> 10.00	Turb.		

DO ✓ -.02

Date: _____ **Time:** _____ **Instrument:** _____

PH1	_____	-> _____	ORP	_____	-> _____
PH2	_____	-> _____	Cond.	_____	-> _____
PH3	_____	-> _____	Turb.		

Date: _____ **Time:** _____ **Instrument:** _____

PH1	_____	-> _____	ORP	_____	-> _____
PH2	_____	-> _____	Cond.	_____	-> _____
PH3	_____	-> _____	Turb.		

Calibration Log

Site: Scotia
Personnel: Alexandra Holden

Date: 06/17/19 Time: 0930 Instrument: YSI

PH1 4.02 -> 4.00 ORP ____ -> 220
PH2 6.96 -> 7.00 Cond. 1281 -> 1413 DO ✓ ____
PH3 10.12 -> 10.00 Turb. 0.00

Date: 6/18/19 Time: 0720 Instrument: YSI

PH1 3.94 -> 4.00 ORP 215.5 -> 220
PH2 6.88 -> 7.00 Cond. 1516 -> 1413 DO ✓ .02
PH3 9.95 -> 10.00 Turb. 0.00

Date: 6/19/19 Time: 0800 Instrument: YSI

PH1 3.77 -> 4.00 ORP 218.5 -> 220 DO ✓ -0.2
PH2 6.96 -> 7.00 Cond. 1415 -> 1413
PH3 10.05 -> 10.06 Turb. ____

Date: 6/19/19 Time: 1600 Instrument: YSI

PH1 4.09 -> 4.00 ORP 211.2 -> 220
PH2 7.07 -> 7.00 Cond. 1453 -> 1413 DO ✓ 0.43
PH3 9.99 -> 10.02 Turb. ____

---

ate: 6/20/19 Time: 0730 Instrument: YSI

3.94 -> 4.00 ORP 207.7 -> 220
7.01 -> 7.00 Cond. 1387 -> 1413 DO ✓ .07
9.91 -> 10.00 Turb. ____

Calibration Log

Site: _____
Personnel: SK

Date: 6/29/19 **Time:** 0740 **Instrument:** 951

PH1 4.20 -> 4.00 ORP 217.3 -> 220

PH2 7.16 -> 7.00 Cond. 1371 -> 1413

PH3 9.99 -> 10.00 Turb. _____

Date: _____ **Time:** _____ **Instrument:** _____

PH1 _____ -> _____ ORP _____ -> _____

PH2 _____ -> _____ Cond. _____ -> _____

PH3 _____ -> _____ Turb. _____

Date: _____ **Time:** _____ **Instrument:** _____

PH1 _____ -> _____ ORP _____ -> _____

PH2 _____ -> _____ Cond. _____ -> _____

PH3 _____ -> _____ Turb. _____

Date: _____ **Time:** _____ **Instrument:** _____

PH1 _____ -> _____ ORP _____ -> _____

PH2 _____ -> _____ Cond. _____ -> _____

PH3 _____ -> _____ Turb. _____

Date: _____ **Time:** _____ **Instrument:** _____

PH1 _____ -> _____ ORP _____ -> _____

PH2 _____ -> _____ Cond. _____ -> _____

PH3 _____ -> _____ Turb. _____

Calibration Log

Site: _____
Personnel: _____

Date: 6/21/19 Time: 0745 Instrument: 451

PH1 3.98 -> 4.00 ORP 224.1 -> 220
PH2 6.97 -> 7.00 Cond. 1433 -> 1413
PH3 10.61 -> 10.00 Turb. _____

Date: 6/21/19 Time: 0745 Instrument: _____

PH1 4.1 -> 4.0 ORP _____ -> _____
PH2 _____ -> _____ Cond. _____ -> _____
PH3 _____ -> _____ Turb. _____

Date: 6/21/19 Time: 0750 Instrument: 451

PH1 4.01 -> 4.00 ORP 237.2 -> 220
PH2 11.26 -> 10.00 Cond. 2093 -> 1413
PH3 7.16 -> 7.00 Turb. _____

Date: 6/21/19 Time: 1040 Instrument: 451

PH1 6.84 -> 7.00 ORP 1683 -> 220 SOV .03
PH2 3.93 -> 4.00 Cond. 1418 -> 1413
PH3 9.89 -> 10.00 Turb. _____

Date: _____ Time: _____ Instrument: _____

PH1 _____ -> _____ ORP _____ -> _____
PH2 _____ -> _____ Cond. _____ -> _____
PH3 _____ -> _____ Turb. _____

APPENDIX C: Hydraulic Gradient and Velocity Calculations

June 2019 Annual Monitoring Report
The Defense National Stockpile Center Scotia Depot
Appendix C Hydraulic Gradient and Velocity Calculations

Hydraulic Gradient Calculation

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

June 2019 Data		GW Elevation (ft)	Delta Elevation (ft)	Delta Distance (ft)	Gradient	**Average Gradient (ft/ft)**
Pair 1	MW-25	230.83	2.61	540	0.004833	**0.003785**
	MW-26	228.22				
Pair 2	GEP-3	230.76	1.11	420	0.002643	
	MW-13	229.65				
Pair 3	MW-17	231.56	1.59	410	0.003878	
	MW-28	229.97				

Groundwater Darcy Velocity

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

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

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

Seepage Velocity

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

Porosity (n)	0.4

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

APPENDIX D: Laboratory Reports

ALS Environmental

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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

July 1, 2019

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:	**3040618**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN050|SCOTIA NAVY DEPOT**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, June 19, 2019.

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 , Mr. Scott Underhill

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: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3040618001	GEP-1 061819	Ground Water	6/18/2019 09:15	6/19/2019 08:44	Collected by Client
3040618002	GEP-3 061819	Ground Water	6/18/2019 09:55	6/19/2019 08:44	Collected by Client
3040618003	GEP-2 061819	Ground Water	6/18/2019 11:50	6/19/2019 08:44	Collected by Client
3040618004	GEP-4 061819	Ground Water	6/18/2019 11:52	6/19/2019 08:44	Collected by Client
3040618005	MW-18 061819	Ground Water	6/18/2019 13:50	6/19/2019 08:44	Collected by Client
3040618006	MW-14 061819	Ground Water	6/18/2019 14:15	6/19/2019 08:44	Collected by Client
3040618007	MW-19 061819	Ground Water	6/18/2019 15:20	6/19/2019 08:44	Collected by Client
3040618008	MW-17 061819	Ground Water	6/18/2019 15:57	6/19/2019 08:44	Collected by Client
3040618009	TRIP BLANK	Ground Water	6/19/2019 08:44	6/19/2019 08:44	Collected by Client

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SAMPLE SUMMARY

Workorder: 3040618 ASN050|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: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618001** Date Collected: 6/18/2019 09:15 Matrix: Ground Water

Sample ID: **GEP-1 061819** Date Received: 6/19/2019 08:44

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			6/27/19 18:22	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1-Dichloroethene	0.41J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
cis-1,2-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Tetrachloroethene	0.51J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,1-Trichloroethane	5.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Trichloroethene	150		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/27/19 18:22	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/27/19 18:22	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119	SW846 8260C			6/27/19 18:22	TMP	A
Toluene-d8 (S)	98		%	89 - 112	SW846 8260C			6/27/19 18:22	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618002** Date Collected: 6/18/2019 09:55 Matrix: Ground Water

Sample ID: **GEP-3 061819** Date Received: 6/19/2019 08:44

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			6/27/19 18:45	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Tetrachloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,1-Trichloroethane	2.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Trichloroethene	137	2	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/27/19 18:45	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/27/19 18:45	TMP	A
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C			6/27/19 18:45	TMP	A
Toluene-d8 (S)	99.4		%	89 - 112	SW846 8260C			6/27/19 18:45	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618003** Date Collected: 6/18/2019 11:50 Matrix: Ground Water

Sample ID: **GEP-2 061819** Date Received: 6/19/2019 08:44

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			6/27/19 19:07	TMP	A
1,1-Dichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,1-Dichloroethene	0.69J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
cis-1,2-Dichloroethene	3.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
Tetrachloroethene	4.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,1,1-Trichloroethane	19.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
Trichloroethene	171		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:07	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			6/27/19 19:07	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/27/19 19:07	TMP	A
Dibromofluoromethane (S)	98.7		%	80 - 119			SW846 8260C			6/27/19 19:07	TMP	A
Toluene-d8 (S)	99.7		%	89 - 112			SW846 8260C			6/27/19 19:07	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618004** Date Collected: 6/18/2019 11:52 Matrix: Ground Water

Sample ID: **GEP-4 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.39J	J,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1-Dichloroethene	0.73J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
cis-1,2-Dichloroethene	0.41J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Tetrachloroethene	3.2		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,1-Trichloroethane	13.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Trichloroethene	312		ug/L	10.0	7.5	3.3	SW846 8260C		6/28/19 17:28	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118			SW846 8260C		6/27/19 21:01	TMP	A
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C		6/28/19 17:28	TMP	B
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/27/19 21:01	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/28/19 17:28	TMP	B
Dibromofluoromethane (S)	97.7		%	80 - 119			SW846 8260C		6/28/19 17:28	TMP	B
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C		6/27/19 21:01	TMP	A
Toluene-d8 (S)	98.8		%	89 - 112			SW846 8260C		6/27/19 21:01	TMP	A
Toluene-d8 (S)	98.2		%	89 - 112			SW846 8260C		6/28/19 17:28	TMP	B

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618005** Date Collected: 6/18/2019 13:50 Matrix: Ground Water

Sample ID: **MW-18 061819** Date Received: 6/19/2019 08:44

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			6/27/19 19:30	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Tetrachloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Trichloroethene	110		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/27/19 19:30	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/27/19 19:30	TMP	A
Dibromofluoromethane (S)	94		%	80 - 119	SW846 8260C			6/27/19 19:30	TMP	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C			6/27/19 19:30	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618006** Date Collected: 6/18/2019 14:15 Matrix: Ground Water

Sample ID: **MW-14 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.54J	J,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
cis-1,2-Dichloroethene	0.63J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Tetrachloroethene	10.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,1-Trichloroethane	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Trichloroethene	2.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/27/19 19:53	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/27/19 19:53	TMP	A
Dibromofluoromethane (S)	97.8		%	80 - 119	SW846 8260C		6/27/19 19:53	TMP	A
Toluene-d8 (S)	102		%	89 - 112	SW846 8260C		6/27/19 19:53	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618007** Date Collected: 6/18/2019 15:20 Matrix: Ground Water

Sample ID: **MW-19 061819** Date Received: 6/19/2019 08:44

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			6/27/19 20:16	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Trichloroethene	9.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C			6/27/19 20:16	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/27/19 20:16	TMP	A
Dibromofluoromethane (S)	96.8		%	80 - 119	SW846 8260C			6/27/19 20:16	TMP	A
Toluene-d8 (S)	100		%	89 - 112	SW846 8260C			6/27/19 20:16	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618008** Date Collected: 6/18/2019 15:57 Matrix: Ground Water

Sample ID: **MW-17 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.42J	J,1	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1-Dichloroethane	0.95J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
cis-1,2-Dichloroethene	2.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Tetrachloroethene	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,1-Trichloroethane	22.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Trichloroethene	31.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C			6/27/19 20:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/27/19 20:38	TMP	A
Dibromofluoromethane (S)	98.2		%	80 - 119	SW846 8260C			6/27/19 20:38	TMP	A
Toluene-d8 (S)	99.4		%	89 - 112	SW846 8260C			6/27/19 20:38	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618009** Date Collected: 6/19/2019 08:44 Matrix: Ground Water

Sample ID: **TRIP BLANK** Date Received: 6/19/2019 08:44

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		6/27/19 17:59	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C		6/27/19 17:59	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/27/19 17:59	TMP	A
Dibromofluoromethane (S)	95.2		%	80 - 119	SW846 8260C		6/27/19 17:59	TMP	A
Toluene-d8 (S)	98.2		%	89 - 112	SW846 8260C		6/27/19 17:59	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3040618001	1	GEP-1 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618002	1	GEP-3 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618002	2	GEP-3 061819	SW846 8260C	Trichloroethene
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Trichloroethene. The % Recovery was reported as 75.4 and the control limits were 79 to 123.				
3040618003	1	GEP-2 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618004	1	GEP-4 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618005	1	MW-18 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618006	1	MW-14 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618007	1	MW-19 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618008	1	MW-17 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618009	1	TRIP BLANK	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID	Sample ID	Analysis Method	Prep Method
3040618001	GEP-1 061819	SW846 8260C	
3040618002	GEP-3 061819	SW846 8260C	
3040618003	GEP-2 061819	SW846 8260C	
3040618004	GEP-4 061819	SW846 8260C	
3040618005	MW-18 061819	SW846 8260C	
3040618006	MW-14 061819	SW846 8260C	
3040618007	MW-19 061819	SW846 8260C	
3040618008	MW-17 061819	SW846 8260C	
3040618009	TRIP BLANK	SW846 8260C	

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QUALITY CONTROL DATA

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

QC Batch: VOMS/51406 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3040618001, 3040618002, 3040618003, 3040618004, 3040618005, 3040618006, 3040618007, 3040618008, 3040618009

METHOD BLANK: 2971225

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)	107	%	81 - 118
4-Bromofluorobenzene (S)	108	%	85 - 114
Dibromofluoromethane (S)	97.7	%	80 - 119
Toluene-d8 (S)	99.5	%	89 - 112

LABORATORY CONTROL SAMPLE: 2971226

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	97.2	ug/L	20	19.4	72 - 136
1,1-Dichloroethane	113	ug/L	20	22.6	77 - 125
1,2-Dichloroethane	108	ug/L	20	21.6	73 - 128
1,1-Dichloroethene	118	ug/L	20	23.6	71 - 131
cis-1,2-Dichloroethene	111	ug/L	20	22.2	78 - 123
trans-1,2-Dichloroethene	118	ug/L	20	23.6	75 - 124
1,1,1,2-Tetrachloroethane	119	ug/L	20	23.7	78 - 124
1,1,2,2-Tetrachloroethane	109	ug/L	20	21.7	71 - 121
Tetrachloroethene	117	ug/L	20	23.3	74 - 129
Toluene	114	ug/L	20	22.7	80 - 121
1,1,1-Trichloroethane	117	ug/L	20	23.5	74 - 131
1,1,2-Trichloroethane	110	ug/L	20	22.1	80 - 119
Trichloroethene	109	ug/L	20	21.9	79 - 123

QUALITY CONTROL DATA

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Vinyl Chloride	99.7	ug/L	20	19.9	58 - 137
1,2-Dichloroethane-d4 (S)	102	%			81 - 118
4-Bromofluorobenzene (S)	110	%			85 - 114
Dibromofluoromethane (S)	102	%			80 - 119
Toluene-d8 (S)	102	%			89 - 112

MATRIX SPIKE: 2971677 DUPLICATE: 2971678 ORIGINAL: 3040618002

****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	21.1065	20.0984	106	100	72 - 136	4.89	30
1,1-Dichloroethane	0	ug/L	20	22.4775	21.7828	112	109	77 - 125	3.14	30
1,2-Dichloroethane	0	ug/L	20	21.0285	21.1311	105	106	73 - 128	.49	30
1,1-Dichloroethene	0	ug/L	20	25.4019	23.3873	127	117	71 - 131	8.26	30
cis-1,2-Dichloroethene	0	ug/L	20	21.9838	21.394	110	107	78 - 123	2.72	30
trans-1,2-Dichloroethene	0	ug/L	20	23.155	21.7787	116	109	75 - 124	6.13	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.8408	23.0334	114	115	78 - 124	.84	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	20.7083	20.9777	104	105	71 - 121	1.29	30
Tetrachloroethene	.55374	ug/L	20	23.4378	23.6879	114	116	74 - 129	1.06	30
Toluene	0	ug/L	20	22.4881	22.0524	112	110	80 - 121	1.96	30
1,1,1-Trichloroethane	2.09276	ug/L	20	25.6418	25.3503	118	116	74 - 131	1.14	30
1,1,2-Trichloroethane	0	ug/L	20	21.3216	21.5684	107	108	80 - 119	1.15	30
Trichloroethene	136.656	ug/L	20	158.399	151.739	NC	NC	79 - 123	4.29	30
Vinyl Chloride	0	ug/L	20	20.6488	18.9873	103	94.9	58 - 137	8.38	30
1,2-Dichloroethane-d4 (S)	102	%				102	98.4	81 - 118		
4-Bromofluorobenzene (S)	107	%				107	105	85 - 114		
Dibromofluoromethane (S)	101	%				101	95.7	80 - 119		
Toluene-d8 (S)	100	%				100	97.3	89 - 112		

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QUALITY CONTROL DATA

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

QC Batch: VOMS/51428 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3040618004

METHOD BLANK: 2972042

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)	106	%	81 - 118
4-Bromofluorobenzene (S)	107	%	85 - 114
Dibromofluoromethane (S)	98	%	80 - 119
Toluene-d8 (S)	98.6	%	89 - 112

LABORATORY CONTROL SAMPLE: 2972043

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Trichloroethene	101	ug/L	20	20.1	79 - 123
1,1,1,2-Tetrachloroethane	108	ug/L	20	21.6	78 - 124
1,1,1-Trichloroethane	109	ug/L	20	21.8	74 - 131
1,1,2,2-Tetrachloroethane	104	ug/L	20	20.7	71 - 121
1,1,2-Trichloroethane	103	ug/L	20	20.7	80 - 119
1,1-Dichloroethane	107	ug/L	20	21.3	77 - 125
1,1-Dichloroethene	110	ug/L	20	21.9	71 - 131
1,2-Dichloroethane	105	ug/L	20	21.1	73 - 128
Carbon Tetrachloride	93.7	ug/L	20	18.7	72 - 136
Tetrachloroethene	106	ug/L	20	21.3	74 - 129
Toluene	104	ug/L	20	20.7	80 - 121
Vinyl Chloride	88.7	ug/L	20	17.7	58 - 137
cis-1,2-Dichloroethene	105	ug/L	20	20.9	78 - 123

QUALITY CONTROL DATA

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

trans-1,2-Dichloroethene	108	ug/L	20	21.5	75 - 124
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	100	%			80 - 119
Toluene-d8 (S)	96.9	%			89 - 112

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3040618001	GEP-1 061819			SW846 8260C	VOMS/51406
3040618002	GEP-3 061819			SW846 8260C	VOMS/51406
3040618003	GEP-2 061819			SW846 8260C	VOMS/51406
3040618004	GEP-4 061819			SW846 8260C	VOMS/51406
3040618005	MW-18 061819			SW846 8260C	VOMS/51406
3040618006	MW-14 061819			SW846 8260C	VOMS/51406
3040618007	MW-19 061819			SW846 8260C	VOMS/51406
3040618008	MW-17 061819			SW846 8260C	VOMS/51406
3040618009	TRIP BLANK			SW846 8260C	VOMS/51406
3040618004	GEP-4 061819			SW846 8260C	VOMS/51428

Monday, July 01, 2019 7:24:36 AM
Page 20 of 21

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.

* 3 0 4 0 6 1 8 *

of

Client Name:	AECOM
Address:	40 British American BLVD Latham NY 12110
Contact:	Gerlinde Nolf
Phone#:	585-490-0187
Project Name/#:	Scotia NAVY Dept
Bill To:	
TAT	☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required:	Approved?
Email?	☑ Y gerlinde.nolf@aecom.com
Fax?	☐ Y No:

Container Type: G
Container Size: VOA
Preservative: HCL

ANALYSES/METHOD REQUESTED: 8260C

(completed by Receiving Lab)

W.O. Temp: 7 Therm ID: 3IR
Analyst Initials:
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	GEP-1 061819	06/18/19	0915	G	GW	2	
2	GEP-3 061819	"	0955	"	"	2	
3	GEP-2 061819	"	1150	"	"	2	
4	GEP-4 061819	"	1152	"	"	2	
5	MW-18 061819	"	1350	"	"	2	
6	MW-14 061819	"	1415	"	"	2	
7	MW-19 061819	"	1520	"	"	2	
8	MW-17 061819	"	1557	"	"	2	
9	Trip Blank	—	—	↓	↓	2	
10							HG

SAMPLED BY (Please Print): Alexandra Holden

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AG/AH (AL)	6/18/19	1700	2 Fedex		
3 Fedex			4 Fed Ex ALS	6/19/19	0844
5			6		
7			8		
9			10		

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

Special Processing: USACE ☐ ☐ ☐

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

Reportable to PADEP? Yes ☐ No ☐ PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Formal 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 04/19

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

Condition of Sample Receipt Form

Client: AECOM | Work Order #: 3040618 | Initials: EM | Date: 6/19/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4984			
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?	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 GW		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): 7

Thermometer ID: 318

Radiological (µCi): _____

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

Samples received in bubble wrap, on top of the ice. No direct contact between samples and ice.

PM notified of out of temp.

Rev. 4/29/2019

ALS Environmental

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July 2, 2019

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

Certificate of Analysis

Revised Report - 7/2/2019 7:22:49 AM - See workorder comment section for explanation

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3040977**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN046|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Thursday, June 20, 2019.

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 , Mr. Scott Underhill

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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Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN046|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 , Mr. Scott Underhill

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: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3040977001	MW-29 061919	Ground Water	6/19/2019 09:30	6/20/2019 11:31	Collected by Client
3040977002	MW-28 061919	Ground Water	6/19/2019 10:15	6/20/2019 11:31	Collected by Client
3040977003	MW-31 061919	Ground Water	6/19/2019 13:05	6/20/2019 11:31	Collected by Client
3040977004	MW-30 061919	Ground Water	6/19/2019 13:50	6/20/2019 11:31	Collected by Client
3040977005	MW-33 061919	Ground Water	6/19/2019 15:45	6/20/2019 11:31	Collected by Client
3040977006	Trip Blank	Ground Water	6/20/2019 11:31	6/20/2019 11:31	Collected by Client

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SAMPLE SUMMARY

Workorder: 3040977 ASN046|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

PROJECT SUMMARY

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Workorder Comments

This Certificate of Analysis has been modified in order to edit the sample ID on -004 per client request. VNB 7/1/19

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977001** Date Collected: 6/19/2019 09:30 Matrix: Ground Water

Sample ID: **MW-29 061919** Date Received: 6/20/2019 11:31

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			6/27/19 09:51	PDK	A
1,1-Dichloroethane	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
cis-1,2-Dichloroethene	5.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Tetrachloroethene	29.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,1-Trichloroethane	8.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Trichloroethene	161		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C			6/27/19 09:51	PDK	A
4-Bromofluorobenzene (S)	110		%	85 - 114			SW846 8260C			6/27/19 09:51	PDK	A
Dibromofluoromethane (S)	103		%	80 - 119			SW846 8260C			6/27/19 09:51	PDK	A
Toluene-d8 (S)	103		%	89 - 112			SW846 8260C			6/27/19 09:51	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 05:07	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 05:07	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 05:07	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 05:07	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 05:07	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 05:07	CHS	H
WET CHEMISTRY												
Alkalinity, Total	342	1	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:09	MBW	G
Chloride	38.9		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 05:45	CHW	F
Nitrate-N	0.26		mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 05:45	CHW	F
Sulfate	12.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 05:45	CHW	F
Total Organic Carbon (TOC)	5.3		mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D
METALS												
Iron, Total	0.13		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:45	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:06	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977001** Date Collected: 6/19/2019 09:30 Matrix: Ground Water

Sample ID: **MW-29 061919** Date Received: 6/20/2019 11:31

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

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: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977002** Date Collected: 6/19/2019 10:15 Matrix: Ground Water

Sample ID: **MW-28 061919** Date Received: 6/20/2019 11:31

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1-Dichloroethane	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
cis-1,2-Dichloroethene	5.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Tetrachloroethene	31.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,1-Trichloroethane	8.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Trichloroethene	172		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118			SW846 8260C			6/28/19 03:11	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 03:11	PDK	B
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C			6/28/19 03:11	PDK	B
Toluene-d8 (S)	97.5		%	89 - 112			SW846 8260C			6/28/19 03:11	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 05:24	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 05:24	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 05:24	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 05:24	CHS	H
Methane	1.4J	J	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 05:24	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 05:24	CHS	H
WET CHEMISTRY												
Alkalinity, Total	325	2	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:20	MBW	G
Chloride	41.6		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 05:59	CHW	F
Nitrate-N	0.16J	J	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 05:59	CHW	F
Sulfate	13.6		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 05:59	CHW	F
Total Organic Carbon (TOC)	1.6		mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D
METALS												
Iron, Total	0.045U	U	mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:49	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:10	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID:	**3040977002**	Date Collected:	6/19/2019 10:15	Matrix:	Ground Water
Sample ID:	**MW-28 061919**	Date Received:	6/20/2019 11:31		

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

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977003** Date Collected: 6/19/2019 13:05 Matrix: Ground Water

Sample ID: **MW-31 061919** Date Received: 6/20/2019 11:31

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			6/28/19 03:34	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Trichloroethene	26.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 03:34	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 03:34	PDK	B
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C			6/28/19 03:34	PDK	B
Toluene-d8 (S)	98.4		%	89 - 112			SW846 8260C			6/28/19 03:34	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:02	CHS	H
Ethane	3.0J	J	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:02	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:02	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:02	CHS	H
Methane	99.3		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:02	CHS	H
Propane	2.4J	J	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:02	CHS	H
WET CHEMISTRY												
Alkalinity, Total	142	2	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:29	MBW	G
Chloride	45.9		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:12	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:12	CHW	F
Sulfate	10.2		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:12	CHW	F
Total Organic Carbon (TOC)	0.85J	J	mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D
METALS												
Iron, Total	0.72		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:52	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:13	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977003** Date Collected: 6/19/2019 13:05 Matrix: Ground Water

Sample ID: **MW-31 061919** Date Received: 6/20/2019 11:31

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

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977004** Date Collected: 6/19/2019 13:50 Matrix: Ground Water

Sample ID: **MW-30 061919** Date Received: 6/20/2019 11:31

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			6/27/19 05:20	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Trichloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	81 - 118			SW846 8260C			6/27/19 05:20	PDK	A
4-Bromofluorobenzene (S)	114		%	85 - 114			SW846 8260C			6/27/19 05:20	PDK	A
Dibromofluoromethane (S)	107		%	80 - 119			SW846 8260C			6/27/19 05:20	PDK	A
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C			6/27/19 05:20	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:18	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:18	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:18	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:18	CHS	H
Methane	91.6		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:18	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:18	CHS	H
WET CHEMISTRY												
Alkalinity, Total	65	1	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:38	MBW	G
Chloride	37.6		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:25	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:25	CHW	F
Sulfate	0.28J	J	mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:25	CHW	F
Total Organic Carbon (TOC)	7.7		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 03:15	PAG	D
METALS												
Iron, Total	0.93		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:56	SRT	J1
Iron, Dissolved	0.33		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:17	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977004** Date Collected: 6/19/2019 13:50 Matrix: Ground Water
Sample ID: **MW-30 061919** Date Received: 6/20/2019 11:31

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

Vanessa N. Badman
Mrs. Vanessa N Badman
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977005** Date Collected: 6/19/2019 15:45 Matrix: Ground Water

Sample ID: **MW-33 061919** Date Received: 6/20/2019 11:31

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			6/28/19 03:56	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Trichloroethene	97.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C			6/28/19 03:56	PDK	B
4-Bromofluorobenzene (S)	104		%	85 - 114			SW846 8260C			6/28/19 03:56	PDK	B
Dibromofluoromethane (S)	96.1		%	80 - 119			SW846 8260C			6/28/19 03:56	PDK	B
Toluene-d8 (S)	97		%	89 - 112			SW846 8260C			6/28/19 03:56	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:37	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:37	CHS	H
Ethene	1.2J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:37	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:37	CHS	H
Methane	4.7		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:37	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:37	CHS	H
WET CHEMISTRY												
Alkalinity, Total	172	2	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:47	MBW	G
Chloride	21.2		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:39	CHW	F
Nitrate-N	0.42		mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:39	CHW	F
Sulfate	10.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:39	CHW	F
Total Organic Carbon (TOC)	1.8		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 03:15	PAG	D
METALS												
Iron, Total	0.32		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:00	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:21	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977005** Date Collected: 6/19/2019 15:45 Matrix: Ground Water

Sample ID: **MW-33 061919** Date Received: 6/20/2019 11:31

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

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977006** Date Collected: 6/20/2019 11:31 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/20/2019 11:31

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		6/28/19 02:03	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		6/28/19 02:03	PDK	B
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/28/19 02:03	PDK	B
Dibromofluoromethane (S)	96.2		%	80 - 119	SW846 8260C		6/28/19 02:03	PDK	B
Toluene-d8 (S)	98.2		%	89 - 112	SW846 8260C		6/28/19 02:03	PDK	B

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3040977001	1	MW-29 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977002	2	MW-28 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977003	2	MW-31 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977004	1	MW-30 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977005	2	MW-33 061919	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: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
3040977001	MW-29 061919	EPA 300.0	
3040977001	MW-29 061919	In-House	
3040977001	MW-29 061919	RSK 175	
3040977001	MW-29 061919	SM2320B-2011	
3040977001	MW-29 061919	SM5310B-2011	
3040977001	MW-29 061919	SW846 6010C	SW846 3015
3040977001	MW-29 061919	SW846 6010C	SW846 6010C
3040977001	MW-29 061919	SW846 8260C	
3040977002	MW-28 061919	EPA 300.0	
3040977002	MW-28 061919	In-House	
3040977002	MW-28 061919	RSK 175	
3040977002	MW-28 061919	SM2320B-2011	
3040977002	MW-28 061919	SM5310B-2011	
3040977002	MW-28 061919	SW846 6010C	SW846 3015
3040977002	MW-28 061919	SW846 6010C	SW846 6010C
3040977002	MW-28 061919	SW846 8260C	
3040977003	MW-31 061919	EPA 300.0	
3040977003	MW-31 061919	In-House	
3040977003	MW-31 061919	RSK 175	
3040977003	MW-31 061919	SM2320B-2011	
3040977003	MW-31 061919	SM5310B-2011	
3040977003	MW-31 061919	SW846 6010C	SW846 3015
3040977003	MW-31 061919	SW846 6010C	SW846 6010C
3040977003	MW-31 061919	SW846 8260C	
3040977004	MW-30 061919	EPA 300.0	
3040977004	MW-30 061919	In-House	
3040977004	MW-30 061919	RSK 175	
3040977004	MW-30 061919	SM2320B-2011	
3040977004	MW-30 061919	SM5310B-2011	
3040977004	MW-30 061919	SW846 6010C	SW846 3015
3040977004	MW-30 061919	SW846 6010C	SW846 6010C
3040977004	MW-30 061919	SW846 8260C	
3040977005	MW-33 061919	EPA 300.0	
3040977005	MW-33 061919	In-House	
3040977005	MW-33 061919	RSK 175	
3040977005	MW-33 061919	SM2320B-2011	
3040977005	MW-33 061919	SM5310B-2011	
3040977005	MW-33 061919	SW846 6010C	SW846 3015
3040977005	MW-33 061919	SW846 6010C	SW846 6010C
3040977005	MW-33 061919	SW846 8260C	
3040977006	Trip Blank	SW846 8260C	

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QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/78581 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2970420

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

LABORATORY CONTROL SAMPLE: 2970421

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	95.5	mg/L	1	0.95	87 - 115

MATRIX SPIKE: 2970422 DUPLICATE: 2970423 ORIGINAL: 3041673002

****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	0	mg/L	1	.8831	.8835	88.3	88.4	87 - 115	.05	20

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/78599 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2970742

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

LABORATORY CONTROL SAMPLE: 2970743

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	102	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE: 2970744 DUPLICATE: 2970745 ORIGINAL: 3041673002

****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	.06767	mg/L	1.1	1.14221	1.15221	96.7	97.6	87 - 115	.87	20

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/53595 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2971102

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	0.70J	ug/L	1.5
Propane	3.2U	ug/L	3.2

SAMPLE DUPLICATE: 2971103 ORIGINAL: 3040977002

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	1.41	ug/L	1.21	15.3	20
Propane	0	ug/L	0	NC	20

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/51401 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005, 3040977006

METHOD BLANK: 2970901

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)	111	%	81 - 118
4-Bromofluorobenzene (S)	114	%	85 - 114
Dibromofluoromethane (S)	104	%	80 - 119
Toluene-d8 (S)	107	%	89 - 112

LABORATORY CONTROL SAMPLE: 2970902

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	103	ug/L	20	20.6	72 - 136
1,1-Dichloroethane	112	ug/L	20	22.4	77 - 125
1,2-Dichloroethane	107	ug/L	20	21.4	73 - 128
1,1-Dichloroethene	120	ug/L	20	23.9	71 - 131
cis-1,2-Dichloroethene	111	ug/L	20	22.3	78 - 123
trans-1,2-Dichloroethene	119	ug/L	20	23.7	75 - 124
1,1,1,2-Tetrachloroethane	116	ug/L	20	23.3	78 - 124
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.2	71 - 121
Tetrachloroethene	118	ug/L	20	23.6	74 - 129
Toluene	112	ug/L	20	22.4	80 - 121
1,1,1-Trichloroethane	119	ug/L	20	23.8	74 - 131
1,1,2-Trichloroethane	106	ug/L	20	21.1	80 - 119
Trichloroethene	106	ug/L	20	21.2	79 - 123

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	95.8	ug/L	20	19.2	58 - 137
1,2-Dichloroethane-d4 (S)	105	%			81 - 118
4-Bromofluorobenzene (S)	112	%			85 - 114
Dibromofluoromethane (S)	106	%			80 - 119
Toluene-d8 (S)	105	%			89 - 112

MATRIX SPIKE: 2971069 DUPLICATE: 2971070 ORIGINAL: 3040591006

****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
1,2-Dichloroethane-d4 (S)	116	%				116	108	81 - 118		
4-Bromofluorobenzene (S)	113	%				113	115*	85 - 114		
Dibromofluoromethane (S)	107	%				107	106	80 - 119		
Toluene-d8 (S)	103	%				103	106	89 - 112		

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QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/51421 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3040977002, 3040977003, 3040977005, 3040977006

METHOD BLANK: 2971729

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)	102	%	81 - 118
4-Bromofluorobenzene (S)	105	%	85 - 114
Dibromofluoromethane (S)	95.4	%	80 - 119
Toluene-d8 (S)	98.7	%	89 - 112

LABORATORY CONTROL SAMPLE: 2971730

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	102	ug/L	20	20.3	72 - 136
1,1-Dichloroethane	109	ug/L	20	21.8	77 - 125
1,2-Dichloroethane	104	ug/L	20	20.8	73 - 128
1,1-Dichloroethene	119	ug/L	20	23.7	71 - 131
cis-1,2-Dichloroethene	106	ug/L	20	21.3	78 - 123
trans-1,2-Dichloroethene	109	ug/L	20	21.8	75 - 124
1,1,1,2-Tetrachloroethane	115	ug/L	20	23.0	78 - 124
1,1,2,2-Tetrachloroethane	103	ug/L	20	20.7	71 - 121
Tetrachloroethene	120	ug/L	20	24.0	74 - 129
Toluene	110	ug/L	20	21.9	80 - 121
1,1,1-Trichloroethane	117	ug/L	20	23.3	74 - 131
1,1,2-Trichloroethane	107	ug/L	20	21.5	80 - 119
Trichloroethene	105	ug/L	20	20.9	79 - 123

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	93.8	ug/L	20	18.8	58 - 137
1,2-Dichloroethane-d4 (S)	98.8	%			81 - 118
4-Bromofluorobenzene (S)	107	%			85 - 114
Dibromofluoromethane (S)	97.6	%			80 - 119
Toluene-d8 (S)	98.1	%			89 - 112

MATRIX SPIKE: 2971891 DUPLICATE: 2971892 ORIGINAL: 3040591006

****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	3.09765	ug/L	20	24.1516	24.0541	105	105	72 - 136	.4	30
1,1-Dichloroethane	0	ug/L	20	22.7562	22.8586	114	114	77 - 125	.45	30
1,2-Dichloroethane	0	ug/L	20	20.7459	20.7267	104	104	73 - 128	.09	30
1,1-Dichloroethene	0	ug/L	20	25.4294	24.3932	127	122	71 - 131	4.16	30
cis-1,2-Dichloroethene	0	ug/L	20	22.6298	22.2952	113	111	78 - 123	1.49	30
trans-1,2-Dichloroethene	0	ug/L	20	23.437	22.9109	117	115	75 - 124	2.27	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	23.2333	23.1944	116	116	78 - 124	.17	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	18.0528	17.845	90.3	89.2	71 - 121	1.16	30
Tetrachloroethene	0	ug/L	20	23.412	24.2291	117	121	74 - 129	3.43	30
Toluene	0	ug/L	20	22.9091	22.8758	115	114	80 - 121	.15	30
1,1,1-Trichloroethane	.48392	ug/L	20	24.615	24.9111	121	122	74 - 131	1.2	30
1,1,2-Trichloroethane	0	ug/L	20	20.4295	20.315	102	102	80 - 119	.56	30
Trichloroethene	0	ug/L	20	22.6547	22.7985	113	114	79 - 123	.63	30
Vinyl Chloride	0	ug/L	20	21.3953	20.2713	107	101	58 - 137	5.4	30
1,2-Dichloroethane-d4 (S)	96.6	%				96.6	95.7	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	106	85 - 114		
Dibromofluoromethane (S)	98.5	%				98.5	98.8	80 - 119		
Toluene-d8 (S)	97.6	%				97.6	97.5	89 - 112		

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223521 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2967962

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.19J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2967964

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	94.9	mg/L	20	19.0	87 - 111
Nitrate-N	98	mg/L	2.5	2.5	88 - 111
Sulfate	98.1	mg/L	20	19.6	87 - 112

MATRIX SPIKE: 2968429 DUPLICATE: 2968430 ORIGINAL: 3039776005

****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
Sulfate	333400	mg/L	200	531.9	546.3	99.2	106	87 - 112	2.67	15

METHOD BLANK: 2968432

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.20J	mg/L	1.0
Nitrate-N	0.020J	mg/L	0.10
Sulfate	0.10J	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223524 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2967979

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

METHOD BLANK: 2967991

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

SAMPLE DUPLICATE: 2967992 ORIGINAL: 3040287001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	60.46374	mg/L	59.38275	1.8	20

METHOD BLANK: 2967995

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

SAMPLE DUPLICATE: 2967996 ORIGINAL: 3040044002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	132.82678	mg/L	125.4073	5.75	20

METHOD BLANK: 2967999

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	1J	mg/L	5

SAMPLE DUPLICATE: 2968000 ORIGINAL: 3040066004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	135.48434	mg/L	115.85697	15.6	20

METHOD BLANK: 2968003

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

QUALITY CONTROL DATA

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223674 **Analysis Method:** SM5310B-2011

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3040977001, 3040977002, 3040977003, 3040977004, 3040977005

METHOD BLANK: 2969939

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

LABORATORY CONTROL SAMPLE: 2969940

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	105	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2969941 DUPLICATE: 2969942 ORIGINAL: 3040977003

****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)	.848	mg/L	6	6.922	7.075	101	104	85 - 115	2.19	20

MATRIX SPIKE: 2969943 DUPLICATE: 2969944 ORIGINAL: 3040284001

****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)	88.85	mg/L	150	243.7	249.625	103	107	85 - 115	2.4	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3040977001	MW-29 061919			EPA 300.0	WETC/223521
3040977002	MW-28 061919			EPA 300.0	WETC/223521
3040977003	MW-31 061919			EPA 300.0	WETC/223521
3040977004	MW-30 061919			EPA 300.0	WETC/223521
3040977005	MW-33 061919			EPA 300.0	WETC/223521
3040977001	MW-29 061919			SM2320B-2011	WETC/223524
3040977002	MW-28 061919			SM2320B-2011	WETC/223524
3040977003	MW-31 061919			SM2320B-2011	WETC/223524
3040977004	MW-30 061919			SM2320B-2011	WETC/223524
3040977005	MW-33 061919			SM2320B-2011	WETC/223524
3040977001	MW-29 061919			SM5310B-2011	WETC/223674
3040977002	MW-28 061919			SM5310B-2011	WETC/223674
3040977003	MW-31 061919			SM5310B-2011	WETC/223674
3040977004	MW-30 061919			SM5310B-2011	WETC/223674
3040977005	MW-33 061919			SM5310B-2011	WETC/223674
3040977001	MW-29 061919	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3040977002	MW-28 061919	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3040977003	MW-31 061919	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3040977004	MW-30 061919	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3040977005	MW-33 061919	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3040977001	MW-29 061919	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3040977002	MW-28 061919	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3040977003	MW-31 061919	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3040977004	MW-30 061919	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3040977005	MW-33 061919	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3040977001	MW-29 061919			SW846 8260C	VOMS/51401

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3040977004	MW-30 061919			SW846 8260C	VOMS/51401
3040977001	MW-29 061919			RSK 175	SVGC/53595
3040977002	MW-28 061919			RSK 175	SVGC/53595
3040977003	MW-31 061919			RSK 175	SVGC/53595
3040977004	MW-30 061919			RSK 175	SVGC/53595
3040977005	MW-33 061919			RSK 175	SVGC/53595
3040977002	MW-28 061919			SW846 8260C	VOMS/51421
3040977003	MW-31 061919			SW846 8260C	VOMS/51421
3040977005	MW-33 061919			SW846 8260C	VOMS/51421
3040977006	Trip Blank			SW846 8260C	VOMS/51421

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

CO
ALS

3040977

1 of 1

(completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____
Analyst Initials: ____
Courier/Tracking #: ____
Purchase Order #: ____

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#: 585 490 0987
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.:

Project Comments:

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

	Container Type	G	P	P	G	G^AV	P	P			
	Container Size	40ml	250	250	40ml	40ml	125	250			
	Preservative	HCl	—	—	HCl	HCl	HNO_3	—			

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C VOCs	Alkalinity	Cl, NO3, SO4	RSK 175	TOC	Total Fe	Diss Fe				Sample/COC Comments
	Enter Number of Containers Per Sample or Field Results Below.															
1	MW-29 061919	06/19/19	0930	G	GW	2	1	1	2	2	1	1				
2	MW-28 061919	"	1015	"	"	2	1	1	2	2	1	1				
3	MW-31 061919	"	1305	"	"	2	1	1	2	2	1	1				
4	MW-32 061919	"	1350	"	"	2	1	1	2	2	1	1				
5	MW-33 061919	"	1545	"	"	2	1	1	2	2	1	1				
6	Trip blank	—	—	↓	↓	42	X	X	X	X	X	X				
7						DLS 6/20										
8																
9																
10																

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

Sampler Comments: Diss Fe *lab filter*

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alexandra Golden / AECOM	6/19/19	1800	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4 Courtney Smith	6/20	1131
5			6		
7			8		
9			10		

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

Special Processing: [ ] USACE

State Samples Collected In: [x] NY [ ] NJ [ ] PA

Reportable to PADEP? Yes [ ] No [ ]
PWSID #

Sample Disposal: [ ] Lab [ ] Special

EDDS: Format Type- Sec Q ARP

[ ] other

* 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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Rev 04/19

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

Condition of Sample Receipt Form

Client: Arcom. Work Order #: 3040977 Initials: CLS Date: 6/20.

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8113 0089 4573			
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?	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): 3

Thermometer ID: 525

Radiological (µCi): _____

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

Trip blank #5 fixed by CLS 6/20.

Bottles for set MW-~~BB~~ 30 say "MW 30" on bottle labels.

Rev. 4/29/2019

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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

30409778

1 of 1

(completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____
Analyst Initials: ____
Courier/Tracking #:
Purchase Order #:
Project Comments:

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

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#: 585 490 0987
Project Name/#: Scotia Navy Depot
Bill To: 60440641

TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? ☑ Y gerlinde.wolf@aecom.com
Fax? ☐ Y No.

	Container Type	G	P	P	G	GV	P	P			
	Container Size	40ml	250	250	40ml	40ml	125	250			
	Preservative	HCl	—	—	HCl	HCl	HNO3	—			

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 VOCs	Alkalinity	Cl, NO3, SO4	RSK 175	TOC	Total Fe	Diss Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-29 061919	06/19/19	0930	G	GW	2	1	1	2	2	1	1				
2	MW-28 061919		1015			2	1	1	2	2	1	1				
3	MW-31 061919		1305			2	1	1	2	2	1	1				
4	MW-30 061919		1350			2	1	1	2	2	1	1				
5	MW-33 061919	✓	1545			2	1	1	2	2	1	1				
6	Trip blank	—	—	↓	↓	42	X	X	X	X	X	X				
7						CLS 6/20										
8																
9																
10																

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

Sampler Comments: Diss Fe * lab filter *

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alexandra Golden / AECOM	6/19/19	1800	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4 Courtney Lynch	6/20	1131
5			6		
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ USACE/DOD ☐
Special Processing: USACE ☐ ☐ ☐
State Samples Collected In: ☑ NY ☐ NJ ☐ PA ☐ ☐ other
Reportable to PADEP? Yes ☐ No ☐
PWSID #
Sample Disposal: Lab ☐ Special ☐
EDDS: Format Type- See QAPP

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

June 30, 2019

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:	**3041240**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN047|Scotia Navy Depot**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Friday, June 21, 2019.

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 , Mr. Scott Underhill

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: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041240001	MW-24 062019	Ground Water	6/20/2019 08:55	6/21/2019 09:08	Collected by Client
3041240002	MW-32 062019	Ground Water	6/20/2019 09:20	6/21/2019 09:08	Collected by Client
3041240003	MW-35 062019	Ground Water	6/20/2019 11:45	6/21/2019 09:08	Collected by Client
3041240004	MW-34 062019	Ground Water	6/20/2019 11:40	6/21/2019 09:08	Collected by Client
3041240005	MW-15 062019	Ground Water	6/20/2019 15:05	6/21/2019 09:08	Collected by Client
3041240006	MW-26 062019	Ground Water	6/20/2019 15:30	6/21/2019 09:08	Collected by Client
3041240007	DUP	Ground Water	6/20/2019 00:00	6/21/2019 09:08	Collected by Client
3041240008	Trip Blank	Ground Water	6/21/2019 09:08	6/21/2019 09:08	Collected by Client

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SAMPLE SUMMARY

Workorder: 3041240 ASN047|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: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240001** Date Collected: 6/20/2019 08:55 Matrix: Ground Water

Sample ID: **MW-24 062019** Date Received: 6/21/2019 09:08

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			6/27/19 08:43	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,1-Dichloroethene	26.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
cis-1,2-Dichloroethene	9.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
Trichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 08:43	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C			6/27/19 08:43	PDK	A
4-Bromofluorobenzene (S)	113		%	85 - 114			SW846 8260C			6/27/19 08:43	PDK	A
Dibromofluoromethane (S)	104		%	80 - 119			SW846 8260C			6/27/19 08:43	PDK	A
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C			6/27/19 08:43	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:54	CHS	F
Ethane	14.7		ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:54	CHS	F
Ethene	1.7J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:54	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:54	CHS	F
Methane	179		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:54	CHS	F
Propane	2.0J	J	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:54	CHS	F
WET CHEMISTRY												
Alkalinity, Total	134	2	mg/L	5	5	0.8	SM2320B-2011			6/25/19 11:39	MBW	D
Chloride	29.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 06:44	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 06:44	CHW	E
Sulfate	3.0		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 06:44	CHW	E
Total Organic Carbon (TOC)	2.0		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	1.1		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:04	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:25	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240001** Date Collected: 6/20/2019 08:55 Matrix: Ground Water

Sample ID: **MW-24 062019** Date Received: 6/21/2019 09:08

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240002** Date Collected: 6/20/2019 09:20 Matrix: Ground Water

Sample ID: **MW-32 062019** Date Received: 6/21/2019 09:08

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			6/28/19 05:49	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1-Dichloroethene	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
cis-1,2-Dichloroethene	0.83J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Trichloroethene	118		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 05:49	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 05:49	PDK	B
Dibromofluoromethane (S)	98.1		%	80 - 119			SW846 8260C			6/28/19 05:49	PDK	B
Toluene-d8 (S)	98.3		%	89 - 112			SW846 8260C			6/28/19 05:49	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:12	CHS	F
Ethane	12.1		ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:12	CHS	F
Ethene	1.7J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:12	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:12	CHS	F
Methane	2190		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:12	CHS	F
Propane	11.0		ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:12	CHS	F
WET CHEMISTRY												
Alkalinity, Total	134	2	mg/L	5	5	0.8	SM2320B-2011			6/25/19 11:49	MBW	D
Chloride	24.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 06:57	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 06:57	CHW	E
Sulfate	8.6		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 06:57	CHW	E
Total Organic Carbon (TOC)	1.4		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.47		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:07	SRT	J1
Iron, Dissolved	0.024J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:28	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240002** Date Collected: 6/20/2019 09:20 Matrix: Ground Water

Sample ID: **MW-32 062019** Date Received: 6/21/2019 09:08

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240003** Date Collected: 6/20/2019 11:45 Matrix: Ground Water

Sample ID: **MW-35 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:12	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Trichloroethene	34.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 06:12	PDK	B
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 06:12	PDK	B
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C			6/28/19 06:12	PDK	B
Toluene-d8 (S)	98.1		%	89 - 112			SW846 8260C			6/28/19 06:12	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:32	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:32	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:32	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:32	CHS	F
Methane	38.3		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:32	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:32	CHS	F
WET CHEMISTRY												
Alkalinity, Total	174	2	mg/L	5	5	0.8	SM2320B-2011			6/25/19 11:58	MBW	D
Chloride	21.2		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 07:10	CHW	E
Nitrate-N	0.38		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 07:10	CHW	E
Sulfate	9.8		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 07:10	CHW	E
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.61		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:11	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:32	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID:	**3041240003**	Date Collected:	6/20/2019 11:45	Matrix:	Ground Water
Sample ID:	**MW-35 062019**	Date Received:	6/21/2019 09:08		

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240004** Date Collected: 6/20/2019 11:40 Matrix: Ground Water

Sample ID: **MW-34 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:35	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Trichloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118			SW846 8260C			6/28/19 06:35	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/28/19 06:35	PDK	A
Dibromofluoromethane (S)	98		%	80 - 119			SW846 8260C			6/28/19 06:35	PDK	A
Toluene-d8 (S)	99.9		%	89 - 112			SW846 8260C			6/28/19 06:35	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:50	CHS	F
Ethane	0.77J	J	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:50	CHS	F
Ethene	1.1J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:50	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:50	CHS	F
Methane	419		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:50	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:50	CHS	F
WET CHEMISTRY												
Alkalinity, Total	194	1	mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:08	MBW	D
Chloride	6.6		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 07:24	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 07:24	CHW	E
Sulfate	0.74J	J	mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 07:24	CHW	E
Total Organic Carbon (TOC)	8.3		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.33		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:22	SRT	J1
Iron, Dissolved	0.18		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:43	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID:	**3041240004**	Date Collected:	6/20/2019 11:40	Matrix:	Ground Water
Sample ID:	**MW-34 062019**	Date Received:	6/21/2019 09:08		

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240005** Date Collected: 6/20/2019 15:05 Matrix: Ground Water

Sample ID: **MW-15 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:57	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Tetrachloroethene	1.0J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,1-Trichloroethane	5.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Trichloroethene	128		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118			SW846 8260C			6/28/19 06:57	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/28/19 06:57	PDK	A
Dibromofluoromethane (S)	96.3		%	80 - 119			SW846 8260C			6/28/19 06:57	PDK	A
Toluene-d8 (S)	98.4		%	89 - 112			SW846 8260C			6/28/19 06:57	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 08:06	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 08:06	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 08:06	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 08:06	CHS	F
Methane	0.83J	J	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 08:06	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 08:06	CHS	F
WET CHEMISTRY												
Alkalinity, Total	169	1	mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:17	MBW	D
Chloride	43.4		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 08:44	CHW	E
Nitrate-N	0.56		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 08:44	CHW	E
Sulfate	12.0		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 08:44	CHW	E
Total Organic Carbon (TOC)	0.64J	J	mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H
METALS												
Iron, Total	0.056J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:26	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:47	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240005** Date Collected: 6/20/2019 15:05 Matrix: Ground Water

Sample ID: **MW-15 062019** Date Received: 6/21/2019 09:08

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240006** Date Collected: 6/20/2019 15:30 Matrix: Ground Water

Sample ID: **MW-26 062019** Date Received: 6/21/2019 09:08

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			6/28/19 07:20	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.9		%	81 - 118			SW846 8260C			6/28/19 07:20	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 07:20	PDK	A
Dibromofluoromethane (S)	96.7		%	80 - 119			SW846 8260C			6/28/19 07:20	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112			SW846 8260C			6/28/19 07:20	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:04	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:04	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:04	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:04	CHS	F
Methane	112		ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:04	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:04	CHS	F
WET CHEMISTRY												
Alkalinity, Total	174	1	mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:27	MBW	D
Chloride	32.2		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 08:58	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 08:58	CHW	E
Sulfate	9.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 08:58	CHW	E
Total Organic Carbon (TOC)	6.4		mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H
METALS												
Iron, Total	1.1		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:30	SRT	J1
Iron, Dissolved	0.15		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:51	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240006** Date Collected: 6/20/2019 15:30 Matrix: Ground Water

Sample ID: **MW-26 062019** Date Received: 6/21/2019 09:08

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240007** Date Collected: 6/20/2019 00:00 Matrix: Ground Water

Sample ID: **DUP** Date Received: 6/21/2019 09:08

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			6/28/19 07:43	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Trichloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 07:43	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 07:43	PDK	A
Dibromofluoromethane (S)	96.5		%	80 - 119			SW846 8260C			6/28/19 07:43	PDK	A
Toluene-d8 (S)	97.8		%	89 - 112			SW846 8260C			6/28/19 07:43	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:42	CHS	F
Ethane	0.84J	J	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:42	CHS	F
Ethene	1.1J	J	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:42	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:42	CHS	F
Methane	428		ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:42	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:42	CHS	F
WET CHEMISTRY												
Alkalinity, Total	207	1	mg/L	5	5	0.8	SM2320B-2011			6/25/19 23:02	MBW	D
Chloride	7.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 09:11	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 09:11	CHW	E
Sulfate	0.70J	J	mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 09:11	CHW	E
Total Organic Carbon (TOC)	6.5		mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H
METALS												
Iron, Total	0.73		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:33	SRT	J1
Iron, Dissolved	0.22		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:54	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240007** Date Collected: 6/20/2019 00:00 Matrix: Ground Water

Sample ID: **DUP** Date Received: 6/21/2019 09:08

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

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240008** Date Collected: 6/21/2019 09:08 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/21/2019 09:08

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			6/28/19 02:25	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/28/19 02:25	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/28/19 02:25	PDK	A
Dibromofluoromethane (S)	96.6		%	80 - 119	SW846 8260C			6/28/19 02:25	PDK	A
Toluene-d8 (S)	98.6		%	89 - 112	SW846 8260C			6/28/19 02:25	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041240001	1	MW-24 062019	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3041240001	2	MW-24 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240002	2	MW-32 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240003	2	MW-35 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240004	1	MW-34 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240005	1	MW-15 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240006	1	MW-26 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240007	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: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method
3041240001	MW-24 062019	EPA 300.0	
3041240001	MW-24 062019	In-House	
3041240001	MW-24 062019	RSK 175	
3041240001	MW-24 062019	SM2320B-2011	
3041240001	MW-24 062019	SM5310B-2011	
3041240001	MW-24 062019	SW846 6010C	SW846 3015
3041240001	MW-24 062019	SW846 6010C	SW846 6010C
3041240001	MW-24 062019	SW846 8260C	
3041240002	MW-32 062019	EPA 300.0	
3041240002	MW-32 062019	In-House	
3041240002	MW-32 062019	RSK 175	
3041240002	MW-32 062019	SM2320B-2011	
3041240002	MW-32 062019	SM5310B-2011	
3041240002	MW-32 062019	SW846 6010C	SW846 3015
3041240002	MW-32 062019	SW846 6010C	SW846 6010C
3041240002	MW-32 062019	SW846 8260C	
3041240003	MW-35 062019	EPA 300.0	
3041240003	MW-35 062019	In-House	
3041240003	MW-35 062019	RSK 175	
3041240003	MW-35 062019	SM2320B-2011	
3041240003	MW-35 062019	SM5310B-2011	
3041240003	MW-35 062019	SW846 6010C	SW846 3015
3041240003	MW-35 062019	SW846 6010C	SW846 6010C
3041240003	MW-35 062019	SW846 8260C	
3041240004	MW-34 062019	EPA 300.0	
3041240004	MW-34 062019	In-House	
3041240004	MW-34 062019	RSK 175	
3041240004	MW-34 062019	SM2320B-2011	
3041240004	MW-34 062019	SM5310B-2011	
3041240004	MW-34 062019	SW846 6010C	SW846 3015
3041240004	MW-34 062019	SW846 6010C	SW846 6010C
3041240004	MW-34 062019	SW846 8260C	
3041240005	MW-15 062019	EPA 300.0	
3041240005	MW-15 062019	In-House	
3041240005	MW-15 062019	RSK 175	
3041240005	MW-15 062019	SM2320B-2011	
3041240005	MW-15 062019	SM5310B-2011	
3041240005	MW-15 062019	SW846 6010C	SW846 3015
3041240005	MW-15 062019	SW846 6010C	SW846 6010C
3041240005	MW-15 062019	SW846 8260C	
3041240006	MW-26 062019	EPA 300.0	
3041240006	MW-26 062019	In-House	
3041240006	MW-26 062019	RSK 175	
3041240006	MW-26 062019	SM2320B-2011	
3041240006	MW-26 062019	SM5310B-2011	
3041240006	MW-26 062019	SW846 6010C	SW846 3015

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

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method
3041240006	MW-26 062019	SW846 6010C	SW846 6010C
3041240006	MW-26 062019	SW846 8260C	
3041240007	DUP	EPA 300.0	
3041240007	DUP	In-House	
3041240007	DUP	RSK 175	
3041240007	DUP	SM2320B-2011	
3041240007	DUP	SM5310B-2011	
3041240007	DUP	SW846 6010C	SW846 3015
3041240007	DUP	SW846 6010C	SW846 6010C
3041240007	DUP	SW846 8260C	
3041240008	Trip Blank	SW846 8260C	

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QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: MDIG/78581 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007

METHOD BLANK: 2970420

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

LABORATORY CONTROL SAMPLE: 2970421

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	95.5	mg/L	1	0.95	87 - 115

MATRIX SPIKE: 2970422 DUPLICATE: 2970423 ORIGINAL: 3041673002

****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	0	mg/L	1	.8831	.8835	88.3	88.4	87 - 115	.05	20

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

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: MDIG/78599 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007

METHOD BLANK: 2970742

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

LABORATORY CONTROL SAMPLE: 2970743

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	102	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE: 2970744 DUPLICATE: 2970745 ORIGINAL: 3041673002

****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	.06767	mg/L	1.1	1.14221	1.15221	96.7	97.6	87 - 115	.87	20

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: SVGC/53595 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005

METHOD BLANK: 2971102

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	0.70J	ug/L	1.5
Propane	3.2U	ug/L	3.2

SAMPLE DUPLICATE: 2971103 ORIGINAL: 3040977002

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	1.41	ug/L	1.21	15.3	20
Propane	0	ug/L	0	NC	20

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: SVGC/53606 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3041240006, 3041240007

METHOD BLANK: 2971916

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	0.94J	ug/L	1.5
Propane	3.2U	ug/L	3.2

SAMPLE DUPLICATE: 2971917 ORIGINAL: 3041240006

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	111.58	ug/L	111.14	.4	20

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: VOMS/51401 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3041240001, 3041240002, 3041240003

METHOD BLANK: 2970901

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)	111	%	81 - 118
4-Bromofluorobenzene (S)	114	%	85 - 114
Dibromofluoromethane (S)	104	%	80 - 119
Toluene-d8 (S)	107	%	89 - 112

LABORATORY CONTROL SAMPLE: 2970902

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	103	ug/L	20	20.6	72 - 136
1,1-Dichloroethane	112	ug/L	20	22.4	77 - 125
1,2-Dichloroethane	107	ug/L	20	21.4	73 - 128
1,1-Dichloroethene	120	ug/L	20	23.9	71 - 131
cis-1,2-Dichloroethene	111	ug/L	20	22.3	78 - 123
trans-1,2-Dichloroethene	119	ug/L	20	23.7	75 - 124
1,1,1,2-Tetrachloroethane	116	ug/L	20	23.3	78 - 124
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.2	71 - 121
Tetrachloroethene	118	ug/L	20	23.6	74 - 129
Toluene	112	ug/L	20	22.4	80 - 121
1,1,1-Trichloroethane	119	ug/L	20	23.8	74 - 131
1,1,2-Trichloroethane	106	ug/L	20	21.1	80 - 119
Trichloroethene	106	ug/L	20	21.2	79 - 123

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

Vinyl Chloride	95.8	ug/L	20	19.2	58 - 137
1,2-Dichloroethane-d4 (S)	105	%			81 - 118
4-Bromofluorobenzene (S)	112	%			85 - 114
Dibromofluoromethane (S)	106	%			80 - 119
Toluene-d8 (S)	105	%			89 - 112

MATRIX SPIKE: 2971069 DUPLICATE: 2971070 ORIGINAL: 3040591006

****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
1,2-Dichloroethane-d4 (S)	116	%				116	108	81 - 118		
4-Bromofluorobenzene (S)	113	%				113	115*	85 - 114		
Dibromofluoromethane (S)	107	%				107	106	80 - 119		
Toluene-d8 (S)	103	%				103	106	89 - 112		

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: VOMS/51421 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007, 3041240008

METHOD BLANK: 2971729

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)	102	%	81 - 118
4-Bromofluorobenzene (S)	105	%	85 - 114
Dibromofluoromethane (S)	95.4	%	80 - 119
Toluene-d8 (S)	98.7	%	89 - 112

LABORATORY CONTROL SAMPLE: 2971730

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	102	ug/L	20	20.3	72 - 136
1,1-Dichloroethane	109	ug/L	20	21.8	77 - 125
1,2-Dichloroethane	104	ug/L	20	20.8	73 - 128
1,1-Dichloroethene	119	ug/L	20	23.7	71 - 131
cis-1,2-Dichloroethene	106	ug/L	20	21.3	78 - 123
trans-1,2-Dichloroethene	109	ug/L	20	21.8	75 - 124
1,1,1,2-Tetrachloroethane	115	ug/L	20	23.0	78 - 124
1,1,2,2-Tetrachloroethane	103	ug/L	20	20.7	71 - 121
Tetrachloroethene	120	ug/L	20	24.0	74 - 129
Toluene	110	ug/L	20	21.9	80 - 121
1,1,1-Trichloroethane	117	ug/L	20	23.3	74 - 131
1,1,2-Trichloroethane	107	ug/L	20	21.5	80 - 119
Trichloroethene	105	ug/L	20	20.9	79 - 123

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

Vinyl Chloride	93.8	ug/L	20	18.8	58 - 137
1,2-Dichloroethane-d4 (S)	98.8	%			81 - 118
4-Bromofluorobenzene (S)	107	%			85 - 114
Dibromofluoromethane (S)	97.6	%			80 - 119
Toluene-d8 (S)	98.1	%			89 - 112

MATRIX SPIKE: 2971891 DUPLICATE: 2971892 ORIGINAL: 3040591006

****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	3.09765	ug/L	20	24.1516	24.0541	105	105	72 - 136	.4	30
1,1-Dichloroethane	0	ug/L	20	22.7562	22.8586	114	114	77 - 125	.45	30
1,2-Dichloroethane	0	ug/L	20	20.7459	20.7267	104	104	73 - 128	.09	30
1,1-Dichloroethene	0	ug/L	20	25.4294	24.3932	127	122	71 - 131	4.16	30
cis-1,2-Dichloroethene	0	ug/L	20	22.6298	22.2952	113	111	78 - 123	1.49	30
trans-1,2-Dichloroethene	0	ug/L	20	23.437	22.9109	117	115	75 - 124	2.27	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	23.2333	23.1944	116	116	78 - 124	.17	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	18.0528	17.845	90.3	89.2	71 - 121	1.16	30
Tetrachloroethene	0	ug/L	20	23.412	24.2291	117	121	74 - 129	3.43	30
Toluene	0	ug/L	20	22.9091	22.8758	115	114	80 - 121	.15	30
1,1,1-Trichloroethane	.48392	ug/L	20	24.615	24.9111	121	122	74 - 131	1.2	30
1,1,2-Trichloroethane	0	ug/L	20	20.4295	20.315	102	102	80 - 119	.56	30
Trichloroethene	0	ug/L	20	22.6547	22.7985	113	114	79 - 123	.63	30
Vinyl Chloride	0	ug/L	20	21.3953	20.2713	107	101	58 - 137	5.4	30
1,2-Dichloroethane-d4 (S)	96.6	%				96.6	95.7	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	106	85 - 114		
Dibromofluoromethane (S)	98.5	%				98.5	98.8	80 - 119		
Toluene-d8 (S)	97.6	%				97.6	97.5	89 - 112		

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: WETC/223569 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007

METHOD BLANK: 2968533

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.19J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2968535

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	94.1	mg/L	20	18.8	87 - 111
Nitrate-N	94.8	mg/L	2.5	2.4	88 - 111
Sulfate	96.9	mg/L	20	19.4	87 - 112

MATRIX SPIKE: 2969405 DUPLICATE: 2969406 ORIGINAL: 3041240004

****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	6.58	mg/L	40	47.56	46.5	102	99.8	87 - 111	2.25	15
Nitrate-N	0	mg/L	5	5.14	5	103	100	88 - 111	2.76	15
Sulfate	.74	mg/L	40	42.88	41.74	105	103	87 - 112	2.69	15

METHOD BLANK: 2969408

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.21J	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.11J	mg/L	1.0

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QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

METHOD BLANK: 2969410

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

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: WETC/223638 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007

METHOD BLANK: 2969644

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

SAMPLE DUPLICATE: 2969649 ORIGINAL: 3041331001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	109.04402	mg/L	106.24982	2.6	20

METHOD BLANK: 2969652

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

SAMPLE DUPLICATE: 2969653 ORIGINAL: 3040386001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	13.05371	mg/L	11.73929	10.6	20

METHOD BLANK: 2969656

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

SAMPLE DUPLICATE: 2969657 ORIGINAL: 3040424005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

Alkalinity, Total	262.88464	mg/L	255.75211	2.75	20

METHOD BLANK: 2969660

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

SAMPLE DUPLICATE: 2969661 ORIGINAL: 3040518008

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	1542.0926	mg/L	1513.2570	1.89	20

METHOD BLANK: 2969664

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

SAMPLE DUPLICATE: 2969665 ORIGINAL: 3040628001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	222.1683	mg/L	217.28432	2.22	20

METHOD BLANK: 2969668

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

METHOD BLANK: 2969672

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

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

SAMPLE DUPLICATE: 2970366 ORIGINAL: 3040837001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	547.46161	mg/L	544.41736	.56	20

METHOD BLANK: 2970369

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

SAMPLE DUPLICATE: 2970370 ORIGINAL: 3040851005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	23.6831	mg/L	23.56828	.49	20

METHOD BLANK: 2970373

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

SAMPLE DUPLICATE: 2970374 ORIGINAL: 3040904003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	69.3242	mg/L	68.75355	.83	20

METHOD BLANK: 2970377

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

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

SAMPLE DUPLICATE: 2970378 ORIGINAL: 3041010003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	95.69967	mg/L	93.19479	2.65	20

METHOD BLANK: 2970381

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

QUALITY CONTROL DATA

Workorder: 3041240 ASN047|Scotia Navy Depot

QC Batch: WETC/223744 **Analysis Method:** SM5310B-2011

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3041240001, 3041240002, 3041240003, 3041240004, 3041240005, 3041240006, 3041240007

METHOD BLANK: 2970719

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.22J	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2970720

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	101	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2970723 DUPLICATE: 2970724 ORIGINAL: 3041275005

****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)	1.334	mg/L	6	6.841	6.939	91.8	93.4	85 - 115	1.42	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3041240001	MW-24 062019			EPA 300.0	WETC/223569
3041240002	MW-32 062019			EPA 300.0	WETC/223569
3041240003	MW-35 062019			EPA 300.0	WETC/223569
3041240004	MW-34 062019			EPA 300.0	WETC/223569
3041240005	MW-15 062019			EPA 300.0	WETC/223569
3041240006	MW-26 062019			EPA 300.0	WETC/223569
3041240007	DUP			EPA 300.0	WETC/223569
3041240001	MW-24 062019			SM2320B-2011	WETC/223638
3041240002	MW-32 062019			SM2320B-2011	WETC/223638
3041240003	MW-35 062019			SM2320B-2011	WETC/223638
3041240004	MW-34 062019			SM2320B-2011	WETC/223638
3041240005	MW-15 062019			SM2320B-2011	WETC/223638
3041240006	MW-26 062019			SM2320B-2011	WETC/223638
3041240007	DUP			SM2320B-2011	WETC/223638
3041240001	MW-24 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240002	MW-32 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240003	MW-35 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240004	MW-34 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240005	MW-15 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240006	MW-26 062019	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240007	DUP	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041240001	MW-24 062019			SM5310B-2011	WETC/223744
3041240002	MW-32 062019			SM5310B-2011	WETC/223744
3041240003	MW-35 062019			SM5310B-2011	WETC/223744
3041240004	MW-34 062019			SM5310B-2011	WETC/223744
3041240005	MW-15 062019			SM5310B-2011	WETC/223744
3041240006	MW-26 062019			SM5310B-2011	WETC/223744
3041240007	DUP			SM5310B-2011	WETC/223744

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3041240001	MW-24 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240002	MW-32 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240003	MW-35 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240004	MW-34 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240005	MW-15 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240006	MW-26 062019	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240007	DUP	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041240001	MW-24 062019			SW846 8260C	VOMS/51401
3041240001	MW-24 062019			RSK 175	SVGC/53595
3041240002	MW-32 062019			RSK 175	SVGC/53595
3041240003	MW-35 062019			RSK 175	SVGC/53595
3041240004	MW-34 062019			RSK 175	SVGC/53595
3041240005	MW-15 062019			RSK 175	SVGC/53595
3041240002	MW-32 062019			SW846 8260C	VOMS/51421
3041240003	MW-35 062019			SW846 8260C	VOMS/51421
3041240004	MW-34 062019			SW846 8260C	VOMS/51421
3041240005	MW-15 062019			SW846 8260C	VOMS/51421
3041240006	MW-26 062019			SW846 8260C	VOMS/51421
3041240007	DUP			SW846 8260C	VOMS/51421
3041240008	Trip Blank			SW846 8260C	VOMS/51421
3041240006	MW-26 062019			RSK 175	SVGC/53606
3041240007	DUP			RSK 175	SVGC/53606

Sunday, June 30, 2019 7:10:37 PM
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301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

* 3 0 4 1 2 4 0 *

1 of 1

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact: Gerlinde Wolf
Phone#: 585-490-0987
Project Name/#: Scotia Navy Depot
Bill To: 60440641

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [✓] -Y gerlinde.wolf@aecom.com
Fax? [ ] -Y No.:

	Container Type	G	P	P	G	AV	P	P			
	Container Size	40ml	250	250	40ml	40ml	125	250			
	Preservative	HCl	—	—	HCl	HCl	HNO_3	—			

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260 c VOCs	Alkalinity	Cl, NO_3, SO4	RSK 175	TOC	Total Fe	Diss Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-24 062019	06/20/19	0855	G	GW	2	1	1	2	2	1	1				
2	MW-32 062019	"	0920	"	"	2	1	1	2	2	1	1				
3	MW-35 062019	"	1145	"	"	2	1	1	2	2	1	1				
4	MW-34 062019	"	1140	"	"	2	1	1	2	2	1	1				
5	MW-15 062019	"	1505	"	"	2	1	1	2	2	1	1				
6	MW-26 062019	"	1530	"	"	2	1	1	2	2	1	1				
7	DUP	—	—	"	"	2	1	1	2	2	1	1				
8	Trip blank	—	—	↓	N	3	X	X	X	X	X	X				
9																
10																

*Report: tier IV

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

W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #:
Project Comments:

SAMPLED BY (Please Print): Alexandra Holden, Jason Klein, Tom Quackenbush

Sampler Comments: Diss Fe *lab Filter*

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/21/19	1800	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4 [signature]	6-21-19	0908
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- SCE QAPP

* 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 #: 3041240 | Initials: NB | Date: 6-21-19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4962			
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?	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	N/A	YES	NO
13b. Did the client provide a SDWA PWS ID#?	N/A	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	N/A	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	N/A	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	N/A	YES	NO

Cooler #: ____

Temperature (°C): 2

Thermometer ID: 318

Radiological (µCi): ____

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

Non DW

Rev. 4/29/2019

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

July 1, 2019

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:	**3041439**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN048|Scotia Navy Depot**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Saturday, June 22, 2019.

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 , Mr. Scott Underhill

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: 3041439 ASN048|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041439001	MW-16 062119	Ground Water	6/21/2019 09:20	6/22/2019 09:40	Collected by Client
3041439002	MW-22 062119	Ground Water	6/21/2019 12:05	6/22/2019 09:40	Collected by Client
3041439003	MW-20 062119	Ground Water	6/21/2019 14:20	6/22/2019 09:40	Collected by Client
3041439004	DUP	Ground Water	6/21/2019 14:20	6/22/2019 09:40	Collected by Client
3041439005	Trip Blanks	Ground Water	6/22/2019 09:40	6/22/2019 09:40	Collected by Client
3041439006	MW-23 062119	Ground Water	6/21/2019 14:56	6/22/2019 09:40	Collected by Client
3041439007	MW-36 062119	Ground Water	6/21/2019 11:50	6/22/2019 09:40	Collected by Client
3041439008	MW-25 062119	Ground Water	6/21/2019 09:50	6/22/2019 09:40	Collected by Client

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SAMPLE SUMMARY

Workorder: 3041439 ASN048|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: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439001** Date Collected: 6/21/2019 09:20 Matrix: Ground Water

Sample ID: **MW-16 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*
ADMINISTRATIVE											
Sample Cancelled	Sample cancelled per client request. This site needs an MS/MSD.								6/24/19 09:52	VNB	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439002** Date Collected: 6/21/2019 12:05 Matrix: Ground Water

Sample ID: **MW-22 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Tetrachloroethene	5.2		ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Trichloroethene	148		ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/29/19 05:09	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/29/19 05:09	PDK	A
Dibromofluoromethane (S)	98		%	80 - 119	SW846 8260C		6/29/19 05:09	PDK	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C		6/29/19 05:09	PDK	A

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439003** Date Collected: 6/21/2019 14:20 Matrix: Ground Water

Sample ID: **MW-20 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
Tetrachloroethene	0.47J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
Trichloroethene	7.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:46	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	70.8	1	%	81 - 118	SW846 8260C		6/29/19 01:46	PDK	A
4-Bromofluorobenzene (S)	132	2	%	85 - 114	SW846 8260C		6/29/19 01:46	PDK	A
Dibromofluoromethane (S)	89.9		%	80 - 119	SW846 8260C		6/29/19 01:46	PDK	A
Toluene-d8 (S)	107		%	89 - 112	SW846 8260C		6/29/19 01:46	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439004** Date Collected: 6/21/2019 14:20 Matrix: Ground Water

Sample ID: **DUP** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
Tetrachloroethene	5.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
Trichloroethene	105		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 04:47	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C		6/29/19 04:47	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/29/19 04:47	PDK	A
Dibromofluoromethane (S)	97.1		%	80 - 119	SW846 8260C		6/29/19 04:47	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112	SW846 8260C		6/29/19 04:47	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439005** Date Collected: 6/22/2019 09:40 Matrix: Ground Water

Sample ID: **Trip Blanks** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 00:37	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C			6/29/19 00:37	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/29/19 00:37	PDK	A
Dibromofluoromethane (S)	96.7		%	80 - 119	SW846 8260C			6/29/19 00:37	PDK	A
Toluene-d8 (S)	97.4		%	89 - 112	SW846 8260C			6/29/19 00:37	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439006** Date Collected: 6/21/2019 14:56 Matrix: Ground Water

Sample ID: **MW-23 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:08	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C		6/29/19 02:08	PDK	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/29/19 02:08	PDK	A
Dibromofluoromethane (S)	97		%	80 - 119	SW846 8260C		6/29/19 02:08	PDK	A
Toluene-d8 (S)	96.6		%	89 - 112	SW846 8260C		6/29/19 02:08	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439007** Date Collected: 6/21/2019 11:50 Matrix: Ground Water

Sample ID: **MW-36 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Trichloroethene	2.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/29/19 02:31	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/29/19 02:31	PDK	A
Dibromofluoromethane (S)	95		%	80 - 119	SW846 8260C			6/29/19 02:31	PDK	A
Toluene-d8 (S)	96.1		%	89 - 112	SW846 8260C			6/29/19 02:31	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439008** Date Collected: 6/21/2019 09:50 Matrix: Ground Water

Sample ID: **MW-25 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
Trichloroethene	87.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 02:54	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C		6/29/19 02:54	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/29/19 02:54	PDK	A
Dibromofluoromethane (S)	96.6		%	80 - 119	SW846 8260C		6/29/19 02:54	PDK	A
Toluene-d8 (S)	95		%	89 - 112	SW846 8260C		6/29/19 02:54	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041439003	1	MW-20 062119	SW846 8260C	1,2-Dichloroethane-d4
The surrogate 1,2-Dichloroethane-d4 for method SW846 8260C was outside of control limits. The % Recovery was reported as 70.8 and the control limits were 81 to 118. This result was reported at a dilution of 1.				
3041439003	2	MW-20 062119	SW846 8260C	4-Bromofluorobenzene
The surrogate 4-Bromofluorobenzene for method SW846 8260C was outside of control limits. The % Recovery was reported as 132 and the control limits were 85 to 114. This result was reported at a dilution of 1.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method
3041439002	MW-22 062119	SW846 8260C	
3041439003	MW-20 062119	SW846 8260C	
3041439004	DUP	SW846 8260C	
3041439005	Trip Blanks	SW846 8260C	
3041439006	MW-23 062119	SW846 8260C	
3041439007	MW-36 062119	SW846 8260C	
3041439008	MW-25 062119	SW846 8260C	

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QUALITY CONTROL DATA

Workorder: 3041439 ASN048|Scotia Navy Depot

QC Batch: VOMS/51435 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3041439002, 3041439003, 3041439004, 3041439005, 3041439006, 3041439007, 3041439008

METHOD BLANK: 2972281

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)	105	%	81 - 118
4-Bromofluorobenzene (S)	107	%	85 - 114
Dibromofluoromethane (S)	97.9	%	80 - 119
Toluene-d8 (S)	97.8	%	89 - 112

LABORATORY CONTROL SAMPLE: 2972282

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	101	ug/L	20	20.2	72 - 136
1,1-Dichloroethane	114	ug/L	20	22.8	77 - 125
1,2-Dichloroethane	111	ug/L	20	22.1	73 - 128
1,1-Dichloroethene	121	ug/L	20	24.3	71 - 131
cis-1,2-Dichloroethene	112	ug/L	20	22.4	78 - 123
trans-1,2-Dichloroethene	116	ug/L	20	23.2	75 - 124
1,1,1,2-Tetrachloroethane	116	ug/L	20	23.2	78 - 124
1,1,2,2-Tetrachloroethane	110	ug/L	20	22.1	71 - 121
Tetrachloroethene	116	ug/L	20	23.1	74 - 129
Toluene	110	ug/L	20	22.1	80 - 121
1,1,1-Trichloroethane	116	ug/L	20	23.3	74 - 131
1,1,2-Trichloroethane	109	ug/L	20	21.7	80 - 119
Trichloroethene	106	ug/L	20	21.2	79 - 123

QUALITY CONTROL DATA

Workorder: 3041439 ASN048|Scotia Navy Depot

Vinyl Chloride	98.3	ug/L	20	19.7	58 - 137
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	107	%			85 - 114
Dibromofluoromethane (S)	100	%			80 - 119
Toluene-d8 (S)	97.8	%			89 - 112

MATRIX SPIKE: 2972378 DUPLICATE: 2972379 ORIGINAL: 3041673002

****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	19.9393	20.362	99.7	102	72 - 136	2.1	30
1,1-Dichloroethane	0	ug/L	20	23.5097	23.7348	118	119	77 - 125	.95	30
1,2-Dichloroethane	0	ug/L	20	21.8889	22.0667	109	110	73 - 128	.81	30
1,1-Dichloroethene	0	ug/L	20	25.4154	25.1978	127	126	71 - 131	.86	30
cis-1,2-Dichloroethene	0	ug/L	20	22.7691	22.8878	114	114	78 - 123	.52	30
trans-1,2-Dichloroethene	0	ug/L	20	24.9368	24.8506	125*	124	75 - 124	.35	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.2734	22.9487	111	115	78 - 124	2.99	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	20.0132	20.616	100	103	71 - 121	2.97	30
Tetrachloroethene	0	ug/L	20	22.6613	23.1765	113	116	74 - 129	2.25	30
Toluene	0	ug/L	20	22.2218	22.498	111	112	80 - 121	1.24	30
1,1,1-Trichloroethane	.39056	ug/L	20	24.7916	24.5673	122	121	74 - 131	.91	30
1,1,2-Trichloroethane	0	ug/L	20	20.7477	21.2945	104	106	80 - 119	2.6	30
Trichloroethene	0	ug/L	20	22.1883	21.9102	111	110	79 - 123	1.26	30
Vinyl Chloride	0	ug/L	20	20.0648	19.0553	100	95.3	58 - 137	5.16	30
1,2-Dichloroethane-d4 (S)	104	%				104	98.8	81 - 118		
4-Bromofluorobenzene (S)	104	%				104	105	85 - 114		
Dibromofluoromethane (S)	96.6	%				96.6	98.9	80 - 119		
Toluene-d8 (S)	93.4	%				93.4	95	89 - 112		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3041439002	MW-22 062119			SW846 8260C	VOMS/51435
3041439003	MW-20 062119			SW846 8260C	VOMS/51435
3041439004	DUP			SW846 8260C	VOMS/51435
3041439005	Trip Blanks			SW846 8260C	VOMS/51435
3041439006	MW-23 062119			SW846 8260C	VOMS/51435
3041439007	MW-36 062119			SW846 8260C	VOMS/51435
3041439008	MW-25 062119			SW846 8260C	VOMS/51435

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July 5, 2019

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:	**3041673**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN051|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, June 25, 2019.

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 , Mr. Scott Underhill

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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July 5, 2019

Ms. Gerlinde Wolfe
AECOM - Latham NY
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Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3041673**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN051|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 , Mr. Scott Underhill

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: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041673001	MW-11 062419	Ground Water	6/24/2019 12:40	6/25/2019 08:47	Collected by Client
3041673002	MW-16 062419	Ground Water	6/24/2019 13:55	6/25/2019 08:47	Collected by Client
3041673003	MW-9 062419	Ground Water	6/24/2019 13:55	6/25/2019 08:47	Collected by Client
3041673004	Trip Blank	Ground Water	6/25/2019 08:47	6/25/2019 08:47	Collected by Client

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SAMPLE SUMMARY

Workorder: 3041673 ASN051|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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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673001** Date Collected: 6/24/2019 12:40 Matrix: Ground Water

Sample ID: **MW-11 062419** Date Received: 6/25/2019 08:47

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	5.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,1-Trichloroethane	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/29/19 03:16	PDK	
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/29/19 03:16	PDK	
Dibromofluoromethane (S)	97.1		%	80 - 119	SW846 8260C			6/29/19 03:16	PDK	
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C			6/29/19 03:16	PDK	

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673002** Date Collected: 6/24/2019 13:55 Matrix: Ground Water

Sample ID: **MW-16 062419** Date Received: 6/25/2019 08:47

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			6/29/19 03:39	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
trans-1,2-Dichloroethene	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,1-Trichloroethane	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118			SW846 8260C			6/29/19 03:39	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/29/19 03:39	PDK	A
Dibromofluoromethane (S)	97.1		%	80 - 119			SW846 8260C			6/29/19 03:39	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112			SW846 8260C			6/29/19 03:39	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:58	CHS	T
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:58	CHS	T
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:58	CHS	T
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:58	CHS	T
Methane	0.67J	J	ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:58	CHS	T
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:58	CHS	T
WET CHEMISTRY												
Alkalinity, Total	303	2	mg/L	5	5	0.8	SM2320B-2011			7/2/19 07:20	MBW	Q
Chloride	5.5		mg/L	2.0	0.50	0.16	EPA 300.0			6/29/19 10:08	CHW	N
Nitrate-N	1.3		mg/L	0.20	0.060	0.020	EPA 300.0			6/26/19 05:46	CHW	N
Sulfate	41.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/29/19 10:08	CHW	N
Total Organic Carbon (TOC)	1.6		mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 20:54	PAG	H
METALS												
Iron, Total	0.068		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:37	SRT	Z1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:58	SRT	c

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673002** Date Collected: 6/24/2019 13:55 Matrix: Ground Water

Sample ID: **MW-16 062419** Date Received: 6/25/2019 08:47

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

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673003** Date Collected: 6/24/2019 13:55 Matrix: Ground Water

Sample ID: **MW-9 062419** Date Received: 6/25/2019 08:47

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			6/29/19 04:01	PDK	
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/29/19 04:01	PDK	
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/29/19 04:01	PDK	
Dibromofluoromethane (S)	97.4		%	80 - 119	SW846 8260C			6/29/19 04:01	PDK	
Toluene-d8 (S)	96.4		%	89 - 112	SW846 8260C			6/29/19 04:01	PDK	

Vanessa N. Badman

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673004** Date Collected: 6/25/2019 08:47 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/25/2019 08:47

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		6/29/19 01:00	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/19 01:00	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/29/19 01:00	PDK	A
Dibromofluoromethane (S)	94.6		%	80 - 119	SW846 8260C		6/29/19 01:00	PDK	A
Toluene-d8 (S)	95.8		%	89 - 112	SW846 8260C		6/29/19 01:00	PDK	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041673002	1	MW-16 062419	SW846 8260C	trans-1,2-Dichloroethene
The QC sample type MS for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 125 and the control limits were 75 to 124.				
3041673002	2	MW-16 062419	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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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method
3041673001	MW-11 062419	SW846 8260C	
3041673002	MW-16 062419	EPA 300.0	
3041673002	MW-16 062419	In-House	
3041673002	MW-16 062419	RSK 175	
3041673002	MW-16 062419	SM2320B-2011	
3041673002	MW-16 062419	SM5310B-2011	
3041673002	MW-16 062419	SW846 6010C	SW846 3015
3041673002	MW-16 062419	SW846 6010C	SW846 6010C
3041673002	MW-16 062419	SW846 8260C	
3041673003	MW-9 062419	SW846 8260C	
3041673004	Trip Blank	SW846 8260C	

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QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/78581 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3041673002

METHOD BLANK: 2970420

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

LABORATORY CONTROL SAMPLE: 2970421

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	95.5	mg/L	1	0.95	87 - 115

MATRIX SPIKE: 2970422 DUPLICATE: 2970423 ORIGINAL: 3041673002

****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	0	mg/L	1	.8831	.8835	88.3	88.4	87 - 115	.05	20

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

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/78599 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3041673002

METHOD BLANK: 2970742

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

LABORATORY CONTROL SAMPLE: 2970743

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	102	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE: 2970744 DUPLICATE: 2970745 ORIGINAL: 3041673002

****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	.06767	mg/L	1.1	1.14221	1.15221	96.7	97.6	87 - 115	.87	20

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

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/53606 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3041673002

METHOD BLANK: 2971916

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	0.94J	ug/L	1.5
Propane	3.2U	ug/L	3.2

SAMPLE DUPLICATE: 2971917 ORIGINAL: 3041240006

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	111.58	ug/L	111.14	.4	20

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/51435 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3041673001, 3041673002, 3041673003, 3041673004

METHOD BLANK: 2972281

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)	105	%	81 - 118
4-Bromofluorobenzene (S)	107	%	85 - 114
Dibromofluoromethane (S)	97.9	%	80 - 119
Toluene-d8 (S)	97.8	%	89 - 112

LABORATORY CONTROL SAMPLE: 2972282

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	101	ug/L	20	20.2	72 - 136
1,1-Dichloroethane	114	ug/L	20	22.8	77 - 125
1,2-Dichloroethane	111	ug/L	20	22.1	73 - 128
1,1-Dichloroethene	121	ug/L	20	24.3	71 - 131
cis-1,2-Dichloroethene	112	ug/L	20	22.4	78 - 123
trans-1,2-Dichloroethene	116	ug/L	20	23.2	75 - 124
1,1,1,2-Tetrachloroethane	116	ug/L	20	23.2	78 - 124
1,1,2,2-Tetrachloroethane	110	ug/L	20	22.1	71 - 121
Tetrachloroethene	116	ug/L	20	23.1	74 - 129
Toluene	110	ug/L	20	22.1	80 - 121
1,1,1-Trichloroethane	116	ug/L	20	23.3	74 - 131
1,1,2-Trichloroethane	109	ug/L	20	21.7	80 - 119
Trichloroethene	106	ug/L	20	21.2	79 - 123

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	98.3	ug/L	20	19.7	58 - 137
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	107	%			85 - 114
Dibromofluoromethane (S)	100	%			80 - 119
Toluene-d8 (S)	97.8	%			89 - 112

MATRIX SPIKE: 2972378 DUPLICATE: 2972379 ORIGINAL: 3041673002

****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	19.9393	20.362	99.7	102	72 - 136	2.1	30
1,1-Dichloroethane	0	ug/L	20	23.5097	23.7348	118	119	77 - 125	.95	30
1,2-Dichloroethane	0	ug/L	20	21.8889	22.0667	109	110	73 - 128	.81	30
1,1-Dichloroethene	0	ug/L	20	25.4154	25.1978	127	126	71 - 131	.86	30
cis-1,2-Dichloroethene	0	ug/L	20	22.7691	22.8878	114	114	78 - 123	.52	30
trans-1,2-Dichloroethene	0	ug/L	20	24.9368	24.8506	125*	124	75 - 124	.35	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.2734	22.9487	111	115	78 - 124	2.99	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	20.0132	20.616	100	103	71 - 121	2.97	30
Tetrachloroethene	0	ug/L	20	22.6613	23.1765	113	116	74 - 129	2.25	30
Toluene	0	ug/L	20	22.2218	22.498	111	112	80 - 121	1.24	30
1,1,1-Trichloroethane	.39056	ug/L	20	24.7916	24.5673	122	121	74 - 131	.91	30
1,1,2-Trichloroethane	0	ug/L	20	20.7477	21.2945	104	106	80 - 119	2.6	30
Trichloroethene	0	ug/L	20	22.1883	21.9102	111	110	79 - 123	1.26	30
Vinyl Chloride	0	ug/L	20	20.0648	19.0553	100	95.3	58 - 137	5.16	30
1,2-Dichloroethane-d4 (S)	104	%				104	98.8	81 - 118		
4-Bromofluorobenzene (S)	104	%				104	105	85 - 114		
Dibromofluoromethane (S)	96.6	%				96.6	98.9	80 - 119		
Toluene-d8 (S)	93.4	%				93.4	95	89 - 112		

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223707 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3041673002

LABORATORY CONTROL SAMPLE: 2970322

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Nitrate-N	94	mg/L	2.5	2.4	88 - 111

METHOD BLANK: 2971006

Parameter	Blank Result	Units	Reporting Limit
Nitrate-N	0.030U	mg/L	0.10

METHOD BLANK: 2971010

Parameter	Blank Result	Units	Reporting Limit
Nitrate-N	0.030U	mg/L	0.10

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223747 **Analysis Method:** SM5310B-2011

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3041673002

METHOD BLANK: 2970735

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.22J	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2970736

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	101	mg/L	1	1.0	85 - 115

MATRIX SPIKE: 2970737 DUPLICATE: 2970738 ORIGINAL: 3041673002

****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)	1.555	mg/L	6	7.378	7.535	97.1	99.7	85 - 115	2.11	20

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/223909 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3041673002

METHOD BLANK: 2972425

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.18J	mg/L	1.0
Sulfate	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10

LABORATORY CONTROL SAMPLE: 2972427

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	96.4	mg/L	20	19.3	87 - 111
Sulfate	98.2	mg/L	20	19.6	87 - 112
Nitrate-N	95.2	mg/L	2.5	2.4	88 - 111

MATRIX SPIKE: 2972429 DUPLICATE: 2972430 ORIGINAL: 3041673002

****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	5.54	mg/L	40	47.94	48.66	106	108	87 - 111	1.49	15
Sulfate	41.94	mg/L	40	83.14	85.2	103	108	87 - 112	2.45	15
Nitrate-N	0	mg/L	5	6.72	6.82	134*	136*	88 - 111	1.48	15

METHOD BLANK: 2972432

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.15J	mg/L	1.0
Sulfate	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/224000 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3041673002

METHOD BLANK: 2973505

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

SAMPLE DUPLICATE: 2973510 ORIGINAL: 3041670004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	82.39326	mg/L	81.43453	1.17	20

METHOD BLANK: 2973513

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

SAMPLE DUPLICATE: 2973514 ORIGINAL: 3041673002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	302.5564	mg/L	279.71442	7.85	20

METHOD BLANK: 2973517

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

SAMPLE DUPLICATE: 2973518 ORIGINAL: 3041712003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	180.55055	mg/L	189.57469	4.88	20

METHOD BLANK: 2973521

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

SAMPLE DUPLICATE: 2973522 ORIGINAL: 3041800001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	44.30312	mg/L	43.14365	2.65	20

METHOD BLANK: 2973525

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

SAMPLE DUPLICATE: 2973526 ORIGINAL: 3041851001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	107.04131	mg/L	113.8767	6.19	20

METHOD BLANK: 2973529

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

SAMPLE DUPLICATE: 2973530 ORIGINAL: 3041977003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	75.35969	mg/L	73.81067	2.08	20

QUALITY CONTROL DATA

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2973533

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

SAMPLE DUPLICATE: 2973534 ORIGINAL: 3042085001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	1.95774	mg/L	1.70014	14.1	20

METHOD BLANK: 2973537

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3041673002	MW-16 062419			EPA 300.0	WETC/223707
3041673002	MW-16 062419	SW846 6010C	MDIG/78581	SW846 6010C	META/68400
3041673002	MW-16 062419			SM5310B-2011	WETC/223747
3041673002	MW-16 062419	SW846 3015	MDIG/78599	SW846 6010C	META/68458
3041673002	MW-16 062419			RSK 175	SVGC/53606
3041673001	MW-11 062419			SW846 8260C	VOMS/51435
3041673002	MW-16 062419			SW846 8260C	VOMS/51435
3041673003	MW-9 062419			SW846 8260C	VOMS/51435
3041673004	Trip Blank			SW846 8260C	VOMS/51435
3041673002	MW-16 062419			EPA 300.0	WETC/223909
3041673002	MW-16 062419			SM2320B-2011	WETC/224000

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

CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

3041673

1 of 1

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Geninde Wolf
Phone#: 586-490-0987
Project Name/#: 60440641
Bill To:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [✓] Y geninde.wolf@aecom.com
Fax? [ ] Y No:

	Container Type	G	G	AV	P	P	P	P
	Container Size	40ml	40ml	40ml	250	250	125	250
	Preservative	HCl	HCl	HCl	—	—	HNO3	—

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 VOCs	RSK 175	TOC	Alkalinity	Cl, SO4, NO3	Total Fe	Diss Fe
				Enter Number of Containers Per Sample or Field Results Below.								
1	MW-11 062419	06/24/19	1240	G	GW	2	2	2	1	1	1	1
2	MW-16 062419		1355			2	2	2	1	1	1	1
3	MW-9 062419		1725			2	2	2	1	1	1	1
~~4~~	MS		—			2	2	2	1	1	1	1
~~5~~	MSD		—			2	2	2	1	1	1	1
~~4~~ 6	Trip blank	—	—	—	—	2						
7												
8												
9												
10												

VOB 6/25/19

AG

Sample Comments: Diss Fe to be lab filtered

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] / AECOM	6/24/19	1840	2	~~UPS~~ fedex EWL 6/25/19		
3	fedex			4	Reed ALS	6/25/19	0847
5				6			
7				8			
9				10			

Project Comments: * Report Tier IV

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

Sample/COC Comments: MS/MSD taken

(completed by Receiving Lab)
W.O. Temp: 3 Therm ID: 318
Courier/Tracking #:
Purchase Order #:

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- see Opto

* 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: Accom | Work Order #: 30411673 | Initials: EML | Date: 6/25/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4860			
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?	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.) See below		YES	(NO)
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg))? EML 6/25/19	(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 GW		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): 3

Thermometer ID: 318

Radiological (µCi): ____

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

MW-11 - Only received 2 8260 vials, all other samples for this sample ID were missing from cooler.

MW-9 - Only received 2 8260 vials, All other samples for this sample ID were missing from cooler

Rev. 4/29/2019

Friday, July 05, 2019 7:23:44 AM
Page 26 of 26
ALS

301 Fulling Mill Rd
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
SAMPLES: INSTRUCTIONS ON THE BACK

COC #:

ALS Quote #:

1 of 1

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Belinda Wolf
Phone#: 586-490-0987
Project Name/#: 60440641
Bill To:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Approved?
Date Required:
Email? [✓] Y belinda.Wolf@aecom.com
Fax? [ ] Y No:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260c VOCs	1,2,3-TCP	TOC	Alkalinity	Cl, SO_4, NO_3	Total Fe	Diss Fe
	Container Type			G	G	AV	P	P	P	P		
	Container Size			40ml	40ml	40ml	250	250	125	250		
	Preservative			HCl	HCl	HCl	—	—	HNO3	—		
1	MW-11 062419	06/24/19	1240	G	GW	2	2	2	1	1	1	1
2	MW-16 062419		1355			2	2	2	1	1	1	1
3	MW-9 062419		1725			2	2	2	1	1	1	1
4	MS		—			2	2	2	1	1	1	1
5	MSD		—			2	2	2	1	1	1	1
6	Trip blank	—	—	—	—	2						
7												
8												
9												
10												

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)
W.O. Temp: 3 Therm ID: 318
Courier/Tracking #:
Purchase Order #:

Project Comments:
* Report Tier IV
Only 8260c VOCs for MW-11 and MW-9

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

Sample/COC Comments
MS/MSD taken

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

Sampler Comments: Diss Fe to be lab filtered

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/24/19	1840	2 [signature] fedex		
3 fedex			4 [signature] ALS	6/25/19	0947
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- see memo

*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 11/19

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

July 29, 2019

Gerlinde Wolf
AECOM
40 British American Blvd
Latham, NY 12110

RE: **SCOTIA NAVY DEPOT / 60440641**

Pace Workorder: 30730

Dear Gerlinde Wolf:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday, June 26, 2019. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Emma Louis 07/29/2019
Emma.Louis@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 23

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received
307300001	MW-32 062019	Bubble Strip	6/20/2019 09:50	6/26/2019 10:30
307300002	MW-24 062019	Bubble Strip	6/20/2019 09:20	6/26/2019 10:30
307300003	MW-35 062019	Bubble Strip	6/20/2019 13:10	6/26/2019 10:30
307300004	MW-34 062019	Bubble Strip	6/20/2019 11:40	6/26/2019 10:30
307300005	MW-15 062019	Bubble Strip	6/20/2019 15:05	6/26/2019 10:30
307300006	MW-29 061919	Bubble Strip	6/19/2019 10:30	6/26/2019 10:30
307300007	MW-28 061919	Bubble Strip	6/19/2019 12:00	6/26/2019 10:30
307300008	MW-31 061919	Bubble Strip	6/19/2019 13:40	6/26/2019 10:30
307300009	MW-30 061919	Bubble Strip	6/19/2019 14:30	6/26/2019 10:30
307300010	MW-33 061919	Bubble Strip	6/19/2019 15:45	6/26/2019 10:30

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PROJECT SUMMARY

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Workorder Comments

The report is being re-issued on 7-29-2019 to correct the sample ID for sample 307300009. The analytical results have not been affected.

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300001** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-32 062019** Date Collected: 6/20/2019 09:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 11:49	MM	n
Hydrogen	**3.7**	nM	1.0	0.75	1	6/28/2019 11:49	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300002** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-24 062019** Date Collected: 6/20/2019 09:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:01	MM	n
Hydrogen	**1.9**	nM	1.0	0.75	1	6/28/2019 12:01	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300003** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-35 062019** Date Collected: 6/20/2019 13:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:19	MM	n
Hydrogen	**1.4**	nM	1.0	0.75	1	6/28/2019 12:19	MM	n

nelac

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300004** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-34 062019** Date Collected: 6/20/2019 11:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:36	MM	n
Hydrogen	**2.2**	nM	1.0	0.75	1	6/28/2019 12:36	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300005** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-15 062019** Date Collected: 6/20/2019 15:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:49	MM	n
Hydrogen	**1.5**	nM	1.0	0.75	1	6/28/2019 12:49	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300006** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-29 061919** Date Collected: 6/19/2019 10:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:01	MM	n
Hydrogen	**1.5**	nM	1.0	0.75	1	6/28/2019 13:01	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300007** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-28 061919** Date Collected: 6/19/2019 12:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:13	MM	n
Hydrogen	**2.7**	nM	1.0	0.75	1	6/28/2019 13:13	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300008** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-31 061919** Date Collected: 6/19/2019 13:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:26	MM	n
Hydrogen	**2.0**	nM	1.0	0.75	1	6/28/2019 13:26	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300009** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-30 061919** Date Collected: 6/19/2019 14:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:42	MM	n
Hydrogen	**8.5**	nM	1.0	0.75	1	6/28/2019 13:42	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300010** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-33 061919** Date Collected: 6/19/2019 15:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:54	MM	n
Hydrogen	**3.3**	nM	1.0	0.75	1	6/28/2019 13:54	MM	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

QC Batch: DISG/7630 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 307300001, 307300002, 307300003, 307300004, 307300005, 307300006, 307300007, 307300008, 307300009, 307300010

METHOD BLANK: 61928

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Acetylene	ug/l	<0.50	0.50	n

METHOD BLANK: 61929

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 61930 61932

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Acetylene	ug/l	64	62	58	97	90	80-120	7.8	20	n

LABORATORY CONTROL SAMPLE & LCSD: 61931 61933

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Hydrogen	nM	24	24	24	101	99	80-120	1.9	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
307300001	MW-32 062019			AM20GAX	DISG/7630
307300002	MW-24 062019			AM20GAX	DISG/7630
307300003	MW-35 062019			AM20GAX	DISG/7630
307300004	MW-34 062019			AM20GAX	DISG/7630
307300005	MW-15 062019			AM20GAX	DISG/7630
307300006	MW-29 061919			AM20GAX	DISG/7630
307300007	MW-28 061919			AM20GAX	DISG/7630
307300008	MW-31 061919			AM20GAX	DISG/7630
307300009	MW-30 061919			AM20GAX	DISG/7630
307300010	MW-33 061919			AM20GAX	DISG/7630

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Revised COC 7/29/19

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here 30750 SW 6/24/19

ALL SHADED AREAS are for LAB USE ONLY

Company: AECOM	Billing Information:
Address: 40 British American Blvd	
Report To: Geninde Wolf	Email To: Geninde.Wolf@aecom.com
Copy To: Dan Servetas	Site Collection Info/Address:
Customer Project Name/Number: Scotia Navy Depot / 60440641	State: NY County/City: Scotia Time Zone Collected: [ ]PT [ ]MT [ ]CT [✓]ET
Phone: 518 951 2370 Email:	Site/Facility ID #: Compliance Monitoring? [✓] Yes [ ] No
Collected By (print): Alexandra Golden	Purchase Order #: Quote #: 28154 DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: STANDARD Immediately Packed on Ice: [ ] Yes [✓] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [✓] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: Dissolved Hydrogen; Acetylene

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
MW-32 062019	AR	G	062019	0950				1
MW-24 062019				0920				1
MW-35 062019				1310				1
MW-34 062019				1140				1
MW-15 062019				1505				1
MW-29 061919			061919	1030				1
MW-28 061919				1200				1
MW-31 061919				1340				1
~~MW-30~~ MW-32 061919				1430				1
MW-33 061919				1545				1

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y (N) NA
Custody Signatures Present	Y N (NA)
Collector Signature Present	(Y) N NA
Bottles Intact	(Y) N NA
Correct Bottles	(Y) N NA
Sufficient Volume	(Y) N NA
Samples Received on Ice	Y N (NA)
VOA - Headspace Acceptable	Y N (NA)
USDA Regulated Soils	Y (N) NA
Samples in Holding Time	(Y) N NA
Residual Chlorine Present	Y N (NA)
Cl Strips:	
Sample pH Acceptable	Y N (NA)
pH Strips:	
Sulfide Present	Y N (NA)
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: N/A

Type of Ice Used: Wet Blue Dry (None)

Packing Material Used: Bubble wrap

Radchem sample(s) screened (<500 cpm): Y N (NA)

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 7753 5805 2318 2318138

Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N (NA)
Therm ID#:
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
/AECOM	06/25/19 1700		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N (NA)
HCL MeOH TSP Other

Non Conformance(s): (YES) / NO

Page: ____ of: ____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 30730 JW 6/25/19

ALL SHADED AREAS are for LAB USE ONLY

Company: AECOM	Billing Information:
Address: 40 British American Blvd	
Report To: Geninde Wolf	Email To: geninde.wolf@aecom.com
Copy To: Dan Servetas	Site Collection Info/Address:
Customer Project Name/Number: Scotia Naval Depot / 60440641	State: NY County/City: Scotia Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET
Phone: 518 951 2370 Email:	Site/Facility ID #: Compliance Monitoring? [✓] Yes [ ] No
Collected By (print): Alexandra Golden	Purchase Order #: Quote #: 28154 DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: STANDARD Immediately Packed on Ice: [ ] Yes [✓] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [✓] No Analysis: _____

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: Dissolved Hydrogen; Acetylene

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
MW-32 062019	AR	G	062019	0950				1
MW-24 062019				0920				1
MW-35 062019				1310				1
MW-34 062019				1140				1
MW-15 062019				1505				1
MW-29 061919			061919	1030				1
MW-28 061919				1200				1
MW-31 061919				1340				1
MW-32 061919				1430				1
MW-33 061919	V	V	V	1545				1

Customer Remarks / Special Conditions / Possible Hazards: N/A

Type of Ice Used: Wet Blue Dry (None)

Packing Material Used: bubble wrap

Radchem sample(s) screened (<500 cpm): Y N (NA)

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 7755 5808 2327 2318138

Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N (NA)
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

Relinquished by/Company: (Signature) AECOM	Date/Time: 06/25/19 1700	Received by/Company: (Signature) PACE	Date/Time: 6.26.19 1030
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N (NA)
HCL MeOH TSP Other

Non Conformance(s): (YES) / NO

Page: _____ of: _____

NON-CONFORMANCE FORM

PAES Work Order #: 30730

Date: 6-26-19 Time of Receipt: 10:30 Receiver: LY

Client: Aecom

REASON FOR NON-CONFORMANCE:

MW-29: Vial time was 10:45.

MW-32: Vial ID was MW-30.

ACTION TAKEN:

Client name: _____ Date: _____ Time: _____

Client emailed

Customer Service Initials: JW Date: 6/26/19

Joseph Ward - RE: Scotia Navy Depot / 60440641

From: "Golden, Alexandra" <Alexandra.Golden@aecom.com>
To: "Joseph.Ward@pacelabs.com" <Joseph.Ward@pacelabs.com>
Date: 6/26/2019 3:05 PM
Subject: RE: Scotia Navy Depot / 60440641
Cc: "Wolf, Gerlinde" <Gerlinde.Wolf@aecom.com>

Joseph,

The correct time for MW-29 061919 Is 1030.
The correct sample ID is MW-30 061919, not 32 061919.

Thanks,
Alexandra Golden

Alexandra Golden
Geologist, Environment
D +1-518-951-2253
C +1-518-925-4951
alexandra.golden@aecom.com

AECOM
40 British American Blvd.
Latham, NY 12110, USA
T +1-518-951-2200
www.aecom.com

Imagine It. Delievered.
LinkedIn Twitter Facebook Instagram

From: Wolf, Gerlinde
Sent: Wednesday, June 26, 2019 2:58 PM
To: Golden, Alexandra <Alexandra.Golden@aecom.com>
Subject: FW: Scotia Navy Depot / 60440641

Can you please handle this? ☺
-Gerlinde

From: Joseph Ward [mailto:Joseph.Ward@pacelabs.com]
Sent: Wednesday, June 26, 2019 2:14 PM
To: Wolf, Gerlinde
Subject: Scotia Navy Depot / 60440641

Upon receiving your samples for the project referenced above, There was some discrepancies with the COC.

Sample MW-29 061919 the time of collection on the vials was 10:45 but 10:30 on the COC can you confirm the correct collection time.

Sample MW-32 061919 the vial ID was MW-30 but MW - 32 061919 on the COC can you confirm the correct sample ID.

Thank you

Joseph Ward
Customer Service
Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh PA 15238
412-826-5245/412-826-2384(Direct)

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
June 2019

July 9, 2019 (Revised August 27, 2019)

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
June 2019
Final

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

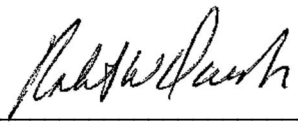
Prepared by:
AECOM
Pittsburgh, PA
60440641-17
June 2019

July 9, 2019 (Revised August 27, 2019)

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
June 2019
Final



Prepared By
Gregory Malzone, Project Chemist
AECOM
Gulf Tower
707 Grant Street, 5th floor
Pittsburgh, PA 15219



Reviewed By
Robert Davis, Data Validator/Database Technician
AECOM
1360 Peachtree Street NE, Suite 500
Atlanta, GA 30309

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Appendix B Data Qualification Summaries

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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 17-25, 2019. 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 seven 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
- Dissolved Hydrogen and Acetylene by Bubble Strip (PACE Method AM20GAX)

The dissolved hydrogen and acetylene samples were submitted to Pace Analytical Energy Services LLC (PACE), 220 William Pitt Way, Pittsburgh, PA 15238 for analysis. The dissolved hydrogen and acetylene samples were analyzed, and the data reported under work order number 30730.

The trip blanks were analyzed for VOCs only. Samples MW-5-061719 and MW-16-062419 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-7-061719	3040591001	Groundwater		6/17/2019	VOCs	ASN049
MW-27-061719	3040591002	Groundwater		6/17/2019	VOCs	ASN049
MW-6-061719	3040591003	Groundwater		6/17/2019	VOCs	ASN049
MW-8-061719	3040591004	Groundwater		6/17/2019	VOCs	ASN049
MW-12-061719	3040591005	Groundwater		6/17/2019	VOCs	ASN049
MW-5-061719	3040591006	Groundwater	MS/MSD	6/17/2019	VOCs	ASN049
DUP-2	3040591007	Groundwater (QC)	MW-8-061719	6/17/2019	VOCs	ASN049
Trip Blank	3040591008	Aqueous (QC)	trip blank	6/17/2019	VOCs	ASN049

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Analytes	SDG Number
GEP-1-061819	3040618001	Groundwater		6/17/2019	VOCs	ASN050
GEP-3-061819	3040618002	Groundwater	MS/MSD	6/18/2019	VOCs	ASN050
GEP-2-061819	3040618003	Groundwater		6/18/2019	VOCs	ASN050
GEP-4-061819	3040618004	Groundwater		6/18/2019	VOCs	ASN050
MW-18-061819	3040618005	Groundwater		6/18/2019	VOCs	ASN050
MW-14-061819	3040618006	Groundwater		6/18/2019	VOCs	ASN050
MW-19-061819	3040618007	Groundwater		6/18/2019	VOCs	ASN050
MW-17-061819	3040618008	Groundwater		6/18/2019	VOCs	ASN050
Trip Blank	3040618009	Aqueous (QC)	trip blank	6/19/2019	VOCs	ASN050
MW-29-061919	3040977001	Groundwater		6/19/2019	VOCs/MNA	ASN046
MW-28-061919	3040977002	Groundwater		6/19/2019	VOCs/MNA	ASN046
MW-31-061919	3040977003	Groundwater		6/19/2019	VOCs/MNA	ASN046
MW-30-061919	3040977004	Groundwater		6/19/2019	VOCs/MNA	ASN046
MW-33-061919	3040977005	Groundwater		6/19/2019	VOCs/MNA	ASN046
Trip Blank	3040977006	Aqueous (QC)	trip blank	6/20/2019	VOCs	ASN046
MW-24-062019	3041240001	Groundwater		6/20/2019	VOCs/MNA	ASN047
MW-32-062019	3041240002	Groundwater		6/20/2019	VOCs/MNA	ASN047
MW-35-062019	3041240003	Groundwater		6/20/2019	VOCs/MNA	ASN047
MW-34-062019	3041240004	Groundwater		6/20/2019	VOCs/MNA	ASN047
MW-15-062019	3041240005	Groundwater		6/20/2019	VOCs/MNA	ASN047
MW-26-062019	3041240006	Groundwater		6/20/2019	VOCs/MNA	ASN047
DUP	3041240007	Groundwater (QC)	MW-34-062019	6/20/2019	VOCs/MNA	ASN047
Trip Blank	3041240008	Aqueous (QC)	trip blank	6/21/2019	VOCs	ASN047
MW-22-062119	3041439002	Groundwater		6/21/2019	VOCs	ASN048
MW-20-062119	3041439003	Groundwater		6/21/2019	VOCs	ASN048
DUP	3041439004	Groundwater (QC)	MW-20-062119	6/21/2019	VOCs	ASN048
Trip Blank	3041439005	Aqueous (QC)	trip blank	6/22/2019	VOCs	ASN048
MW-23-062119	3041439006	Groundwater		6/21/2019	VOCs	ASN048
MW-36-062119	3041439007	Groundwater		6/21/2019	VOCs	ASN048
MW-25-062119	3041439008	Groundwater		6/21/2019	VOCs	ASN048
MW-11-062419	3041673001	Groundwater		6/24/2019	VOCs	ASN051
MW-16-062419	3041673002	Groundwater	MS/MSD	6/24/2019	VOCs/MNA	ASN051
MW-9-062419	3041673003	Groundwater		6/24/2019	VOCs	ASN051
Trip Blank	3041673004	Aqueous (QC)	trip blank	6/25/2019	VOCs	ASN051

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 six 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 3040977 (SDG ASN046)

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

Work Order 3041240 (SDG ASN047)

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

Work Order 3041439 (SDG ASN048)

Surrogate Recovery (p. 29): The 4-bromoflurobenzene surrogate recovery was greater than the upper quality control limit and the 1,2-dichloroethane-d4 surrogate recovery was less than the lower quality control limit for sample MW-20-062119. The positive and non-detect VOC results for sample MW-20-062119 were qualified "J/UJ," as estimates, because of matrix effects. The direction of bias could not be determined.

Work Order 3040591 (SDG ASN049)

Sample Receipt (pp. 4-5): The samples collected on June 17, 2019 were received at the laboratory on ice at 9 degrees Celsius (°C) on June 18, 2019. This temperature is outside the optimal range of 4° ± 2° C. The samples were received on ice and the shipment container temperature was < 10° C. No data qualifications were required.

Work Order 3040618 (SDG ASN050)

Sample Receipt (pp. 4-5): The samples collected on June 18, 2019 were received at the laboratory on ice at 7° C on June 19, 2019. This temperature is outside the optimal range of 4° ± 2° C. The samples were received on ice and the shipment container temperature was < 10° C. No data qualifications were required.

Matrix Spike Recovery and RPDs (pp. 33-34): Sample GEP-3-061819 was processed as the quality control sample, that is, as the MS/MSD for the analytical batch. The GEP-3-061819 MSD recovery for trichloroethene was less than the lower advisory limit. The trichloroethene spike added was less than 25% of the original sample result. No data qualification was required.

Work Order 3041673 (SDG ASN051)

Matrix Spike Recovery and RPDs (pp. 34-35): Sample MW-16-062419 was designated in the field to be processed as the quality control sample, that is, as the MS/MSD. The MW-16-062419 MS/MSD recoveries for trans-1,2-dichloroethene were greater than or equal to the upper advisory limit. The trans-1,2-dichloroethene result for sample MW-16-062419 was non-detect. 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 3040977 (SDG ASN046)

Method Blanks (p. 2164): The method blank associated with quality control batch SVGC/53595 had a methane result 0.70 J µg/L. Samples MW-29-061919, MW-28-061919, MW-31-061919, MW-30-061919 and MW-33-061919 were affected. The methane result for associated sample MW-28-061919 was less than the LOQ and was qualified "U," as undetected at the LOQ because of lab contamination. All other associated methane results were non-detect, or greater than five times the blank concentration, and did not require qualification.

Work Order 3041240 (SDG ASN047)

Method Blanks (pp. 2138, 2144): The method blank associated with quality control batch SVGC/53595 had a methane result of 0.70 J µg/L. Samples MW-24-062019, MW-32-062019, MW-35-062019, MW-34-062019 and MW-15-062019 were affected. The methane result for associated sample MW-15-062019 was less than the LOQ and was qualified "U," as undetected at the LOQ because of lab contamination. All other associated methane results were greater than five times the blank concentration and did not require qualification.

The method blank associated with quality control batch SVGC/53606 had a methane result of 0.94 J µg/L. Samples MW-26-062019 and DUP-062019 were affected. The methane results for samples MW-26-062019 and DUP-062019 were greater than five times the blank level and did not require qualification.

Work Order 3041673 (SDG ASN051)

Method Blanks (p. 1950): The method blank associated with quality control batch SVGC/53606 had a methane result of 0.94 J µg/L. Samples MW-16-062419 was affected. The methane result for sample MW-16-062419 was less than the LOQ and was qualified "U," as undetected at the LOQ because of lab contamination.

3.0 Total and Dissolved Iron

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

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

Work Order 3040977 (SDG ASN046)

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

Work Order 3041240 (SDG ASN047)

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

Work Order 3041673 (SDG ASN051)

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 three 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 3040977 (SDG ASN046)

Method Blanks (p. 2363): Chloride, nitrate and sulfate were detected in method blank 2968432 (06/21/19 08:26) at concentrations estimated to be less than the reporting limits. All samples in this SDG were affected. All chloride results were greater than ten times the blank concentration and did not require qualification. The nitrate result for sample MW-28-061919 and the sulfate result for sample MW-30-061919 were less than the LOQ and were qualified "U," as undetected at the LOQ because of lab contamination. All other associated nitrate and sulfate results were non-detect, or greater than ten times the blank concentration, and did not require qualification.

Work Order 3041240 (SDG ASN047)

Continuing Calibration Verification (CCV) Standard Recovery (pp. 2337, 2344): The low-level chloride CCV recovery was less than 90% (89.2%) on 06/22/19 at 04:43 on instrument IC-5. The subsequent chloride CCVs were at 90.4%. There may be a slight negative bias in the calibration. Based on professional judgment, the chloride results for samples MW-24-062019, MW-32-062019, MW-34-062019 and MW-35-062019 were qualified "J-," as estimated concentrations, because of low analytical bias.

Method Blanks (p. 2396): Chloride and sulfate were detected in method blanks 2969408 (06/22/19 08:31) and 2969410 (06/22/19 11:52). All samples in this SDG were affected. All chloride results were greater than ten times the blank concentration and did not require qualification. The sulfate results for samples MW-34-062019 and DUP-061919 were less than the LOQ and were qualified "U," as undetected at the LOQ because of lab contamination. All other associated sulfate results were greater than ten times the blank concentration and did not require qualification.

Work Order 3041673 (SDG ASN051)

Method Blanks (p. 2136): Chloride was detected in method blanks 2972425 (06/29/19 07:58) and 2972432 (06/29/19 13:49). Sample MW-16-062419 was affected. The chloride result for sample MW-16-062419 was greater than ten times the blank concentration and did not require qualification.

5.0 Alkalinity

Measurement performance indicators which did not meet criteria for alkalinity analysis are presented below for each of the three 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 3040977 (SDG ASN046)

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

Work Order 3041240 (SDG ASN047)

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

Work Order 3041673 (SDG ASN051)

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 three 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 3040977 (SDG ASN046)

Continuing Calibration Blanks (p. 2412): TOC was detected in the continuing calibration blanks (CCB6-CCB8) on 06/25-26/19 at concentrations estimated to be less than the LOQ. All samples in this SDG were affected. The TOC results for samples MW-28-061919 and MW-33-061919 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 result for sample MW-31-061919 was less than the LOQ and was 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 3041240 (SDG ASN047)

Continuing Calibration and Method Blanks (p. 2415): TOC was detected in the continuing calibration blanks (CCB1-CCB2) on 06/26-27/19 at concentrations estimated to be less than the LOQ. All samples in this SDG were affected. The TOC results for samples MW-24-062019, MW-32-062019 and MW-35-062019 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 result for sample MW-15-062019 was less than the LOQ and was 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 3041673 (SDG ASN051)

Continuing Calibration Blanks (p. 2231): TOC was detected in the continuing calibration blanks (ICB, CCB4-CCB5) on 06/27/19 at concentrations estimated to be less than the LOQ. Sample MW-16-062419 was affected. The TOC result for sample MW-16-062419 was greater than the LOQ but

less than ten times the blank concentration and was qualified “J+,” as an estimated concentration, biased high because of ambient contamination.

7.0 Dissolved Hydrogen and Acetylene

Measurement performance indicators which did not meet criteria for dissolved hydrogen and acetylene analysis are presented below for the Pace laboratory report. Analytical results for dissolved hydrogen and acetylene were reviewed for the following measurement performance indicators:

- Data Completeness
- Chain of Custody
- Sample Preservation
- Holding Time
- Method Blanks
- Quantitation Limits
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 30730

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

8.0 Field Duplicate Comparison

Field duplicate samples were collected at groundwater wells MW-8, MW-20 and MW-34. 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
Qual: Qualification required
µg/L: micrograms per liter (ppb) and mg/L: milligrams per liter (ppm)

Table 2 – Field Duplicate Precision

Parameter	Units	MW-8-061719	DUP-2 (6/17/2019)	RPD (%)	Qual
The parent and field duplicate results were non-detect.					
Parameter	**Units**	**MW-34-062019**	**DUP (6/20/2019)**	**RPD (%)**	**Qual**
Trichloroethene	µg/L	1.1	1.2	8.7	None
Ethane	µg/L	0.77 J	0.84 J	8.7	None
Ethene	µg/L	1.1 J	1.1 J	0	None
Methane	µg/L	419	428	2.1	None
Alkalinity, total	mg/L	194	207	2.1	None
Chloride	mg/L	6.6	7.1	7.3	None
Total Organic Carbon	mg/L	8.3	6.5	24	None
Iron, total	mg/L	0.33	0.73	75	J
Iron, dissolved	mg/L	0.18	0.22	20	None
Parameter	**Units**	**MW-20-062119**	**DUP (6/21/2019)**	**RPD (%)**	**Qual**
Trichloroethene	µg/L	7.0	105	175	J
Tetrachloroethene	µg/L	0.47 J	5.4	168	J

Parent and field duplicate results associated with an RPD not within the advisory acceptance criteria were qualified "J," as estimated concentrations because of field sampling/laboratory imprecision and/or sample heterogeneity.

9.0 Notes

The MNA parameters were unintentionally checked (i.e., requested) on the chain of custody record for SDG ASN051 samples MW-9 and MW-11. Analysis of the MNA parameters were not planned for these locations and so were not collected.

Positive organic and inorganic results between the method detection limit (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.

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: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977001** Date Collected: 6/19/2019 09:30 Matrix: Ground Water

Sample ID: **MW-29 061919** Date Received: 6/20/2019 11:31

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			6/27/19 09:51	PDK	A
1,1-Dichloroethane	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
cis-1,2-Dichloroethene	5.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Tetrachloroethene	29.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,1-Trichloroethane	8.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Trichloroethene	161		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 09:51	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C			6/27/19 09:51	PDK	A
4-Bromofluorobenzene (S)	110		%	85 - 114			SW846 8260C			6/27/19 09:51	PDK	A
Dibromofluoromethane (S)	103		%	80 - 119			SW846 8260C			6/27/19 09:51	PDK	A
Toluene-d8 (S)	103		%	89 - 112			SW846 8260C			6/27/19 09:51	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 05:07	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 05:07	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 05:07	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 05:07	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 05:07	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 05:07	CHS	H
WET CHEMISTRY												
Alkalinity, Total	342	X	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:09	MBW	G
Chloride	38.9		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 05:45	CHW	F
Nitrate-N	0.26		mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 05:45	CHW	F
Sulfate	12.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 05:45	CHW	F
Total Organic Carbon (TOC)	5.3		mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D
METALS												
Iron, Total	0.13		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:45	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:06	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977002** Date Collected: 6/19/2019 10:15 Matrix: Ground Water

Sample ID: **MW-28 061919** Date Received: 6/20/2019 11:31

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1-Dichloroethane	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
cis-1,2-Dichloroethene	5.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Tetrachloroethene	31.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,1-Trichloroethane	8.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Trichloroethene	172		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:11	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118			SW846 8260C			6/28/19 03:11	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 03:11	PDK	B
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C			6/28/19 03:11	PDK	B
Toluene-d8 (S)	97.5		%	89 - 112			SW846 8260C			6/28/19 03:11	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 05:24	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 05:24	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 05:24	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 05:24	CHS	H
Methane 1.5U	~~1.4J~~	~~J~~	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 05:24	CHS	H b1
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 05:24	CHS	H
WET CHEMISTRY												
Alkalinity, Total	325	Z	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:20	MBW	G
Chloride	41.6		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 05:59	CHW	F
Nitrate-N 0.20U	~~0.16J~~	~~J~~	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 05:59	CHW	F b1
Sulfate	13.6		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 05:59	CHW	F
Total Organic Carbon (TOC)	1.6 J+		mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D b1
METALS												
Iron, Total	0.045U	U	mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:49	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:10	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977003** Date Collected: 6/19/2019 13:05 Matrix: Ground Water

Sample ID: **MW-31 061919** Date Received: 6/20/2019 11:31

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			6/28/19 03:34	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Trichloroethene	26.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:34	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 03:34	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 03:34	PDK	B
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C			6/28/19 03:34	PDK	B
Toluene-d8 (S)	98.4		%	89 - 112			SW846 8260C			6/28/19 03:34	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:02	CHS	H
Ethane	3.0J	J	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:02	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:02	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:02	CHS	H
Methane	99.3		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:02	CHS	H
Propane	2.4J	J	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:02	CHS	H
WET CHEMISTRY												
Alkalinity, Total	142	2	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:29	MBW	G
Chloride	45.9		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:12	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:12	CHW	F
Sulfate	10.2		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:12	CHW	F
Total Organic Carbon (TOC)	~~0.85J~~ 1.0 U	~~J~~	mg/L	1.0	0.50	0.18	SM5310B-2011			6/25/19 22:37	PAG	D
METALS												
Iron, Total	0.72		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:52	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:13	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977004** Date Collected: 6/19/2019 13:50 Matrix: Ground Water

Sample ID: **MW-30 061919** Date Received: 6/20/2019 11:31

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			6/27/19 05:20	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Trichloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 05:20	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	81 - 118			SW846 8260C			6/27/19 05:20	PDK	A
4-Bromofluorobenzene (S)	114		%	85 - 114			SW846 8260C			6/27/19 05:20	PDK	A
Dibromofluoromethane (S)	107		%	80 - 119			SW846 8260C			6/27/19 05:20	PDK	A
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C			6/27/19 05:20	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:18	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:18	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:18	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:18	CHS	H
Methane	91.6		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:18	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:18	CHS	H
WET CHEMISTRY												
Alkalinity, Total	65	~~J~~	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:38	MBW	G
Chloride	37.6		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:25	CHW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:25	CHW	F
Sulfate 2.0U	~~0.28J~~	~~J~~	mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:25	CHW	F
Total Organic Carbon (TOC)	7.7		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 03:15	PAG	D
METALS												
Iron, Total	0.93		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 13:56	SRT	J1
Iron, Dissolved	0.33		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:17	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977005** Date Collected: 6/19/2019 15:45 Matrix: Ground Water

Sample ID: **MW-33 061919** Date Received: 6/20/2019 11:31

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			6/28/19 03:56	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Trichloroethene	97.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 03:56	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C			6/28/19 03:56	PDK	B
4-Bromofluorobenzene (S)	104		%	85 - 114			SW846 8260C			6/28/19 03:56	PDK	B
Dibromofluoromethane (S)	96.1		%	80 - 119			SW846 8260C			6/28/19 03:56	PDK	B
Toluene-d8 (S)	97		%	89 - 112			SW846 8260C			6/28/19 03:56	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 06:37	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 06:37	CHS	H
Ethene	1.2J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 06:37	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 06:37	CHS	H
Methane	4.7		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 06:37	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 06:37	CHS	H
WET CHEMISTRY												
Alkalinity, Total	172	J	mg/L	5	5	0.8	SM2320B-2011			6/22/19 01:47	MBW	G
Chloride	21.2		mg/L	2.0	0.50	0.16	EPA 300.0			6/21/19 06:39	CHW	F
Nitrate-N	0.42		mg/L	0.20	0.060	0.020	EPA 300.0			6/21/19 06:39	CHW	F
Sulfate	10.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/21/19 06:39	CHW	F
Total Organic Carbon (TOC)	1.8 J+		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 03:15	PAG	D b1
METALS												
Iron, Total	0.32		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:00	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:21	SRT	K

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ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

Lab ID: **3040977006** Date Collected: 6/20/2019 11:31 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/20/2019 11:31

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		6/28/19 02:03	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 02:03	PDK	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118	SW846 8260C		6/28/19 02:03	PDK	B
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/28/19 02:03	PDK	B
Dibromofluoromethane (S)	96.2		%	80 - 119	SW846 8260C		6/28/19 02:03	PDK	B
Toluene-d8 (S)	98.2		%	89 - 112	SW846 8260C		6/28/19 02:03	PDK	B

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240001** Date Collected: 6/20/2019 08:55 Matrix: Ground Water
Sample ID: **MW-24 062019** Date Received: 6/21/2019 09:08

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		6/27/19 08:43	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,1-Dichloroethene	26.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
cis-1,2-Dichloroethene	9.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
Trichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:43	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118			SW846 8260C		6/27/19 08:43	PDK	A
4-Bromofluorobenzene (S)	113		%	85 - 114			SW846 8260C		6/27/19 08:43	PDK	A
Dibromofluoromethane (S)	104		%	80 - 119			SW846 8260C		6/27/19 08:43	PDK	A
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C		6/27/19 08:43	PDK	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/27/19 06:54	CHS	F
Ethane	14.7		ug/L	3.3	3.3	0.55	RSK 175		6/27/19 06:54	CHS	F
Ethene	1.7J	J	ug/L	2.4	2.4	0.81	RSK 175		6/27/19 06:54	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/27/19 06:54	CHS	F
Methane	179		ug/L	1.5	1.5	0.53	RSK 175		6/27/19 06:54	CHS	F
Propane	2.0J	J	ug/L	3.2	3.2	0.84	RSK 175		6/27/19 06:54	CHS	F
WET CHEMISTRY											
Alkalinity, Total	134		mg/L	5	5	0.8	SM2320B-2011		6/25/19 11:39	MBW	D
Chloride	29.1	J-	mg/L	2.0	0.50	0.16	EPA 300.0		6/22/19 06:44	CHW	E e
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/22/19 06:44	CHW	E
Sulfate	3.0		mg/L	2.0	0.50	0.20	EPA 300.0		6/22/19 06:44	CHW	E
Total Organic Carbon (TOC)	2.0	J+	mg/L	1.0	0.50	0.18	SM5310B-2011		6/26/19 22:25	PAG	H e
METALS											
Iron, Total	1.1		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19 SXC	6/28/19 14:04	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19 SRT	6/26/19 14:25	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240002** Date Collected: 6/20/2019 09:20 Matrix: Ground Water

Sample ID: **MW-32 062019** Date Received: 6/21/2019 09:08

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			6/28/19 05:49	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1-Dichloroethene	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
cis-1,2-Dichloroethene	0.83J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Trichloroethene	118		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:49	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 05:49	PDK	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/28/19 05:49	PDK	B
Dibromofluoromethane (S)	98.1		%	80 - 119			SW846 8260C			6/28/19 05:49	PDK	B
Toluene-d8 (S)	98.3		%	89 - 112			SW846 8260C			6/28/19 05:49	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:12	CHS	F
Ethane	12.1		ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:12	CHS	F
Ethene	1.7J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:12	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:12	CHS	F
Methane	2190		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:12	CHS	F
Propane	11.0		ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:12	CHS	F
WET CHEMISTRY												
Alkalinity, Total	134	J	mg/L	5	5	0.8	SM2320B-2011			6/25/19 11:49	MBW	D
Chloride	24.1	J-	mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 06:57	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 06:57	CHW	E
Sulfate	8.6		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 06:57	CHW	E
Total Organic Carbon (TOC)	1.4	J+	mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.47		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:07	SRT	J1
Iron, Dissolved	0.024J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:28	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240003** Date Collected: 6/20/2019 11:45 Matrix: Ground Water

Sample ID: **MW-35 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:12	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Trichloroethene	34.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:12	PDK	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 06:12	PDK	B
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 06:12	PDK	B
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C			6/28/19 06:12	PDK	B
Toluene-d8 (S)	98.1		%	89 - 112			SW846 8260C			6/28/19 06:12	PDK	B
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:32	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:32	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:32	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:32	CHS	F
Methane	38.3		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:32	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:32	CHS	F
WET CHEMISTRY												
Alkalinity, Total	174	J	mg/L	5	5	0.8	SM2320B-2011			6/25/19 11:58	MBW	D
Chloride	21.2	J-	mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 07:10	CHW	E
Nitrate-N	0.38		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 07:10	CHW	E
Sulfate	9.8		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 07:10	CHW	E
Total Organic Carbon (TOC)	1.2	J+	mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.61		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:11	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:32	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240004** Date Collected: 6/20/2019 11:40 Matrix: Ground Water

Sample ID: **MW-34 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:35	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Trichloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:35	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118			SW846 8260C			6/28/19 06:35	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/28/19 06:35	PDK	A
Dibromofluoromethane (S)	98		%	80 - 119			SW846 8260C			6/28/19 06:35	PDK	A
Toluene-d8 (S)	99.9		%	89 - 112			SW846 8260C			6/28/19 06:35	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 07:50	CHS	F
Ethane	0.77J	J	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 07:50	CHS	F
Ethene	1.1J	J	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 07:50	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 07:50	CHS	F
Methane	419		ug/L	1.5	1.5	0.53	RSK 175			6/27/19 07:50	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 07:50	CHS	F
WET CHEMISTRY												
Alkalinity, Total	194	~~J~~	mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:08	MBW	D
Chloride	6.6	J-	mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 07:24	CHW	E c
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 07:24	CHW	E
Sulfate 2.04	~~0.74J~~	~~J~~	mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 07:24	CHW	E b1
Total Organic Carbon (TOC)	8.3		mg/L	1.0	0.50	0.18	SM5310B-2011			6/26/19 22:25	PAG	H
METALS												
Iron, Total	0.33 J		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:22	SRT	J1 fd
Iron, Dissolved	0.18		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:43	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240005** Date Collected: 6/20/2019 15:05 Matrix: Ground Water

Sample ID: **MW-15 062019** Date Received: 6/21/2019 09:08

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			6/28/19 06:57	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Tetrachloroethene	1.0J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,1-Trichloroethane	5.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Trichloroethene	128		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 06:57	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118			SW846 8260C			6/28/19 06:57	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/28/19 06:57	PDK	A
Dibromofluoromethane (S)	96.3		%	80 - 119			SW846 8260C			6/28/19 06:57	PDK	A
Toluene-d8 (S)	98.4		%	89 - 112			SW846 8260C			6/28/19 06:57	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/27/19 08:06	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/27/19 08:06	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/27/19 08:06	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/27/19 08:06	CHS	F
Methane 1.5U	~~0.83J~~	~~J~~	ug/L	1.5	1.5	0.53	RSK 175			6/27/19 08:06	CHS	F bl
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/27/19 08:06	CHS	F
WET CHEMISTRY												
Alkalinity, Total	169	✓	mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:17	MBW	D
Chloride	43.4		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 08:44	CHW	E
Nitrate-N	0.56		mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 08:44	CHW	E
Sulfate 1.0U	12.0		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 08:44	CHW	E
Total Organic Carbon (TOC)	~~0.64J~~	~~J~~	mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H e
METALS												
Iron, Total	0.056J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:26	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:47	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240006** Date Collected: 6/20/2019 15:30 Matrix: Ground Water

Sample ID: **MW-26 062019** Date Received: 6/21/2019 09:08

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			6/28/19 07:20	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:20	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.9		%	81 - 118			SW846 8260C			6/28/19 07:20	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 07:20	PDK	A
Dibromofluoromethane (S)	96.7		%	80 - 119			SW846 8260C			6/28/19 07:20	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112			SW846 8260C			6/28/19 07:20	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:04	CHS	F
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:04	CHS	F
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:04	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:04	CHS	F
Methane	112		ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:04	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:04	CHS	F
WET CHEMISTRY												
Alkalinity, Total	174		mg/L	5	5	0.8	SM2320B-2011			6/25/19 12:27	MBW	D
Chloride	32.2		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 08:58	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 08:58	CHW	E
Sulfate	9.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 08:58	CHW	E
Total Organic Carbon (TOC)	6.4		mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H
METALS												
Iron, Total	1.1		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:30	SRT	J1
Iron, Dissolved	0.15		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:51	SRT	K

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240007** Date Collected: 6/20/2019 00:00 Matrix: Ground Water

Sample ID: **DUP** Date Received: 6/21/2019 09:08

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			6/28/19 07:43	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Trichloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 07:43	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118			SW846 8260C			6/28/19 07:43	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			6/28/19 07:43	PDK	A
Dibromofluoromethane (S)	96.5		%	80 - 119			SW846 8260C			6/28/19 07:43	PDK	A
Toluene-d8 (S)	97.8		%	89 - 112			SW846 8260C			6/28/19 07:43	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:42	CHS	F
Ethane	0.84J	J	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:42	CHS	F
Ethene	1.1J	J	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:42	CHS	F
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:42	CHS	F
Methane	428		ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:42	CHS	F
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:42	CHS	F
WET CHEMISTRY												
Alkalinity, Total	207	~~J~~	mg/L	5	5	0.8	SM2320B-2011			6/25/19 23:02	MBW	D
Chloride	7.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/22/19 09:11	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/22/19 09:11	CHW	E
Sulfate 2.0U	~~0.70J~~	~~J~~	mg/L	2.0	0.50	0.20	EPA 300.0			6/22/19 09:11	CHW	E
Total Organic Carbon (TOC)	6.5		mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 04:26	PAG	H
METALS												
Iron, Total	0.73 J		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:33	SRT	J1
Iron, Dissolved	0.22		mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:54	SRT	K

fd.

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ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID: **3041240008** Date Collected: 6/21/2019 09:08 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 6/21/2019 09:08

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			6/28/19 02:25	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 02:25	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/28/19 02:25	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/28/19 02:25	PDK	A
Dibromofluoromethane (S)	96.6		%	80 - 119	SW846 8260C			6/28/19 02:25	PDK	A
Toluene-d8 (S)	98.6		%	89 - 112	SW846 8260C			6/28/19 02:25	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439001** Date Collected: 6/21/2019 09:20 Matrix: Ground Water

Sample ID: **MW-16 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
ADMINISTRATIVE											
Sample Cancelled	Sample cancelled per client request. This site needs an MS/MSD.								6/24/19 09:52	VNB	

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439002** Date Collected: 6/21/2019 12:05 Matrix: Ground Water
Sample ID: **MW-22 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Tetrachloroethene	5.2		ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Trichloroethene	148		ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C		6/29/19 05:09	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/29/19 05:09	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/29/19 05:09	PDK	A
Dibromofluoromethane (S)	98		%	80 - 119	SW846 8260C		6/29/19 05:09	PDK	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C		6/29/19 05:09	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439003** Date Collected: 6/21/2019 14:20 Matrix: Ground Water
Sample ID: **MW-20 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1-Dichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,2-Dichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1-Dichloroethene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
cis-1,2-Dichloroethene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
trans-1,2-Dichloroethene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
Tetrachloroethene	0.47J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
Toluene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1,1-Trichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
1,1,2-Trichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
Trichloroethene	7.0	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A
Vinyl Chloride	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 01:46	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	70.8	1	%	81 - 118	SW846 8260C			6/29/19 01:46	PDK	A
4-Bromofluorobenzene (S)	132	2	%	85 - 114	SW846 8260C			6/29/19 01:46	PDK	A
Dibromofluoromethane (S)	89.9		%	80 - 119	SW846 8260C			6/29/19 01:46	PDK	A
Toluene-d8 (S)	107		%	89 - 112	SW846 8260C			6/29/19 01:46	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439004** Date Collected: 6/21/2019 14:20 Matrix: Ground Water

Sample ID: **DUP** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
Tetrachloroethene	5.4	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A fd
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A
Trichloroethene	105	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A fd
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:47	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/29/19 04:47	PDK	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/29/19 04:47	PDK	A
Dibromofluoromethane (S)	97.1		%	80 - 119	SW846 8260C			6/29/19 04:47	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112	SW846 8260C			6/29/19 04:47	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439005** Date Collected: 6/22/2019 09:40 Matrix: Ground Water

Sample ID: **Trip Blanks** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 00:37	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/29/19 00:37	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/29/19 00:37	PDK	A
Dibromofluoromethane (S)	96.7		%	80 - 119	SW846 8260C		6/29/19 00:37	PDK	A
Toluene-d8 (S)	97.4		%	89 - 112	SW846 8260C		6/29/19 00:37	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439006** Date Collected: 6/21/2019 14:56 Matrix: Ground Water

Sample ID: **MW-23 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:08	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/29/19 02:08	PDK	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C			6/29/19 02:08	PDK	A
Dibromofluoromethane (S)	97		%	80 - 119	SW846 8260C			6/29/19 02:08	PDK	A
Toluene-d8 (S)	96.6		%	89 - 112	SW846 8260C			6/29/19 02:08	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439007** Date Collected: 6/21/2019 11:50 Matrix: Ground Water
Sample ID: **MW-36 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Trichloroethene	2.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:31	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/29/19 02:31	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/29/19 02:31	PDK	A
Dibromofluoromethane (S)	95		%	80 - 119	SW846 8260C			6/29/19 02:31	PDK	A
Toluene-d8 (S)	96.1		%	89 - 112	SW846 8260C			6/29/19 02:31	PDK	A

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ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID: **3041439008** Date Collected: 6/21/2019 09:50 Matrix: Ground Water

Sample ID: **MW-25 062119** Date Received: 6/22/2019 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
Trichloroethene	87.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 02:54	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/29/19 02:54	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/29/19 02:54	PDK	A
Dibromofluoromethane (S)	96.6		%	80 - 119	SW846 8260C			6/29/19 02:54	PDK	A
Toluene-d8 (S)	95		%	89 - 112	SW846 8260C			6/29/19 02:54	PDK	A

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591001** Date Collected: 6/17/2019 11:55 Matrix: Ground Water
Sample ID: **MW-7 061719** Date Received: 6/18/2019 09:06

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		6/27/19 06:05	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
1,1,2-Trichloroethane	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
Trichloroethene	136		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 06:05	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	112		%	81 - 118	SW846 8260C		6/27/19 06:05	PDK	A
4-Bromofluorobenzene (S)	113		%	85 - 114	SW846 8260C		6/27/19 06:05	PDK	A
Dibromofluoromethane (S)	107		%	80 - 119	SW846 8260C		6/27/19 06:05	PDK	A
Toluene-d8 (S)	108		%	89 - 112	SW846 8260C		6/27/19 06:05	PDK	A

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591002** Date Collected: 6/17/2019 13:15 Matrix: Ground Water

Sample ID: **MW-27 061719** Date Received: 6/18/2019 09:06

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			6/28/19 04:19	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 04:19	PDK	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/28/19 04:19	PDK	B
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/28/19 04:19	PDK	B
Dibromofluoromethane (S)	94.8		%	80 - 119	SW846 8260C			6/28/19 04:19	PDK	B
Toluene-d8 (S)	97.8		%	89 - 112	SW846 8260C			6/28/19 04:19	PDK	B

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591003** Date Collected: 6/17/2019 14:10 Matrix: Ground Water

Sample ID: **MW-6 061719** Date Received: 6/18/2019 09:06

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			6/27/19 06:50	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,1,1-Trichloroethane	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
Trichloroethene	19.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 06:50	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	111		%	81 - 118	SW846 8260C			6/27/19 06:50	PDK	A
4-Bromofluorobenzene (S)	114		%	85 - 114	SW846 8260C			6/27/19 06:50	PDK	A
Dibromofluoromethane (S)	105		%	80 - 119	SW846 8260C			6/27/19 06:50	PDK	A
Toluene-d8 (S)	108		%	89 - 112	SW846 8260C			6/27/19 06:50	PDK	A

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591004**
Sample ID: **MW-8 061719**

Date Collected: 6/17/2019 15:50
Date Received: 6/18/2019 09:06

Matrix: Ground Water

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		6/28/19 04:41	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 04:41	PDK	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C		6/28/19 04:41	PDK	B
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/28/19 04:41	PDK	B
Dibromofluoromethane (S)	98.3		%	80 - 119	SW846 8260C		6/28/19 04:41	PDK	B
Toluene-d8 (S)	98.4		%	89 - 112	SW846 8260C		6/28/19 04:41	PDK	B

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591005** Date Collected: 6/17/2019 16:15 Matrix: Ground Water

Sample ID: **WM-12 061719** Date Received: 6/18/2019 09:06

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	4.8	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
Tetrachloroethene	0.79J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1,1-Trichloroethane	2.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
Trichloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/28/19 05:04	PDK	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C		6/28/19 05:04	PDK	B
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/28/19 05:04	PDK	B
Dibromofluoromethane (S)	97.1		%	80 - 119	SW846 8260C		6/28/19 05:04	PDK	B
Toluene-d8 (S)	100		%	89 - 112	SW846 8260C		6/28/19 05:04	PDK	B

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591006** Date Collected: 6/17/2019 17:10 Matrix: Ground Water

Sample ID: **MW-5 061719** Date Received: 6/18/2019 09:06

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1,1-Trichloroethane	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/28/19 05:27	PDK	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.4		%	81 - 118	SW846 8260C			6/28/19 05:27	PDK	D
4-Bromofluorobenzene (S)	103		%	85 - 114	SW846 8260C			6/28/19 05:27	PDK	D
Dibromofluoromethane (S)	95		%	80 - 119	SW846 8260C			6/28/19 05:27	PDK	D
Toluene-d8 (S)	97.4		%	89 - 112	SW846 8260C			6/28/19 05:27	PDK	D

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591007** Date Collected: 6/17/2019 00:00 Matrix: Ground Water

Sample ID: **DUP-2** Date Received: 6/18/2019 09:06

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		6/27/19 08:21	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 08:21	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118	SW846 8260C		6/27/19 08:21	PDK	A
4-Bromofluorobenzene (S)	113		%	85 - 114	SW846 8260C		6/27/19 08:21	PDK	A
Dibromofluoromethane (S)	102		%	80 - 119	SW846 8260C		6/27/19 08:21	PDK	A
Toluene-d8 (S)	106		%	89 - 112	SW846 8260C		6/27/19 08:21	PDK	A

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ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID: **3040591008** Date Collected: 6/18/2019 08:06 Matrix: Ground Water
Sample ID: **Trip Blank** Date Received: 6/18/2019 09:06

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			6/27/19 04:12	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 04:12	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	110		%	81 - 118	SW846 8260C			6/27/19 04:12	PDK	A
4-Bromofluorobenzene (S)	114		%	85 - 114	SW846 8260C			6/27/19 04:12	PDK	A
Dibromofluoromethane (S)	105		%	80 - 119	SW846 8260C			6/27/19 04:12	PDK	A
Toluene-d8 (S)	106		%	89 - 112	SW846 8260C			6/27/19 04:12	PDK	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618001** Date Collected: 6/18/2019 09:15 Matrix: Ground Water

Sample ID: **GEP-1 061819** Date Received: 6/19/2019 08:44

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			6/27/19 18:22	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1-Dichloroethene	0.41J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
cis-1,2-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Tetrachloroethene	0.51J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,1-Trichloroethane	5.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Trichloroethene	150		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:22	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/27/19 18:22	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/27/19 18:22	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119	SW846 8260C			6/27/19 18:22	TMP	A
Toluene-d8 (S)	98		%	89 - 112	SW846 8260C			6/27/19 18:22	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618002** Date Collected: 6/18/2019 09:55 Matrix: Ground Water

Sample ID: **GEP-3 061819** Date Received: 6/19/2019 08:44

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			6/27/19 18:45	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Tetrachloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,1-Trichloroethane	2.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Trichloroethene	137	2	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 18:45	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118	SW846 8260C			6/27/19 18:45	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/27/19 18:45	TMP	A
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C			6/27/19 18:45	TMP	A
Toluene-d8 (S)	99.4		%	89 - 112	SW846 8260C			6/27/19 18:45	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618003** Date Collected: 6/18/2019 11:50 Matrix: Ground Water

Sample ID: **GEP-2 061819** Date Received: 6/19/2019 08:44

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		6/27/19 19:07	TMP	A
1,1-Dichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,1-Dichloroethene	0.69J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
cis-1,2-Dichloroethene	3.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
Tetrachloroethene	4.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,1,1-Trichloroethane	19.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
Trichloroethene	171		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:07	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		6/27/19 19:07	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/27/19 19:07	TMP	A
Dibromofluoromethane (S)	98.7		%	80 - 119	SW846 8260C		6/27/19 19:07	TMP	A
Toluene-d8 (S)	99.7		%	89 - 112	SW846 8260C		6/27/19 19:07	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618004** Date Collected: 6/18/2019 11:52 Matrix: Ground Water

Sample ID: **GEP-4 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1-Dichloroethene	0.73J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
cis-1,2-Dichloroethene	0.41J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Tetrachloroethene	3.2		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,1-Trichloroethane	13.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A
Trichloroethene	312		ug/L	10.0	7.5	3.3	SW846 8260C		6/28/19 17:28	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 21:01	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C		6/27/19 21:01	TMP	A
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/28/19 17:28	TMP	B
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/27/19 21:01	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/28/19 17:28	TMP	B
Dibromofluoromethane (S)	97.7		%	80 - 119	SW846 8260C		6/28/19 17:28	TMP	B
Dibromofluoromethane (S)	97.4		%	80 - 119	SW846 8260C		6/27/19 21:01	TMP	A
Toluene-d8 (S)	98.8		%	89 - 112	SW846 8260C		6/27/19 21:01	TMP	A
Toluene-d8 (S)	98.2		%	89 - 112	SW846 8260C		6/28/19 17:28	TMP	B

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618005** Date Collected: 6/18/2019 13:50 Matrix: Ground Water

Sample ID: **MW-18 061819** Date Received: 6/19/2019 08:44

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			6/27/19 19:30	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Tetrachloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Trichloroethene	110		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 19:30	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C			6/27/19 19:30	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/27/19 19:30	TMP	A
Dibromofluoromethane (S)	94		%	80 - 119	SW846 8260C			6/27/19 19:30	TMP	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C			6/27/19 19:30	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618006** Date Collected: 6/18/2019 14:15 Matrix: Ground Water
Sample ID: **MW-14 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.54J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
cis-1,2-Dichloroethene	0.63J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Tetrachloroethene	10.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,1-Trichloroethane	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Trichloroethene	2.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 19:53	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C		6/27/19 19:53	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/27/19 19:53	TMP	A
Dibromofluoromethane (S)	97.8		%	80 - 119	SW846 8260C		6/27/19 19:53	TMP	A
Toluene-d8 (S)	102		%	89 - 112	SW846 8260C		6/27/19 19:53	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618007** Date Collected: 6/18/2019 15:20 Matrix: Ground Water

Sample ID: **MW-19 061819** Date Received: 6/19/2019 08:44

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			6/27/19 20:16	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,1-Trichloroethane	2.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Trichloroethene	9.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:16	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C			6/27/19 20:16	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/27/19 20:16	TMP	A
Dibromofluoromethane (S)	96.8		%	80 - 119	SW846 8260C			6/27/19 20:16	TMP	A
Toluene-d8 (S)	100		%	89 - 112	SW846 8260C			6/27/19 20:16	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618008** Date Collected: 6/18/2019 15:57 Matrix: Ground Water

Sample ID: **MW-17 061819** Date Received: 6/19/2019 08:44

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1-Dichloroethane	0.95J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
cis-1,2-Dichloroethene	2.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Tetrachloroethene	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,1-Trichloroethane	22.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Trichloroethene	31.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/27/19 20:38	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118	SW846 8260C			6/27/19 20:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/27/19 20:38	TMP	A
Dibromofluoromethane (S)	98.2		%	80 - 119	SW846 8260C			6/27/19 20:38	TMP	A
Toluene-d8 (S)	99.4		%	89 - 112	SW846 8260C			6/27/19 20:38	TMP	A

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ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID: **3040618009** Date Collected: 6/19/2019 08:44 Matrix: Ground Water

Sample ID: **TRIP BLANK** Date Received: 6/19/2019 08:44

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		6/27/19 17:59	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/27/19 17:59	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C		6/27/19 17:59	TMP	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/27/19 17:59	TMP	A
Dibromofluoromethane (S)	95.2		%	80 - 119	SW846 8260C		6/27/19 17:59	TMP	A
Toluene-d8 (S)	98.2		%	89 - 112	SW846 8260C		6/27/19 17:59	TMP	A

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673001** Date Collected: 6/24/2019 12:40 Matrix: Ground Water

Sample ID: **MW-11 062419** Date Received: 6/25/2019 08:47

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	5.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,1-Trichloroethane	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:16	PDK	

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118	SW846 8260C			6/29/19 03:16	PDK	
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C			6/29/19 03:16	PDK	
Dibromofluoromethane (S)	97.1		%	80 - 119	SW846 8260C			6/29/19 03:16	PDK	
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C			6/29/19 03:16	PDK	

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673002** Date Collected: 6/24/2019 13:55 Matrix: Ground Water

Sample ID: **MW-16 062419** Date Received: 6/25/2019 08:47

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			6/29/19 03:39	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,1-Trichloroethane	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 03:39	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	81 - 118			SW846 8260C			6/29/19 03:39	PDK	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/29/19 03:39	PDK	A
Dibromofluoromethane (S)	97.1		%	80 - 119			SW846 8260C			6/29/19 03:39	PDK	A
Toluene-d8 (S)	96.4		%	89 - 112			SW846 8260C			6/29/19 03:39	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/28/19 07:58	CHS	T
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/28/19 07:58	CHS	T
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/28/19 07:58	CHS	T
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/28/19 07:58	CHS	T
Methane	1.5U ~~0.67J~~	~~J~~	ug/L	1.5	1.5	0.53	RSK 175			6/28/19 07:58	CHS	T b1
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/28/19 07:58	CHS	T
WET CHEMISTRY												
Alkalinity, Total	303	Z	mg/L	5	5	0.8	SM2320B-2011			7/2/19 07:20	MBW	Q
Chloride	5.5		mg/L	2.0	0.50	0.16	EPA 300.0			6/29/19 10:08	CHW	N
Nitrate-N	1.3		mg/L	0.20	0.060	0.020	EPA 300.0			6/26/19 05:46	CHW	N
Sulfate	41.9		mg/L	2.0	0.50	0.20	EPA 300.0			6/29/19 10:08	CHW	N
Total Organic Carbon (TOC)	1.6	J+	mg/L	1.0	0.50	0.18	SM5310B-2011			6/27/19 20:54	PAG	H c
METALS												
Iron, Total	0.068		mg/L	0.067	0.045	0.022	SW846 6010C	6/26/19	SXC	6/28/19 14:37	SRT	Z1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/19	SRT	6/26/19 14:58	SRT	c

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673003** Date Collected: 6/24/2019 13:55 Matrix: Ground Water

Sample ID: **MW-9 062419** Date Received: 6/25/2019 08:47

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			6/29/19 04:01	PDK	
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/29/19 04:01	PDK	

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	105		%	81 - 118	SW846 8260C			6/29/19 04:01	PDK	
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/29/19 04:01	PDK	
Dibromofluoromethane (S)	97.4		%	80 - 119	SW846 8260C			6/29/19 04:01	PDK	
Toluene-d8 (S)	96.4		%	89 - 112	SW846 8260C			6/29/19 04:01	PDK	

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ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID: **3041673004** Date Collected: 6/25/2019 08:47 Matrix: Ground Water
Sample ID: **Trip Blank** Date Received: 6/25/2019 08:47

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		6/29/19 01:00	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/29/19 01:00	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	102		%	81 - 118	SW846 8260C		6/29/19 01:00	PDK	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/29/19 01:00	PDK	A
Dibromofluoromethane (S)	94.6		%	80 - 119	SW846 8260C		6/29/19 01:00	PDK	A
Toluene-d8 (S)	95.8		%	89 - 112	SW846 8260C		6/29/19 01:00	PDK	A

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300001** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-32 062019** Date Collected: 6/20/2019 09:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 11:49	MM	n
Hydrogen	**3.7**	nM	1.0	0.75	1	6/28/2019 11:49	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300002** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-24 062019** Date Collected: 6/20/2019 09:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:01	MM	n
Hydrogen	**1.9**	nM	1.0	0.75	1	6/28/2019 12:01	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300003** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-35 062019** Date Collected: 6/20/2019 13:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:19	MM	n
Hydrogen	**1.4**	nM	1.0	0.75	1	6/28/2019 12:19	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300004** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-34 062019** Date Collected: 6/20/2019 11:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:36	MM	n
Hydrogen	**2.2**	nM	1.0	0.75	1	6/28/2019 12:36	MM	n

CERTIFICATE OF ANALYSIS

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Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300005** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-15 062019** Date Collected: 6/20/2019 15:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 12:49	MM	n
Hydrogen	**1.5**	nM	1.0	0.75	1	6/28/2019 12:49	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300006** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-29 061919** Date Collected: 6/19/2019 10:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:01	MM	n
Hydrogen	**1.5**	nM	1.0	0.75	1	6/28/2019 13:01	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300007** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-28 061919** Date Collected: 6/19/2019 12:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:13	MM	n
Hydrogen	**2.7**	nM	1.0	0.75	1	6/28/2019 13:13	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300008** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-31 061919** Date Collected: 6/19/2019 13:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:26	MM	n
Hydrogen	**2.0**	nM	1.0	0.75	1	6/28/2019 13:26	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300009** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-32 061919** Date Collected: 6/19/2019 14:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:42	MM	n
Hydrogen	**8.5**	nM	1.0	0.75	1	6/28/2019 13:42	MM	n

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ANALYTICAL RESULTS

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID: **307300010** Date Received: 6/26/2019 10:30 Matrix: Bubble Strip

Sample ID: **MW-33 061919** Date Collected: 6/19/2019 15:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Acetylene	**<0.50**	ug/l	0.50	0.068	1	6/28/2019 13:54	MM	n
Hydrogen	**3.3**	nM	1.0	0.75	1	6/28/2019 13:54	MM	n

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Appendix C

Support Documentation

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: PJ LA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

SAMPLE SUMMARY

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

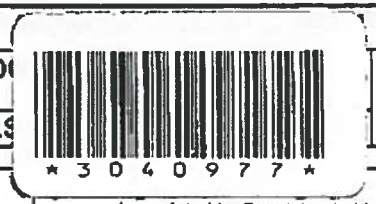
Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3040977001	MW-29 061919	Ground Water	6/19/2019 09:30	6/20/2019 11:31	Collected by Client
3040977002	MW-28 061919	Ground Water	6/19/2019 10:15	6/20/2019 11:31	Collected by Client
3040977003	MW-31 061919	Ground Water	6/19/2019 13:05	6/20/2019 11:31	Collected by Client
3040977004	MW-30 061919	Ground Water	6/19/2019 13:50	6/20/2019 11:31	Collected by Client
3040977005	MW-33 061919	Ground Water	6/19/2019 15:45	6/20/2019 11:31	Collected by Client
3040977006	Trip Blank	Ground Water	6/20/2019 11:31	6/20/2019 11:31	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.

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1 of 1

Client Name: AECOM	Container Type	G	P	P	G	G^AV	P	P				(completed by Receiving Lab)	
Address: 40 British American Blvd Latham NY 12110	Container Size	40ml	250	250	40ml	40ml	125	250				W.O. Temp: ____ Therm ID: ____	
	Preservative	HCl	—	—	HCl	HCl	HNO3	—				Analyst Initials: ____	
												Courier/Tracking #:	
Contact: Gerlinde Wolf	ANALYSES/METHOD REQUESTED											Purchase Order #:	
Phone#: 585 490 0987												Project Comments:	
Project Name/#: Scotia Navy Depot													
Bill To: 60440641													
TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.													
Date Required: Approved?													
Email? ☑-Y gerlinde.wolf@aecom.com												ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment Other:	
Fax? ☐-Y No.:													

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C VOCs	Alkalinity	Cl, NO3, SO4	RSK 175	TOC	Total Fe	Diss Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-29 061919	06/19/19	0930	G	GW	2	1	1	2	2	1	1				
2	MW-28 061919	"	1015	"	"	2	1	1	2	2	1	1				
3	MW-31 061919	"	1305	"	"	2	1	1	2	2	1	1				
4	MW-32 061919	"	1350	"	"	2	1	1	2	2	1	1				
5	MW-33 061919	"	1545	"	"	2	1	1	2	2	1	1				
6	Trip Blank	—	—	"	"	42	X	X	X	X	X	X				
7						DLS 6/20										
8																
9																
10																

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

Sampler Comments: Diss Fe *lab filter*

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Alexandra Golden / AECOM	6/19/19	1800	2	COMMON COURIER / ALS COURIER		
3	COMMON COURIER / ALS COURIER			4	Courtney Jones	6/20	1131
5				6			
7				8			
9				10			

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

Special Processing: USACE ☐ ☐ ☐

State Samples Collected In: ☑ NY ☐ NJ ☐ PA ☐ ☐ other

Reportable to PADEP? Yes ☐ No ☐ PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type- See QAPP

* 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 04/19

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

Condition of Sample Receipt Form

Client: Arcom. Work Order #: 3040977 Initials: CLS Date: 6/20.

1. Were airbills / tracking numbers present and recorded?	NONE	YES	NO
Tracking number: 8113 0089 4573			
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?	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): 3

Thermometer ID: 525

Radiological (µCi): _____

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

Trip blank #s fixed by CLS 6/20.

Bottles for set MW-~~BB~~30 say "MW 30" on bottle labels.

Rev. 4/29/2019

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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.

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3040977

1 of 1

Client Name: AECOM					Container Type	G	P	P	G	G	P	P				(completed by Receiving Lab)					
Address: 40 British American Blvd Latham NY 12110					Container Size	40ml	250	250	40ml	40ml	125	250				W.O. Temp: ____ Therm ID: ____					
					Preservative	HCl	—	—	HCl	HCl	HNO_3	—				Analyst Initials: ____					
																Courier/Tracking #:					
Contact: Gerlinde Wolf					ANALYSES/METHOD REQUESTED											Purchase Order #:					
Phone#: 585 490 0987																Project Comments:					
Project Name/#: Scotia Navy Depot																					
Bill To: 60440641																					
TAT: ☑ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.																					
Date Required: Approved?																					
Email? ☑ Y gerlinde.wolf@aecom.com																ALS Field Services: ☐ Pickup ☐ Labor					
Fax? ☐ Y No.																☐ Composite Sampling ☐ Foxtail 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					
						8260C VOCs	Alkalinity	Cl, NO_3, SO_4	Dsv 175	TOC	Total Fe	Dis Fe									
1	MW-29 061919	06/19/19	0930	G	GW	2	1	1	2	2	1	1									
2	MW-28 061919		1015			2	1	1	2	2	1	1									
3	MW-31 061919		1305			2	1	1	2	2	1	1									
4	MW-30 061919		1350			2	1	1	2	2	1	1									
5	MW-33 061919	↓	1545			2	1	1	2	2	1	1									
6	Trip Blank	—	—	↓	↓	12	X	X	X	X	X	X									
7						MS/MSD															
8																					
9																					
10																					

SAMPLED BY (Please Print): Alexandra Golden/Jason Klein

Sampler Comments: Diss Fe *lab filter*

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alexandra Golden/AECOM	6/19/19	1800	2 COMMON COURIER/ALS COURIER		
3 COMMON COURIER/ALS COURIER			4 Courtney Jones	6/20	1131
5			6		
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CP-like ☐ USACE/DOD

Special Processing: ☐ USACE

State Samples Collected In: ☑ NY ☐ NJ ☐ PA

Reportable to PADEP? Yes ☐ No ☐

PWSID # ____

Sample Disposal: ☐ Lab ☐ Special

EDDS: Format Type- SEQ ARP

☐ other

* 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 04/19

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-046 (3040977)

Sample Management

This report contains the results of the analysis of six (6) ground water samples collected on June 19-20, 2019. 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, 2019. 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. Six (6) 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.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Five (5) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank; except as follows:

- In 2971102 MB, methane was detected at 7.2 µg/L.

Duplicate Samples. A duplicate sample, identified as 2971103, from project sample MW-28 061919 (3040977002). No target analytes were detected.

Total Metals by SW-846 Method 6010C

Sample handling. Five (5) 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.

Spikes. A matrix spike/matrix spike duplicate analysis was not performed on any samples from this data deliverable.

Dissolved Metals by EPA Method 6010C

Sample handling. Five (5) water samples were filtered and analyzed for dissolved metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spikes. A matrix spike/matrix spike duplicate was not performed on any samples from this data deliverable.

Anions by EPA 300.0

Sample handling. Five (5) aqueous samples were analyzed for chloride, nitrate, and sulfate 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 5/30/2019. 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 2967964 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. Five (5) aqueous 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 3040977003 (MW-31 061919). The spike recoveries and the relative percent difference between the spikes were all within the QC limits.

Total Alkalinity by SM 2320B

Sample handling. Five (5) aqueous 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.

ALS Environmental

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

ANALYTICAL RESULTS

Workorder: 3040977 ASN046|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3040977001	1	MW-29 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977002	2	MW-28 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977003	2	MW-31 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977004	1	MW-30 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3040977005	2	MW-33 061919	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

UNASSIGNED PEAK REPORT

Report Date: 06/27/2019 04:38
Lab Sample ID: 2971102 Client ID: MB for HBN 524973 [
DataFile:/Chem/gc03.i/3-2019/03190627.b/MFRA003.D
RawFile:/Chem/gc03.i/3-2019/03190627.b/RawData/MFRA003.D
Injection Date: 27-JUN-2019 04:45 Operator: CHS

There were no Unassigned peaks in this sample!
Report Date: 06/27/2019 08:01

Datafile Analyzed: //ALMDTWS014/TargetData/Chem/gc03.i/3-2019/03190627.b/MFR
Method Used: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190627.b\RSK175_02
Injection Date: 27-JUN-2019 04:45 Operator: CHS
Sample Info: 2971102 2971102
Misc Info: ZZ SVGC 53595 DRSK175

Temperature : 22.0 Celcius
Bottle Volume : 44.0 ml
Headspace Volume : 4.4 ml

Compounds	RT	RESPONSE	CONCENTRATIONS On-Column ppmv	CONCENTRATIONS Sample ug/l
METHANE	0.472	2351	7.22	0.70

ALS Environmental Services

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: ICV
Level: LOW
Data Type: GC MULTI COMP
SpikeList File: ICV.spk
Sublist File: all.sub
Method File: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190205H.b\RSK175_0
Misc Info:

Client SDG: 03030212
Fraction: VOA

Operator: CHS
SampleType: LCS
Quant Type: ESTD

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 METHANE	1005.00	988.529	98.36	85-115
2 ETHENE	1005.00	953.055	94.83	85-115
3 ETHANE	1005.00	960.622	95.58	85-115
4 PROPANE	1004.00	1132.89	112.84	85-115
5 ISO-BUTANE	1003.00	1141.35	113.79	85-115
6 N-BUTANE	995.000	1426.17	143.33*	85-115

ASN046, all n-butane results ND.

GAM 07/31/19

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-5

SDG No.: ASN046

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2967962	Chloride	MB	QC-Water	06/21/2019 04:12	0.19	J	mg/L
2967962	Nitrate-N	MB	QC-Water	06/21/2019 04:12	0.030	U	mg/L
2967962	Sulfate	MB	QC-Water	06/21/2019 04:12	0.25	U	mg/L
2968432	Chloride	MB	QC-Water	06/21/2019 08:26	0.2	J	mg/L
2968432	Nitrate-N	MB	QC-Water	06/21/2019 08:26	0.02	J	mg/L
2968432	Sulfate	MB	QC-Water	06/21/2019 08:26	0.1	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: SM5310B-2011
Instrument: TOC

SDG No.: ASN046

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
CCB6	Total Organic Carbon (TOC)	CCB	QC-Water	06/25/2019 22:37	0.223	J	mg/L
2969939	Total Organic Carbon (TOC)	MB	QC-Water	06/25/2019 22:37	0.5	U	mg/L
CCB7	Total Organic Carbon (TOC)	CCB	QC-Water	06/25/2019 22:37	0.182	J	mg/L
CCB8	Total Organic Carbon (TOC)	CCB	QC-Water	06/26/2019 03:15	0.178	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

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: PJ LA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

SAMPLE SUMMARY

Workorder: 3041240 ASN047|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041240001	MW-24 062019	Ground Water	6/20/2019 08:55	6/21/2019 09:08	Collected by Client
3041240002	MW-32 062019	Ground Water	6/20/2019 09:20	6/21/2019 09:08	Collected by Client
3041240003	MW-35 062019	Ground Water	6/20/2019 11:45	6/21/2019 09:08	Collected by Client
3041240004	MW-34 062019	Ground Water	6/20/2019 11:40	6/21/2019 09:08	Collected by Client
3041240005	MW-15 062019	Ground Water	6/20/2019 15:05	6/21/2019 09:08	Collected by Client
3041240006	MW-26 062019	Ground Water	6/20/2019 15:30	6/21/2019 09:08	Collected by Client
3041240007	DUP	Ground Water	6/20/2019 00:00	6/21/2019 09:08	Collected by Client
3041240008	Trip Blank	Ground Water	6/21/2019 09:08	6/21/2019 09:08	Collected by Client

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

* 3 0 4 1 2 4 0 *

__ of 1

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact: Gerlinde Wolf
Phone#: 585-490-0987
Project Name/#: Scotia Navy Depot
Bill To: 60440641
TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [✓] Y gerlinde.wolf@aecom.com
Fax? [ ] Y No.:

	Container Type	G	P	P	G	AV	P	P			
	Container Size	40ml	250	250	40ml	40ml	125	250			
	Preservative	HCl	–	–	HCl	HCl	HNO_3	–			
	ANALYSES/METHOD REQUESTED										
		8260 c VOCs	Alkalinity	Cl, NO_3, SO_4	RSK 175	TOC	Total Fe	Diss 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-24 062019	06/20/19	0855	G	GW	2	1	1	2	2	1	1				
2 MW-32 062019	"	0920	"	"	2	1	1	2	2	1	1				
3 MW-35 062019	"	1145	"	"	2	1	1	2	2	1	1				
4 MW-34 062019	"	1140	"	"	2	1	1	2	2	1	1				
5 MW-15 062019	"	1505	"	"	2	1	1	2	2	1	1				
6 MW-26 062019	"	1530	"	"	2	1	1	2	2	1	1				
7 DUP	—	—	"	"	2	1	1	2	2	1	1				
8 Trip blank	—	—	"	"	3	X	X	X	X	X	X				
9															
10															

AG

SAMPLED BY (Please Print): Alexandra Holden, Jason Klein, Tom Quackenbush

Sampler Comments: Diss Fe *lab filter*

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 / AECOM	6/21/19	1800	2 COMMON COURIER / ALS COURIER		
3 COMMON COURIER / ALS COURIER			4	6-21-19	0908
5			6		
7			8		
9			10		

* 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

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

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [✓] NY [ ] NJ [ ] PA [ ] NC [ ]

Reportable to PADEP? Yes [ ] No [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type- SEE QAPP

other

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

Rev 11/18

* Report: tier IV

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

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

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	3041240	NB	6-21-19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4962			
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?	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #:								
Temperature (°C):	2							
Thermometer ID:	318							
Radiological (µCi):								

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

Non Dw

Rev. 4/29/2019

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-047 (3041240)

Sample Management

This report contains the results of the analysis of eight (8) ground water samples collected on June 20-21, 2019. 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 21, 2019. 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. Eight (8) 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.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Seven (7) 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., except as follows:

- For ICV 2/5/19 10:02, n-butane was recovered above the QC limits.

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 2971102 MB, methane was detected at 7.2 µg/L.
- In 2971916 MB, methane was detected at 9.6 µg/L.

Duplicate Samples. A duplicate sample, identified as 2971917, from project sample MW-28 061919 (3040977006). The RPD between the detected target analytes was within the QC limit.

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.

Spikes. A matrix spike/matrix spike duplicate analysis was not performed on any samples from this data deliverable.

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.

Spikes. A matrix spike/matrix spike duplicate was not performed on any samples from this data deliverable.

Anions by EPA 300.0

Sample handling. Seven (7) aqueous samples were analyzed for chloride, nitrate, and sulfate 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 5/30/2019. 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

2968535 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 3041240004 (MW-34 062019). All recoveries were within QC criteria.

Total Organic Carbon by SM 5310B

Sample handling. Seven (7) aqueous 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. Seven (7) aqueous 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.

ALS Environmental

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

ANALYTICAL RESULTS

Workorder: 3041240 ASN047|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041240001	1	MW-24 062019	SW846 8260C	Carbon Tetrachloride
~~The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.~~ 2°C				
3041240001	2	MW-24 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240002	2	MW-32 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240003	2	MW-35 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240004	1	MW-34 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240005	1	MW-15 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240006	1	MW-26 062019	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3041240007	1	DUP	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

UNASSIGNED PEAK REPORT

Report Date: 06/27/2019 04:38
Lab Sample ID: 2971102 Client ID: MB for HBN 524973 [
DataFile:/Chem/gc03.i/3-2019/03190627.b/MFRA003.D
RawFile:/Chem/gc03.i/3-2019/03190627.b/RawData/MFRA003.D
Injection Date: 27-JUN-2019 04:45 Operator: CHS

There were no Unassigned peaks in this sample!
Report Date: 06/27/2019 08:01

Datafile Analyzed: //ALMDTWS014/TargetData/Chem/gc03.i/3-2019/03190627.b/MFR
Method Used: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190627.b\RSK175_02
Injection Date: 27-JUN-2019 04:45 Operator: CHS
Sample Info: 2971102 2971102
Misc Info: ZZ SVGC 53595 DRSK175

Temperature : 22.0 Celcius
Bottle Volume : 44.0 ml
Headspace Volume : 4.4 ml

Compounds	RT	RESPONSE	CONCENTRATIONS On-Column ppmv	Sample ug/l
METHANE	0.472	2351	7.22	0.70

UNASSIGNED PEAK REPORT

Report Date: 06/28/2019 09:49
Lab Sample ID: 2971916 Client ID: MB for HBN 525402 [
DataFile:/Chem/gc03.i/3-2019/03190628.b/MFSA003.D
RawFile:/Chem/gc03.i/3-2019/03190628.b/RawData/MFSA003.D
Injection Date: 28-JUN-2019 06:47 Operator: CHS

There were no Unassigned peaks in this sample!
Report Date: 06/28/2019 10:08

Datafile Analyzed: //ALMDTWS014/TargetData/Chem/gc03.i/3-2019/03190628.b/MFS
Method Used: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190628.b\RSK175_02
Injection Date: 28-JUN-2019 06:47 Operator: CHS
Sample Info: 2971916 2971916
Misc Info: ZZ SVGC 53606 DRSK175

Temperature : 22.0 Celcius
Bottle Volume : 44.0 ml
Headspace Volume : 4.4 ml

Compounds	RT	RESPONSE	CONCENTRATIONS On-Column ppmv	CONCENTRATIONS Sample ug/l
METHANE	0.463	3142	9.65	0.94

ALS Environmental Services

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: ICV
Level: LOW
Data Type: GC MULTI COMP
SpikeList File: ICV.spk
Sublist File: all.sub
Method File: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190205H.b\RSK175_0
Misc Info:

Client SDG: 03030212
Fraction: VOA

Operator: CHS
SampleType: LCS
Quant Type: ESTD

	SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1	METHANE	1005.00	988.529	98.36	85-115
2	ETHENE	1005.00	953.055	94.83	85-115
3	ETHANE	1005.00	960.622	95.58	85-115
4	PROPANE	1004.00	1132.89	112.84	85-115
5	ISO-BUTANE	1003.00	1141.35	113.79	85-115
6	N-BUTANE	995.000	1426.17	143.33*	85-115

n-Butane not detected in associated samples. No data qualification was required.

GM 07/31/19

Form 6B
Inorganic Initial and Continuing Calibration Verification Summary

Analysis Method: EPA 300.0 Level: L SDG No. ASN047

Instrument ID: IC-5 Units: mg/L

Sample ID	Analyte	Type	Analyzed	True Conc.	Conc. Recovered	Recovery (%)	(1)	Acc. Limit (%)
CCV LEVEL 1L	Chloride	CCV1L	06/22/2019 04:43	2.5	2.23	89.2	*	90 - 110
CCV LEVEL 1L	Nitrate-N	CCV1L	06/22/2019 04:43	0.5	0.49	98		90 - 110
CCV LEVEL 1L	Sulfate	CCV1L	06/22/2019 04:43	2.5	2.44	97.6		90 - 110
CCV LEVEL 2L	Chloride	CCV2L	06/22/2019 05:37	5.0	4.52	90.4		90 - 110
CCV LEVEL 2L	Nitrate-N	CCV2L	06/22/2019 05:37	1.0	0.96	96		90 - 110
CCV LEVEL 2L	Sulfate	CCV2L	06/22/2019 05:37	5.0	4.73	94.6		90 - 110
CCV LEVEL 1L	Chloride	CCV1L	06/22/2019 08:17	2.5	2.26	90.4		90 - 110
CCV LEVEL 1L	Nitrate-N	CCV1L	06/22/2019 08:17	0.5	0.47	94		90 - 110
CCV LEVEL 1L	Sulfate	CCV1L	06/22/2019 08:17	2.5	2.42	96.8		90 - 110
CCV LEVEL 2L	Chloride	CCV2L	06/22/2019 11:12	5.0	4.52	90.4		90 - 110
CCV LEVEL 2L	Nitrate-N	CCV2L	06/22/2019 11:12	1.0	0.97	97		90 - 110
CCV LEVEL 2L	Sulfate	CCV2L	06/22/2019 11:12	5.0	4.80	96		90 - 110

(1) The following qualifiers are used:

* : Values outside of acceptable limits

Comments:

A

ANION SUMMARY REPORT

No.	Name	Time	*Analyst	tionFa	*Batch	strume	Amount F ECD_1	Amount Cl ECD_1	Amount NO2 ECD_1	Amount Br ECD_1	Amount NO3 ECD_1	Amount SO4 ECD_1
16	2968533	06.22.19 04:17	CHW	1	223569	IC-5	n.a.	0.19	n.a.	n.a.	n.a.	n.a.
17	2968534	06.22.19 04:30	CHW	1	223569	IC-5	0.52	18.85	0.51	0.46	2.37	19.36
18	CCV LEVEL 1L	06.22.19 04:43	CHW	1	223569	IC-5	0.53	2.23	0.47	0.45	0.49	2.44
19	2968535	06.22.19 04:56	CHW	1	223569	IC-5	0.51	18.83	0.54	0.46	2.37	19.38
20	SSL	06.22.19 05:10	CHW	1	223569	IC-5	0.53	2.27	0.50	0.46	0.50	2.40
21	2968536	06.22.19 05:23	CHW	1	223569	IC-5	1.00	37.22	1.05	0.92	4.71	37.20
22	CCV LEVEL 2L	06.22.19 05:37	CHW	1	223569	IC-5	1.01	4.52	1.04	0.93	0.96	4.73
23	LOD	06.22.19 05:50	CHW	1	223569	IC-5	0.04	0.37	0.02	0.02	0.04	0.36
24	LOQ	06.22.19 06:03	CHW	1	223569	IC-5	0.09	1.07	0.11	0.07	0.10	0.99
25	S LOD	06.22.19 06:17	CHW	1	223569	IC-5	0.04	0.37	0.03	0.03	0.04	0.36
26	S LOQ	06.22.19 06:30	CHW	1	223569	IC-5	0.09	1.07	0.11	0.08	0.10	1.02
27	3041240001	06.22.19 06:44	CHW	2	223569	IC-5	0.07	14.55	n.a.	n.a.	[illegible]	[illegible]
28	3041240002	06.22.19 06:57	CHW	2	223569	IC-5	0.06	12.05	n.a.	n.a.	[illegible]	[illegible]
29	3041240003	06.22.19 07:10	CHW	2	223569	IC-5	0.05	10.58	n.a.	n.a.	[illegible]	[illegible]
30	3041240004	06.22.19 07.24	CHW	2	223569	IC-5	0.04	[illegible]	n.a.	n.a.	[illegible]	[illegible]
31	2969405	06.22.19 07:37	CHW	2	223569	IC-5	0.58	23.78	0.60	0.45	2.57	21.44
32	2969406	06.22.19 07:51	CHW	2	223569	IC-5	0.56	23.25	0.58	0.43	2.50	20.87
33	2969407	06.22.19 08:04	CHW	1	223569	IC-5	0.52	18.74	0.53	0.45	2.37	19.42
34	CCV LEVEL 1L	06.22.19 08:17	CHW	1	223569	IC-5	0.52	2.26	0.50	0.47	0.47	2.42
35	2969408	06.22.19 08:31	CHW	1	223569	IC-5	n.a.	0.21	n.a.	n.a.	n.a.	0.11
36	3041240005	06.22.19 08:44	CHW	2	223569	IC-5	0.06	21.70	n.a.	n.a.	[illegible]	[illegible]
37	3041240006	06.22.19 08:58	CHW	2	223569	IC-5	0.04	16.12	n.a.	n.a.	[illegible]	[illegible]
38	3041240007	06.22.19 09.11	CHW	2	223569	IC-5	0.04	[illegible]	n.a.	n.a.	[illegible]	[illegible]
39	3041362001	06.22.19 09:25	CHW	2	223632	IC-5	n.a.	10.06	n.a.	n.a.	3.17	22.15
40	3041362002	06.22.19 09:38	CHW	2	223632	IC-5	n.a.	20.84	n.a.	n.a.	2.00	27.01
41	3041362003	06.22.19 09:51	CHW	2	223632	IC-5	0.06	12.03	n.a.	n.a.	3.01	39.54
42	3041362004	06.22.19 10:05	CHW	2	223632	IC-5	0.06	12.22	n.a.	n.a.	3.03	39.76
43	3041362005	06.22.19 10:18	CHW	2	223632	IC-5	0.08	44.16	n.a.	n.a.	[illegible]	16.51
44	3041385001	06.22.19 10:32	CHW	2	223632	IC-5	0.05	[illegible]	0.02	n.a.	[illegible]	[illegible]
45	2969411	06.22.19 10:45	CHW	2	223632	IC-5	0.55	19.97	0.60	0.42	2.56	20.82
46	2969409	06.22.19 10:58	CHW	1	223569	IC-5	1.00	37.01	1.07	0.95	4.72	37.25
47	CCV LEVEL 2L	06.22.19 11:12	CHW	1	223569	IC-5	1.01	4.52	1.05	0.97	0.97	4.80
48	2969412	06.22.19 11:25	CHW	1	223632	IC-5	0.51	18.69	0.52	0.47	2.37	19.41
49	SSL	06.22.19 11:39	CHW	1	223632	IC-5	0.52	2.28	0.52	0.48	0.48	2.39
50	2969410	06.22.19 11:52	CHW	1	223569	IC-5	n.a.	0.25	n.a.	n.a.	n.a.	0.10
51	3041331001	06.22.19 12:05	CHW	2	223632	IC-5	0.07	[illegible]	n.a.	n.a.	[illegible]	77.10
52	3041331001	06.22.19 12:19	CHW	10	223632	IC-5	n.a.	[illegible]	n.a.	n.a.	[illegible]	16.85
53	3041334001	06.22 19 12:32	CHW	5	223632	IC-5	0.06	[illegible]	n.a.	n.a.	[illegible]	62.00
54	3041334002	06.22.19 12:46	CHW	2	223632	IC-5	0.09	[illegible]	n.a.	n.a.	[illegible]	50.55
55	3041336001	06.22.19 12:59	CHW	2	223632	IC-5	0.04	16.43	n.a.	n.a.	[illegible]	[illegible]
56	3041336002	06.22.19 13:13	CHW	2	223632	IC-5	0.04	16.50	n.a.	n.a.	[illegible]	[illegible]
57	3041336003	06.22.19 13:26	CHW	2	223632	IC-5	0.09	25.40	n.a.	n.a.	[illegible]	[illegible]

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-5

SDG No.: ASN047

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2968533	Chloride	MB	QC-Water	06/22/2019 04:17	0.19	J	mg/L
2968533	Nitrate-N	MB	QC-Water	06/22/2019 04:17	0.030	U	mg/L
2968533	Sulfate	MB	QC-Water	06/22/2019 04:17	0.25	U	mg/L
2969408	Chloride	MB	QC-Water	06/22/2019 08:31	0.21	J	mg/L
2969408	Nitrate-N	MB	QC-Water	06/22/2019 08:31	0.030	U	mg/L
2969408	Sulfate	MB	QC-Water	06/22/2019 08:31	0.11	J	mg/L
2969410	Chloride	MB	QC-Water	06/22/2019 11:52	0.25		mg/L
2969410	Nitrate-N	MB	QC-Water	06/22/2019 11:52	0.030	U	mg/L
2969410	Sulfate	MB	QC-Water	06/22/2019 11:52	0.1	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: SM5310B-2011
Instrument: TOC3

SDG No.: ASN047

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2970719	Total Organic Carbon (TOC)	MB	QC-Water	06/26/2019 22:25	0.22	J	mg/L
CCB1	Total Organic Carbon (TOC)	CCB	QC-Water	06/26/2019 22:25	0.246	J	mg/L
CCB2	Total Organic Carbon (TOC)	CCB	QC-Water	06/27/2019 04:26	0.232	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

ALS Environmental

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

SAMPLE SUMMARY

Workorder: 3041439 ASN048|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041439001	MW-16 062119	Ground Water	6/21/2019 09:20	6/22/2019 09:40	Collected by Client
3041439002	MW-22 062119	Ground Water	6/21/2019 12:05	6/22/2019 09:40	Collected by Client
3041439003	MW-20 062119	Ground Water	6/21/2019 14:20	6/22/2019 09:40	Collected by Client
3041439004	DUP	Ground Water	6/21/2019 14:20	6/22/2019 09:40	Collected by Client
3041439005	Trip Blanks	Ground Water	6/22/2019 09:40	6/22/2019 09:40	Collected by Client
3041439006	MW-23 062119	Ground Water	6/21/2019 14:56	6/22/2019 09:40	Collected by Client
3041439007	MW-36 062119	Ground Water	6/21/2019 11:50	6/22/2019 09:40	Collected by Client
3041439008	MW-25 062119	Ground Water	6/21/2019 09:50	6/22/2019 09:40	Collected by Client

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CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

30414439

1 of 1

Client Name: AECOM

Address: 40 British American Blvd, Latham, NY 12116

Contact: Garlinde Wolf

Phone#: 518-951-2200

Project Name/#: Scotia Navy Depot

Bill To: —

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

Date Required: Approved?

Email? [✓] Y Garlinde.Wolf@aecom.com

Fax? [ ] Y No.:

	Container Type	6	6	6	P	P	P	P			
	Container Size	40	40	40	125	250	250	250			
	Preservative	HCL	HCL	HCL	HNO_3	—	—	—			

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C - VOCs	RSK 175	TOC	Total Fe	Cl, NO_3, SO_4	Alkalinity	Diss Fe (Lab Filter)				Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.										
1	MW-16 062119	6/21/19	0920	6	GW	2	2	2	1	1	1	1				
2	MW-22 062119	↓	1205	6	GW	2										
3	MW-20 062119		1420	6	GW	2										
4	DUP		—	6	GW	2										
5	Trip Blanks	—	—	—	—	2										
6	MW-23 062119	6/21/19	1456	6	GW	2										
7	MW-36 062119	↓	1150	6	GW	2										
8	MW-25 062119	↓	0950	6	GW	2										
(9)						(8)										
(10)						(9)										

SAMPLED BY (Please Print): GD, TQ

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	6/21/19	1630	2	Fedex		
3	FEDEX			4	[signature]	6/22	0940
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-

Lab 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:

* 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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Rev 11/18

Page 4 of 507 Total Pages

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

Condition of Sample Receipt Form

Client: Arcom | Work Order #: 3041439 | Initials: CS | Date: 6/22

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4859			
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?	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: 318

Radiological (µCi): _____

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

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-048 (3041439)

Sample Management

This report contains the results of the analysis of eight (8) ground water samples collected on June 21-22, 2019. Analytical results and quality control information are summarized in this data package. Analysis on sample 3041439001 (MW-16 062119) was cancelled per the client request.

Sample Receipt

Samples arrived at ALS via courier on June 22, 2019. 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.

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).

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 8260C

Sample Handling. Seven (7) ground water samples were analyzed by SW-846 Method 8260C 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, except as follows:

- In MW-20 062119, 4-bromofluorobenzene was recovered above the QC limits and 1,2-dichloroethane-d4 was recovered below the QC 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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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJ LA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3041439 ASN048|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041439003	1	MW-20 062119	SW846 8260C	1,2-Dichloroethane-d4

The surrogate 1,2-Dichloroethane-d4 for method SW846 8260C was outside of control limits. The % Recovery was reported as 70.8 and the control limits were 81 to 118. This result was reported at a dilution of 1.

3041439003	2	MW-20 062119	SW846 8260C	4-Bromofluorobenzene

The surrogate 4-Bromofluorobenzene for method SW846 8260C was outside of control limits. The % Recovery was reported as 132 and the control limits were 85 to 114. This result was reported at a dilution of 1.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA CASE No.: SAS No.: SDG NO.: ASN-048

	Sample NO.	SMC1 (BFB) #	SMC2 (DBFM)	SMC3 (DCE) #	SMC4 (TOL) #	TOT OUT
02	2972282(LCS)	107	100	101	97.8	0
03	2972281(MB)	107	97.9	105	97.8	0
04	Trip Blanks	106	96.7	106	97.4	0
05	MW-20 062119	132 *	89.9	70.8 *	107	2
06	MW-23 062119	108	97.0	104	96.6	0
07	MW-36 062119	105	95.0	105	96.1	0
08	MW-25 062119	106	96.6	104	95.0	0
09	DUP	107	97.1	104	96.4	0
10	MW-22 062119	106	98.0	106	97.2	0

	QC LIMITS
SMC1 (BFB) = 4-Bromofluorobenzene	(85-114)
SMC2 (DBFM) = Dibromofluoromethane	(80-119)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(81-118)
SMC4 (TOL) = Toluene-d8	(89-112)

Column to be used to flag recovery values
* Values outside of contract required QC Limits
D Surrogate Diluted Out

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

SAMPLE SUMMARY

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3040591001	MW-7 061719	Ground Water	6/17/2019 11:55	6/18/2019 09:06	Collected by Client
3040591002	MW-27 061719	Ground Water	6/17/2019 13:15	6/18/2019 09:06	Collected by Client
3040591003	MW-6 061719	Ground Water	6/17/2019 14:10	6/18/2019 09:06	Collected by Client
3040591004	MW-8 061719	Ground Water	6/17/2019 15:50	6/18/2019 09:06	Collected by Client
3040591005	WM-12 061719	Ground Water	6/17/2019 16:15	6/18/2019 09:06	Collected by Client
3040591006	MW-5 061719	Ground Water	6/17/2019 17:10	6/18/2019 09:06	Collected by Client
3040591007	DUP-2	Ground Water	6/17/2019 00:00	6/18/2019 09:06	Collected by Client
3040591008	Trip Blank	Ground Water	6/18/2019 08:06	6/18/2019 09:06	Collected by Client

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CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

3040591

Page ___ of ___

Client Name: AECOM
Address: 40 British American BLVD Latham NY 12110
Contact: Gerlinde Wolf
Phone#:
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.:

	Container Type	Container Size	Preservative	ANALYSES/METHOD REQUESTED
	G	5mL	HCl	8260c VOCs

(completed by Receiving Lab)
W.O. Temp: 9 Therm ID: 3/8
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-7 061719	06/17/19	1155	G	GW	2	
2	MW-27 061719	"	1315			2	
3	MW-6 061719		1410			2	
4	MW-8 061719		1550			2	
5	MW-12 061719		1615			2	
6	MW-5 061719		1710			2	* MS/MSD taken
7	DUP-2		—			2	
8	MS		—			2	
9	MSD	↓	—			2	
10	trip blank	—	—			2	

SAMPLED BY (Please Print): Alexandra Golden + Jason Klein
Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	AECOM	6/17/19	1830	2	COMMON COURIER / ALS COUR.		
3	COMMON COURIER / ALS COURIER			4		06/18	0900
5				6			
7				8			
9				10			

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

*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

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

Condition of Sample Receipt Form

Client: Arcom. Work Order #: 3040591 Initials: CLS Date: 6/18.

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4280 4957			
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?	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): 9

Thermometer ID: 318

Radiological (µCi): _____

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

Samples rec'd on small amount of ice → out of temp. Vanessa is contacting client

Rev. 4/29/2019

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-049 (3040591)

Sample Management

This report contains the results of the analysis of eight (8) ground water samples collected on June 17-18, 2019. Analytical results and quality control information are summarized in this data package.

Sample Receipt

Samples arrived at ALS via courier on June 18, 2019. 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.

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).

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 8260C

Sample Handling. Eight (8) ground water samples were analyzed by SW-846 Method 8260C 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~~, except as follows:~~

- ~~In MW-20 062119, 4-bromofluorobenzene was recovered above the QC limits and 1,2-dichloroethane-d4 was recovered below the QC limits.~~

Laboratory Control Samples. Target analytes were recovered within control limits in the laboratory control samples.

GAM 08101119

Matrix Spike/Spike Duplicate. Recoveries were within QC criteria.

Internal Standards. Internal standard results met method criteria.

ALS Environmental

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

ANALYTICAL RESULTS

Workorder: 3040591 ASN049|SCOTIA NAVY DEPOT

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3040591001	1	MW-7 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591002	2	MW-27 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591003	1	MW-6 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591004	2	MW-8 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591005	1	WM-12 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591006	1	MW-5 061719	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591007	1	DUP-2	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040591008	1	Trip Blank	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				

ALS Environmental

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

SAMPLE SUMMARY

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3040618001	GEP-1 061819	Ground Water	6/18/2019 09:15	6/19/2019 08:44	Collected by Client
3040618002	GEP-3 061819	Ground Water	6/18/2019 09:55	6/19/2019 08:44	Collected by Client
3040618003	GEP-2 061819	Ground Water	6/18/2019 11:50	6/19/2019 08:44	Collected by Client
3040618004	GEP-4 061819	Ground Water	6/18/2019 11:52	6/19/2019 08:44	Collected by Client
3040618005	MW-18 061819	Ground Water	6/18/2019 13:50	6/19/2019 08:44	Collected by Client
3040618006	MW-14 061819	Ground Water	6/18/2019 14:15	6/19/2019 08:44	Collected by Client
3040618007	MW-19 061819	Ground Water	6/18/2019 15:20	6/19/2019 08:44	Collected by Client
3040618008	MW-17 061819	Ground Water	6/18/2019 15:57	6/19/2019 08:44	Collected by Client
3040618009	TRIP BLANK	Ground Water	6/19/2019 08:44	6/19/2019 08:44	Collected by Client

301 Fulling Mill Road
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P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

3040618

of

Client Name: AECOM

Address: 40 British American Blvd
Latham NY 12110

Contact: Gerlinde Nolt

Phone#: 585-490-0187

Project Name/#: Scotia NAVY Dept

Bill To:

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

Date Required: Approved?

Email? [✓] Y gerlinde.nolt@aecom.com

Fax? [ ] Y No:

	Container Type	Container Size	Preservative
	G	VOA	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.
1	GEP-1 061819	06/18/19	0915	G	GW	2
2	GEP-3 061819	"	0955	"	"	2
3	GEP-2 061819	"	1152	"	"	2
4	GEP-4 061819	"	1152	"	"	2
5	MW-18 061819	"	1350	"	"	2
6	MW-14 061819	"	1415	"	"	2
7	MW-19 061819	"	1520	"	"	2
8	MW-17 061819	✓	1557	"	"	2
9	Trip Blank	—	—	↓	↓	2
10						

(completed by Receiving Lab)

W.O. Temp: 7 Therm ID: 3K

Analyst Initials:

Courier/Tracking #:

Purchase Order #:

Project Comments:

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

Other:

Sample/COC Comments

HTG

SAMPLED BY (Please Print): Alexandra Holden

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AG/AL (ALS)	6/18/19	1700	2 Jeff		
3 Jeff			4 Ellen ALS	6/19/19	0844
5			6		
7			8		
9			10		

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

Special Processing: USACE [ ] [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] [ ]

Reportable to PADEP? Yes [ ] No [ ] PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Formal Type-

other

* 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 04/19

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:
HECOM	3040618	EML	6/19/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4984			
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?	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 GW		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):	7							
Thermometer ID:	318							
Radiological (µCi):								

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

Samples received in bubble wrap, on top of the ice. No direct contact between samples and ice.

PM notified of out of temp.

Rev. 4/29/2019

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.

* 3040618 *

of

Client Name: ALCOM

Address: 40 British American Blvd
Latham NY 12110

Contact: Gerlinde Nolt
Phone#: 585-490-0187
Project Name/#: Scotia NAVY Dept
Bill To:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [✓] Y gerlinde.nolt@alcom.com
Fax? [ ] Y No:

	Container Type	Container Size	Preservative
	G	VOA	HCL

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	8260 C	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1 GEP-1 061819	06/18/19	0915	G	GW	2		
2 GEP-3 061819	"	0955	"	"	2		
3 GEP-2 061819	"	1150	"	"	2		
4 GEP-4 061819	"	1152	"	"	2		
5 MW-18 061819	"	1350	"	"	2		
6 MW-14 061819	"	1415	"	"	2		
7 MW-19 061819	"	1520	"	"	2		
8 MW-17 061819	"	1557	"	"	2		
9 Trip Blank	—	—	↓	↓	2		
10							HG

Project Comments:

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

(completed by Receiving Lab)
W.O. Temp: 7 Therm ID: 3IR
Analyst Initials:
Courier/Tracking #:
Purchase Order #:

SAMPLED BY (Please Print): Alexandra Holden

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AG/AL (ALS)	6/18/19	1715	2 Jesse		
3 Jesse			4 Elliot ALS	6/19/19	0844
5			6		
7			8		
9			10		

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

* 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 04/19

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	3040618	EML	6/19/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4984			
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?	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 GW		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):	7							
Thermometer ID:	318							
Radiological (µCi):								

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

Samples received in bubble wrap, on top of the ice. No direct contact between samples and ice.

PM notified of out of temp.

Rev. 4/29/2019

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-050 (3040618)

Sample Management

This report contains the results of the analysis of nine (9) ground water samples collected on June 18-19, 2019. Analytical results and quality control information are summarized in this data package.

Sample Receipt

Samples arrived at ALS via courier on June 19, 2019. 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.

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).

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 8260C

Sample Handling. Nine (9) ground water samples were analyzed by SW-846 Method 8260C 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, except as follows:

- In 2971678 MSD, trichloroethene was recovered below the control limits.

Internal Standards. Internal standard results met method criteria

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: PJ LA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3040618 ASN050|SCOTIA NAVY DEPOT

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3040618001	1	GEP-1 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618002	1	GEP-3 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618002	2	GEP-3 061819	SW846 8260C	Trichloroethene
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Trichloroethene. The % Recovery was reported as 75.4 and the control limits were 79 to 123.				
3040618003	1	GEP-2 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618004	1	GEP-4 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618005	1	MW-18 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618006	1	MW-14 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618007	1	MW-19 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618008	1	MW-17 061819	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				
3040618009	1	TRIP BLANK	SW846 8260C	Carbon Tetrachloride
The temperature of the sample submitted for analysis exceeded the prescribed limits affecting all analytes reported by this method.				

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-050

Matrix Spike - Sample No: GEP-3 061819MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC
Carbon Tetrachloride	20	0	21.1	106	(72-136)
1,1-Dichloroethane	20	0	22.5	112	(77-125)
1,2-Dichloroethane	20	0	21.0	105	(73-128)
1,1-Dichloroethene	20	0	25.4	127	(71-131)
cis-1,2-Dichloroethene	20	0	22.0	110	(78-123)
trans-1,2-Dichloroethene	20	0	23.2	116	(75-124)
1,1,1,2-Tetrachloroethane	20	0	22.8	114	(78-124)
1,1,2,2-Tetrachloroethane	20	0	20.7	104	(71-121)
Tetrachloroethene	20	0.55	23.4	114	(74-129)
Toluene	20	0	22.5	112	(80-121)
1,1,1-Trichloroethane	20	2.1	25.6	118	(74-131)
1,1,2-Trichloroethane	20	0	21.3	107	(80-119)
Trichloroethene	20	137	158	109	(79-123)
Vinyl Chloride	20	0	20.6	103	(58-137)

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: 0 out of 14 outside limits

Comments:

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: _____ SAS No.: _____ SDG No.: ASN-050

Matrix Spike - Sample No: GEP-3 061819MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	MSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Carbon Tetrachloride	20	20.1	100	4.89	30	(72-136)
1,1-Dichloroethane	20	21.8	109	3.14	30	(77-125)
1,2-Dichloroethane	20	21.1	106	.49	30	(73-128)
1,1-Dichloroethene	20	23.4	117	8.26	30	(71-131)
cis-1,2-Dichloroethene	20	21.4	107	2.72	30	(78-123)
trans-1,2-Dichloroethene	20	21.8	109	6.13	30	(75-124)
1,1,1,2-Tetrachloroethane	20	23.0	115	.84	30	(78-124)
1,1,2,2-Tetrachloroethane	20	21.0	105	1.29	30	(71-121)
Tetrachloroethene	20	23.7	116	1.06	30	(74-129)
Toluene	20	22.1	110	1.96	30	(80-121)
1,1,1-Trichloroethane	20	25.4	116	1.14	30	(74-131)
1,1,2-Trichloroethane	20	21.6	108	1.15	30	(80-119)
Trichloroethene	20	152	75.4*	4.29	30	(79-123)
Vinyl Chloride	20	19.0	94.9	8.38	30	(58-137)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 14 outside limits

Spike Recovery: 1 out of 14 outside limits

Comments: _____

ALS Environmental

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

SAMPLE SUMMARY

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3041673001	MW-11 062419	Ground Water	6/24/2019 12:40	6/25/2019 08:47	Collected by Client
3041673002	MW-16 062419	Ground Water	6/24/2019 13:55	6/25/2019 08:47	Collected by Client
3041673003	MW-9 062419	Ground Water	6/24/2019 13:55	6/25/2019 08:47	Collected by Client
3041673004	Trip Blank	Ground Water	6/25/2019 08:47	6/25/2019 08:47	Collected by Client

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

CHAIN CUSTODY/ REQUEST FOR ANALYSIS

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

* 3 0 4 1 6 7 3 *

1 of 1

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Gerinde Wolf
Phone#: 586-490-0987
Project Name/#: 60440641
Bill To:

TAT: [✓] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [✓]-Y gerinde.Wolf@aecom.com
Fax? [ ]-Y No:

	Container Type	G	G	AV	P	P	P	P
	Container Size	40ml	40ml	40ml	250	250	125	250
	Preservative	HCl	HCl	HCl	—	—	HNO3	—

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 VOCs	RSK 175	TOC	Alkalinity	Cl, SO_4, NO_3	Total Fe	Diss Fe
	Enter Number of Containers Per Sample or Field Results Below.											
1	MW-11 062419	06/24/19	1240	G	GW	2	2	2	1	1	1	1
2	MW-16 062419		1355			2	2	2	1	1	1	1
3	MW-9 062419		1725			2	2	2	1	1	1	1
4	MS		—			2	2	2	1	1	1	1
5	MSD		—			2	2	2	1	1	1	1
6	Trip blank	—	—	—	—	2						
7												
8												
9												
10												

ATB

Information (completed by Receiving Lab)
W.O. Temp: 3 Therm ID: 318
Courier/Tracking #:
Purchase Order #:

Project Comments:
* Report Tier IV

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

Sample/COC Comments
MS/MSD taken

SAMPLED BY (Please Print): Alexandra Golden / Jason Klein

Sampler Comments: Diss Fe to be lab filtered

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] / AECOM	6/24/19	1840	2	~~Fedex~~ Fedex EW 6/25/19		
3	Fedex			4	Fed HLS	6/25/19	0847
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- see QAPP

*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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Rev 11/18

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

Condition of Sample Receipt Form

Client: Accom | Work Order #: 30411173 | Initials: EML | Date: 6/25/19

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 8139 4282 4860			
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?	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.) See below		YES	(NO)
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)? EML 6/25/19	(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. GW		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): 3

Thermometer ID: 318

Radiological (µCi): _____

COMMENTS (Required for all NO responses above and any sample non-conformance):
MW-11 - Only received 2 8260 vials, all other samples for this sample ID were missing from cooler.
MW-9 - Only received 2 8260 vials, All other samples for this sample ID were missing from cooler

Rev. 4/29/2019

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

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

COC #: [redacted] 1 of 1
ALS Quote #:

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Bernice Wolf
Phone#: 586-490-0987
Project Name#: 60440641
Bill To:
TAT: Normal Standard TAT is 10-12 business days. Rush-Subject to ALS approval and surcharges.
Date Required:
Email? Yes Bernice.Wolf@aecom.com
Fax? Yes No

	Container Type	G	G	AV	P	P	P	P			
	Container Size	40ml	40ml	40ml	250	250	125	250			
	Preservative	HCl	HCl	HCl	—	—	HNO3	—			
	ANALYSE/METHOD REQUESTED										
	*G or C	**Matrix	8260c VOCs	25K 1671	TOC	Alkalinity	Cl, SO4, NO3	Total Fe	Diss Fe			
	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	Enter Number of Containers Per Sample or Field Results Below.								
1	MW-11 060419	06/24/19	1240	G	GW	2	2	2	1	1	1	1
2	MW-10 060419		1355			2	2	2	1	1	1	1
3	MW-9 060419		1725			2	2	2	1	1	1	1
4	MS		—			2	2	2	1	1	1	1
5	MSD		—			2	2	2	1	1	1	1
6	Trip Blank	—	—			2						
7												
8												
9												
10												

SAMPLED BY (Please Print): Alexandra Golden / Jason Cetic

Sampler Comments: Diss Fe to be lab filtered

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [redacted] / AECOM	6/24/19	1840	2 [redacted] Fedex		
3 Fedex			4 Fedex ALS	6/25/19	0947
5			6		
7			8		
9			10		

Receipt Information (completed by Receiving Lab)
W.O. Temp: 3 Therm ID: 318
Courier/Tracking #:
Purchase Order #:
Project Comments:
* Report Tier IV
Only 8260c VOCs for MW-11 and MW-9

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

Sample/COC Comments
MS/MSD taken

Data Deliverables: Standard; CLP-like; USACE/DOD
Special Processing: USACE; Navy
Site Samples Collected in: NY; NJ; PA; NC; other
Reportable to PADEP? Yes No
PWSID #
Sample Disposal: Lab; Special
EDDs: Format Type: see above

*G=Grab, C=Composite **Water - AIR/AI, DW=Drinking Water, GW=Groundwater, O=Oil, OL=Other Liquid, SL=Sludge, SO=Soil, WP=Wipe, UW=Wastewater

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Rev 11/18

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-051 (3041673)

Sample Management

This report contains the results of the analysis of four (4) ground water samples collected on June 24-25, 2019. 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 25, 2019. 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. Four (4) 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, except as follows:

- In 2972378 MS, trans-1,2-dichloroethene was recovered above the control limits.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Seven (7) 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., except as follows:

- For ICV 2/5/19 10:02, n-butane was recovered above the QC limits.

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 2971916 MB, methane was detected at 9.6 µg/L.

Total Metals by SW-846 Method 6010C

Sample handling. One (1) water sample was digested by SW-846 method 3015, and the digestate was analyzed for total metals on the ThermoFisher ICP6500_2, using SW-846 method 6010C. The sample was digested and analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and calibration verification standards were within control limits

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Samples. Recoveries were within the control limits.

Spikes. A matrix spike/matrix spike duplicate analysis was performed on sample 3041673002 (MW-16 062419) in this deliverable group. The MS/MSD recoveries and their RPDs were within method control limits.

Dissolved Metals by EPA Method 6010C

Sample handling. One (1) water sample was filtered and analyzed for dissolved metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The sample was analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spikes. A matrix spike/matrix spike duplicate analysis was performed on sample 3041673002 (MW-16 06241). All recoveries were within QC criteria.

Anions by EPA 300.0

Sample handling. One (1) aqueous sample was analyzed for chloride, nitrate, and sulfate by EPA Method 300.0. The sample was analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations, identified as Method A (high range) and Method L (low range), were properly established for instruments IC5 and IC7 on 5/30/2019 and 6/29/2019, respectively. 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 2637774 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 3041673002 (MW-16 062419) for chloride and sulfate. All recoveries were within QC limits.

Total Organic Carbon by SM 5310B

Sample handling. One (1) aqueous sample was analyzed for total organic carbon by Standard Method 5310B. The preserved sample was analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Spike. A laboratory control spike of 1.0 mg/L was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit of 0.5 mg/L in the blanks.

Spikes. Matrix spike and matrix spike duplicate analyses were performed on sample 3041673002 (MW-16 062419). The spike recoveries and the relative percent difference between the spikes were all within the QC limits.

Total Alkalinity by SM 2320B

Sample handling. One (1) aqueous sample was analyzed for total alkalinity by Standard Method 2320B. The sample was analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit of 5 mg/L in the blanks.

Calibration. 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 2973514 was performed on sample 3041673002 (MW-16 062419). The relative percent difference between the results was within the QC limit of 20%.

ALS Environmental

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

ANALYTICAL RESULTS

Workorder: 3041673 ASN051|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3041673002	1	MW-16 062419	SW846 8260C	trans-1,2-Dichloroethene
The QC sample type MS for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 125 and the control limits were 75 to 124.				
3041673002	2	MW-16 062419	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ND

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: _____ SAS No.: _____ SDG No.: ASN-051

Matrix Spike - Sample No: MW-16 062419MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC
Carbon Tetrachloride	20	0	19.9	99.7	(72-136)
1,1-Dichloroethane	20	0	23.5	118	(77-125)
1,2-Dichloroethane	20	0	21.9	109	(73-128)
1,1-Dichloroethene	20	0	25.4	127	(71-131)
cis-1,2-Dichloroethene	20	0	22.8	114	(78-123)
trans-1,2-Dichloroethene	20	0	24.9	125*	(75-124)
1,1,1,2-Tetrachloroethane	20	0	22.3	111	(78-124)
1,1,2,2-Tetrachloroethane	20	0	20.0	100	(71-121)
Tetrachloroethene	20	0	22.7	113	(74-129)
Toluene	20	0	22.2	111	(80-121)
1,1,1-Trichloroethane	20	0.39	24.8	122	(74-131)
1,1,2-Trichloroethane	20	0	20.7	104	(80-119)
Trichloroethene	20	0	22.2	111	(79-123)
Vinyl Chloride	20	0	20.1	100	(58-137)

t-1,2-DCE result for sample MW-16 was ND. No data qualification was required.

GAM 03/21/19

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: _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: _____ SAS No.: _____ SDG No.: ASN-051

Matrix Spike - Sample No: MW-16 062419MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	MSD % RPD #	QC LIMITS RPD	QC LIMITS REC
Carbon Tetrachloride	20	20.4	102	2.1	30	(72-136)
1,1-Dichloroethane	20	23.7	119	.95	30	(77-125)
1,2-Dichloroethane	20	22.1	110	.81	30	(73-128)
1,1-Dichloroethene	20	25.2	126	.86	30	(71-131)
cis-1,2-Dichloroethene	20	22.9	114	.52	30	(78-123)
trans-1,2-Dichloroethene	20	24.9	124	.35	30	(75-124)
1,1,1,2-Tetrachloroethane	20	22.9	115	2.99	30	(78-124)
1,1,2,2-Tetrachloroethane	20	20.6	103	2.97	30	(71-121)
Tetrachloroethene	20	23.2	116	2.25	30	(74-129)
Toluene	20	22.5	112	1.24	30	(80-121)
1,1,1-Trichloroethane	20	24.6	121	.91	30	(74-131)
1,1,2-Trichloroethane	20	21.3	106	2.6	30	(80-119)
Trichloroethene	20	21.9	110	1.26	30	(79-123)
Vinyl Chloride	20	19.1	95.3	5.16	30	(58-137)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 14 outside limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

UNASSIGNED PEAK REPORT

Report Date: 06/28/2019 09:49
Lab Sample ID: 2971916 Client ID: MB for HBN 525402 [
DataFile:/Chem/gc03.i/3-2019/03190628.b/MFSA003.D
RawFile:/Chem/gc03.i/3-2019/03190628.b/RawData/MFSA003.D
Injection Date: 28-JUN-2019 06:47 Operator: CHS

There were no Unassigned peaks in this sample!
Report Date: 06/28/2019 10:08

Datafile Analyzed: //ALMDTWS014/TargetData/Chem/gc03.i/3-2019/03190628.b/MFS
Method Used: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190628.b\RSK175_02
Injection Date: 28-JUN-2019 06:47 Operator: CHS
Sample Info: 2971916 2971916
Misc Info: ZZ SVGC 53606 DRSK175

Temperature : 22.0 Celcius
Bottle Volume : 44.0 ml
Headspace Volume : 4.4 ml

Compounds	RT	RESPONSE	CONCENTRATIONS On-Column ppmv	CONCENTRATIONS Sample ug/l
METHANE	0.463	3142	9.65	0.94

ALS Environmental Services

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: ICV
Level: LOW
Data Type: GC MULTI COMP
SpikeList File: ICV.spk
Sublist File: all.sub
Method File: \\ALMDTWS014\TargetData\Chem\gc03.i\3-2019\03190205H.b\RSK175_0
Misc Info:

Client SDG: 03030212
Fraction: VOA

Operator: CHS
SampleType: LCS
Quant Type: ESTD

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 METHANE	1005.00	988.529	98.36	85-115
2 ETHENE	1005.00	953.055	94.83	85-115
3 ETHANE	1005.00	960.622	95.58	85-115
4 PROPANE	1004.00	1132.89	112.84	85-115
5 ISO-BUTANE	1003.00	1141.35	113.79	85-115
6 N-BUTANE	995.000	1426.17	143.33*	85-115

n-Butane not detected in associated samples. No data qualification required.

GAM 02/21/19

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 300.0
Instrument: IC-7

SDG No.: ASN051

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2972425	Chloride	MB	QC-Water	06/29/2019 07:58	0.18	J	mg/L
2972425	Sulfate	MB	QC-Water	06/29/2019 07:58	0.25	U	mg/L
2972432	Chloride	MB	QC-Water	06/29/2019 13:49	0.15	J	mg/L
2972432	Sulfate	MB	QC-Water	06/29/2019 13:49	0.25	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: 5310B
Instrument: TOC

SDG No.: ASN051

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
ICB	Total Organic Carbon	ICB	QC-Water	06/27/2019 20:54	0.215	J	mg/L
CCB4	Total Organic Carbon	MB	QC-Water	06/27/2019 20:54	0.339	J	mg/L
CCB5	Total Organic Carbon	MB	QC-Water	06/27/2019 20:54	0.216	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 30730 SCOTIA NAVY DEPOT / 60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received
307300001	MW-32 062019	Bubble Strip	6/20/2019 09:50	6/26/2019 10:30
307300002	MW-24 062019	Bubble Strip	6/20/2019 09:20	6/26/2019 10:30
307300003	MW-35 062019	Bubble Strip	6/20/2019 13:10	6/26/2019 10:30
307300004	MW-34 062019	Bubble Strip	6/20/2019 11:40	6/26/2019 10:30
307300005	MW-15 062019	Bubble Strip	6/20/2019 15:05	6/26/2019 10:30
307300006	MW-29 061919	Bubble Strip	6/19/2019 10:30	6/26/2019 10:30
307300007	MW-28 061919	Bubble Strip	6/19/2019 12:00	6/26/2019 10:30
307300008	MW-31 061919	Bubble Strip	6/19/2019 13:40	6/26/2019 10:30
307300009	MW-32 061919	Bubble Strip	6/19/2019 14:30	6/26/2019 10:30
307300010	MW-33 061919	Bubble Strip	6/19/2019 15:45	6/26/2019 10:30

CERTIFICATE OF ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: 30730 JW 6/25/19

ALL SHADED AREAS are for LAB USE ONLY

Company: AECOM	Billing Information:
Address: 40 British American Blvd	
Report To: Geninde Wolf	Email To: geninde.wolf@aecom.com
Copy To: Dan Servetas	Site Collection Info/Address:
Customer Project Name/Number: Scotia Naval Depot / 60440641	State: NY County/City: Scotia Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET
Phone: 518 951 2370 Email:	Site/Facility ID #: Compliance Monitoring? [✓] Yes [ ] No
Collected By (print): Alexandra Golden	Purchase Order #: Quote #: 28154 DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: STANDARD Immediately Packed on Ice: [ ] Yes [✓] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [✓] No Analysis: _____

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: Dissolved Hydrogen; Acetylene

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY:
Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
MW-32 062019	AR	G	062019	0950				1
MW-24 062019				0920				1
MW-35 062019				1310				1
MW-34 062019				1140				1
MW-15 062019				1505				1
MW-29 061919			061919	1030				1
MW-28 061919				1200				1
MW-31 061919				1340				1
MW-32 061919				1430				1
MW-33 061919	V	V	V	1545				1

Customer Remarks / Special Conditions / Possible Hazards: N/A

Type of Ice Used: Wet Blue Dry (None)

Packing Material Used: bubble wrap

Radchem sample(s) screened (<500 cpm): Y N (NA)

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #: 7755 5808 2327 2318138

Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N (NA)
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

Relinquished by/Company: (Signature) AECOM	Date/Time: 06/25/19 1700	Received by/Company: (Signature) PACE	Date/Time: 6.26.19 1030
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N (NA)
HCL MeOH TSP Other

Non Conformance(s): (YES) / NO

Page: _____ of: _____

NON-CONFORMANCE FORM

PAES Work Order #: 30730

Date: 6-26-19 Time of Receipt: 10:30 Receiver: LY

Client: Aecom

REASON FOR NON-CONFORMANCE:

MW-29: Vial time was 10:45.

MW-32: Vial ID was MW-30.

ACTION TAKEN:

Client name: _____ Date: _____ Time: _____

Client emailed

Customer Service Initials: JW Date: 6/26/19

Joseph Ward - RE: Scotia Navy Depot / 60440641

From: "Golden, Alexandra" <Alexandra.Golden@aecom.com>
To: "Joseph.Ward@pacelabs.com" <Joseph.Ward@pacelabs.com>
Date: 6/26/2019 3:05 PM
Subject: RE: Scotia Navy Depot / 60440641
Cc: "Wolf, Gerlinde" <Gerlinde.Wolf@aecom.com>

Joseph,

The correct time for MW-29 061919 Is 1030.
The correct sample ID is MW-30 061919, not 32 061919.

Thanks,
Alexandra Golden

Alexandra Golden
Geologist, Environment
D +1-518-951-2253
C +1-518-925-4951
alexandra.golden@aecom.com

AECOM
40 British American Blvd.
Latham, NY 12110, USA
T +1-518-951-2200
www.aecom.com

Imagine It. Delievered.
LinkedIn Twitter Facebook Instagram

From: Wolf, Gerlinde
Sent: Wednesday, June 26, 2019 2:58 PM
To: Golden, Alexandra <Alexandra.Golden@aecom.com>
Subject: FW: Scotia Navy Depot / 60440641

Can you please handle this? ☺
-Gerlinde

From: Joseph Ward [mailto:Joseph.Ward@pacelabs.com]
Sent: Wednesday, June 26, 2019 2:14 PM
To: Wolf, Gerlinde
Subject: Scotia Navy Depot / 60440641

APPENDIX F: Groundwater Concentration Trend Plots

Figure F-1 MW Pair 28/29

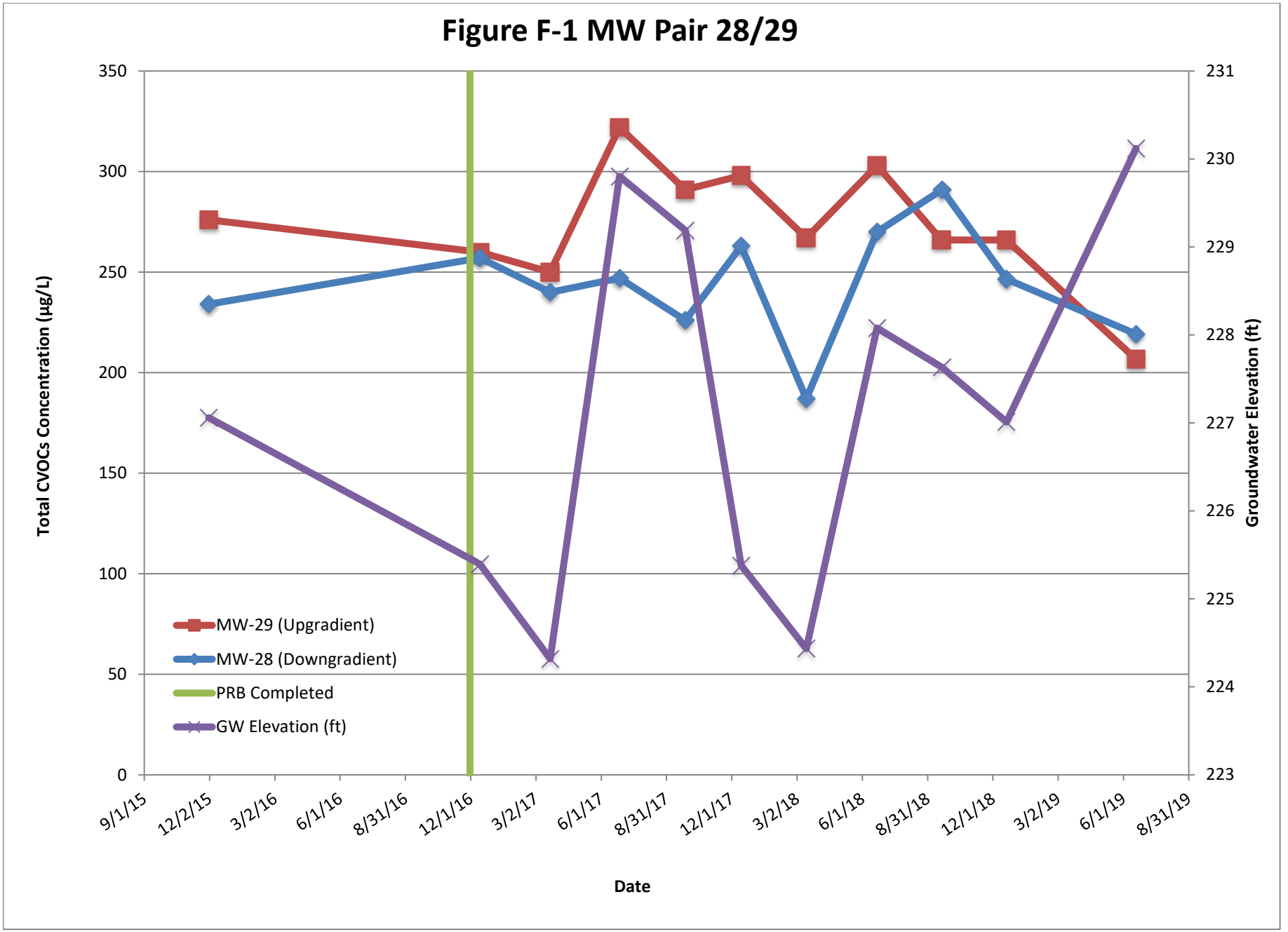


Figure F-2 MW Pair 30/31

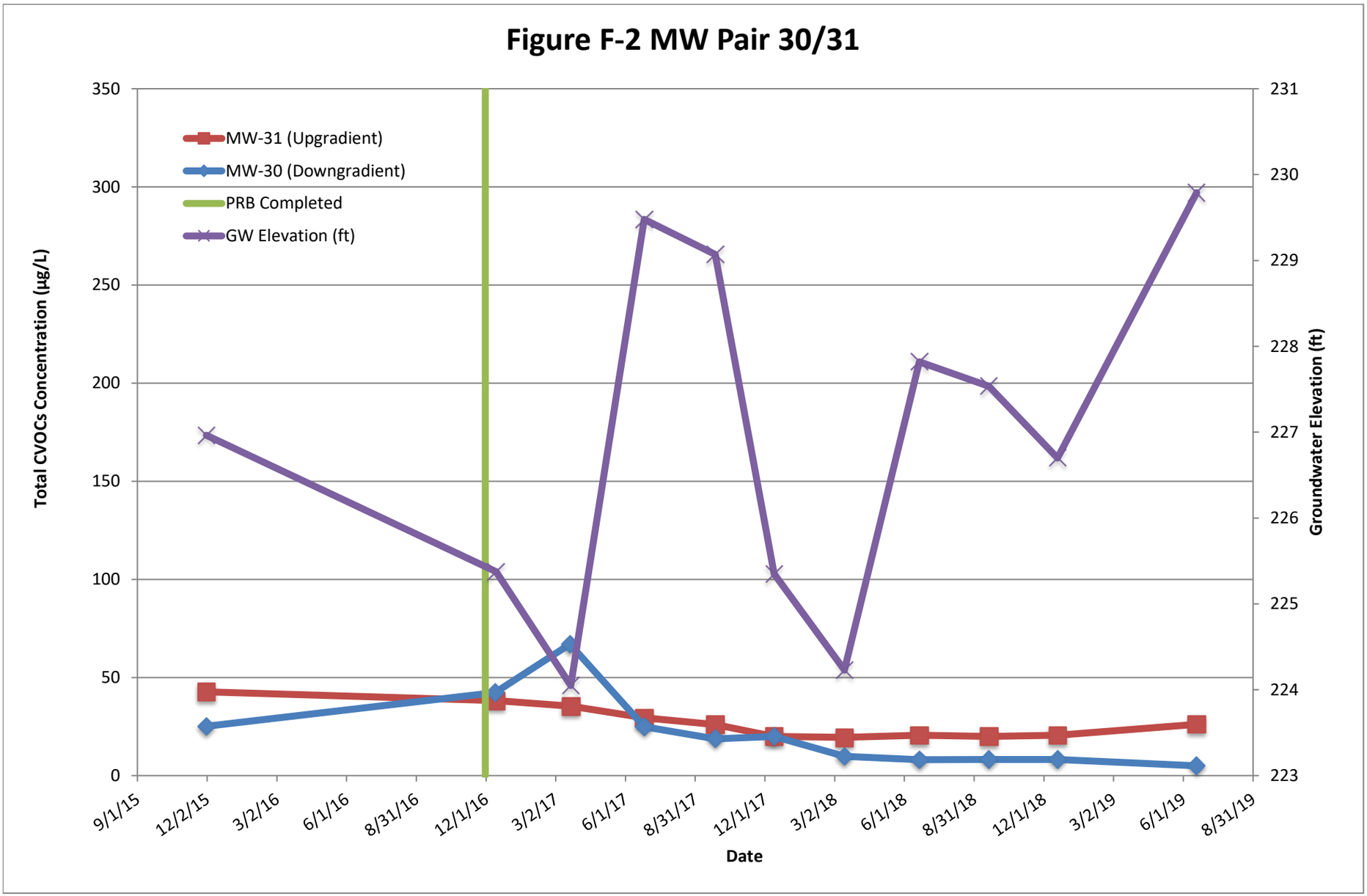


Figure F-3 MW Pair 32/33

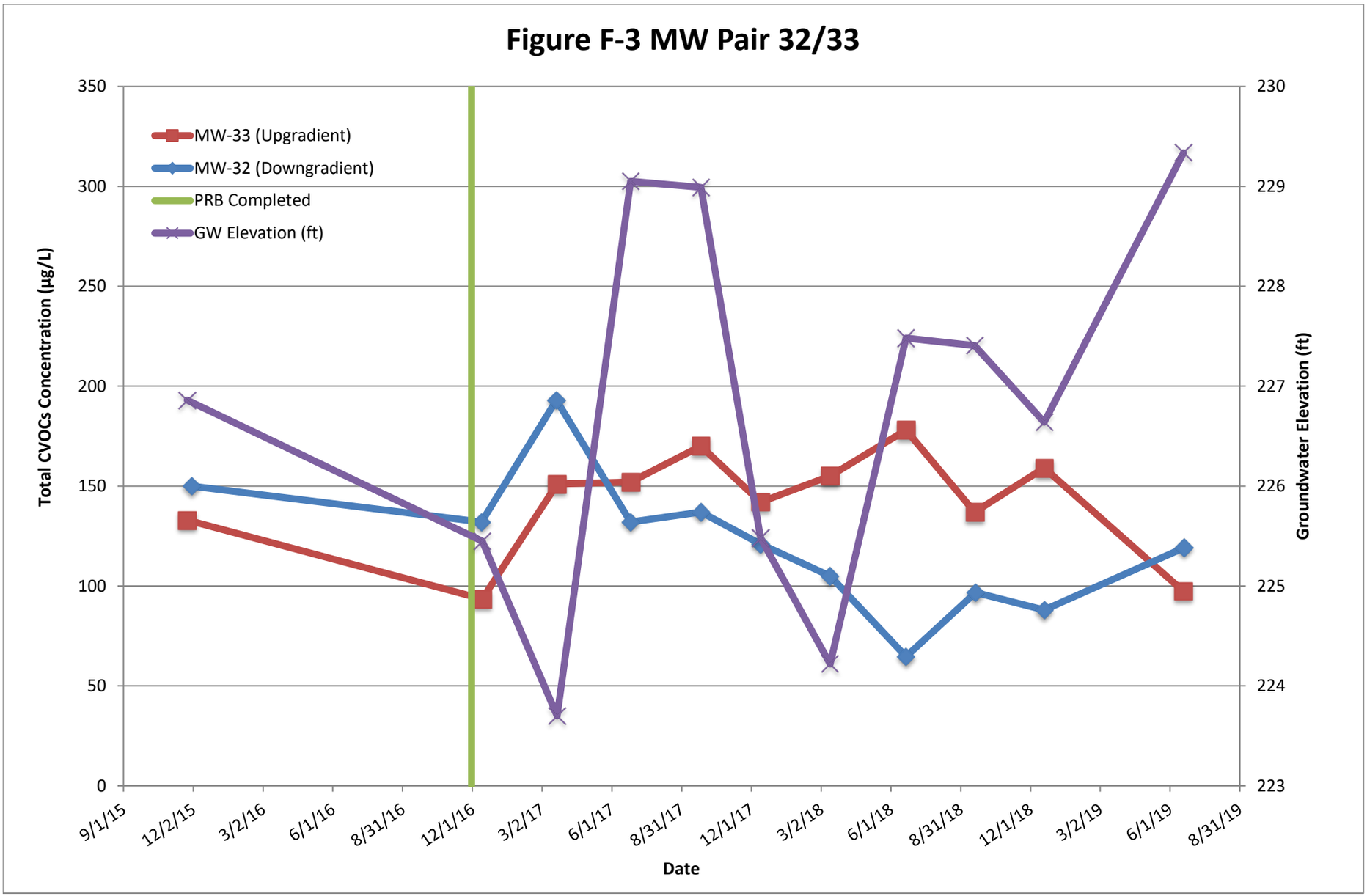
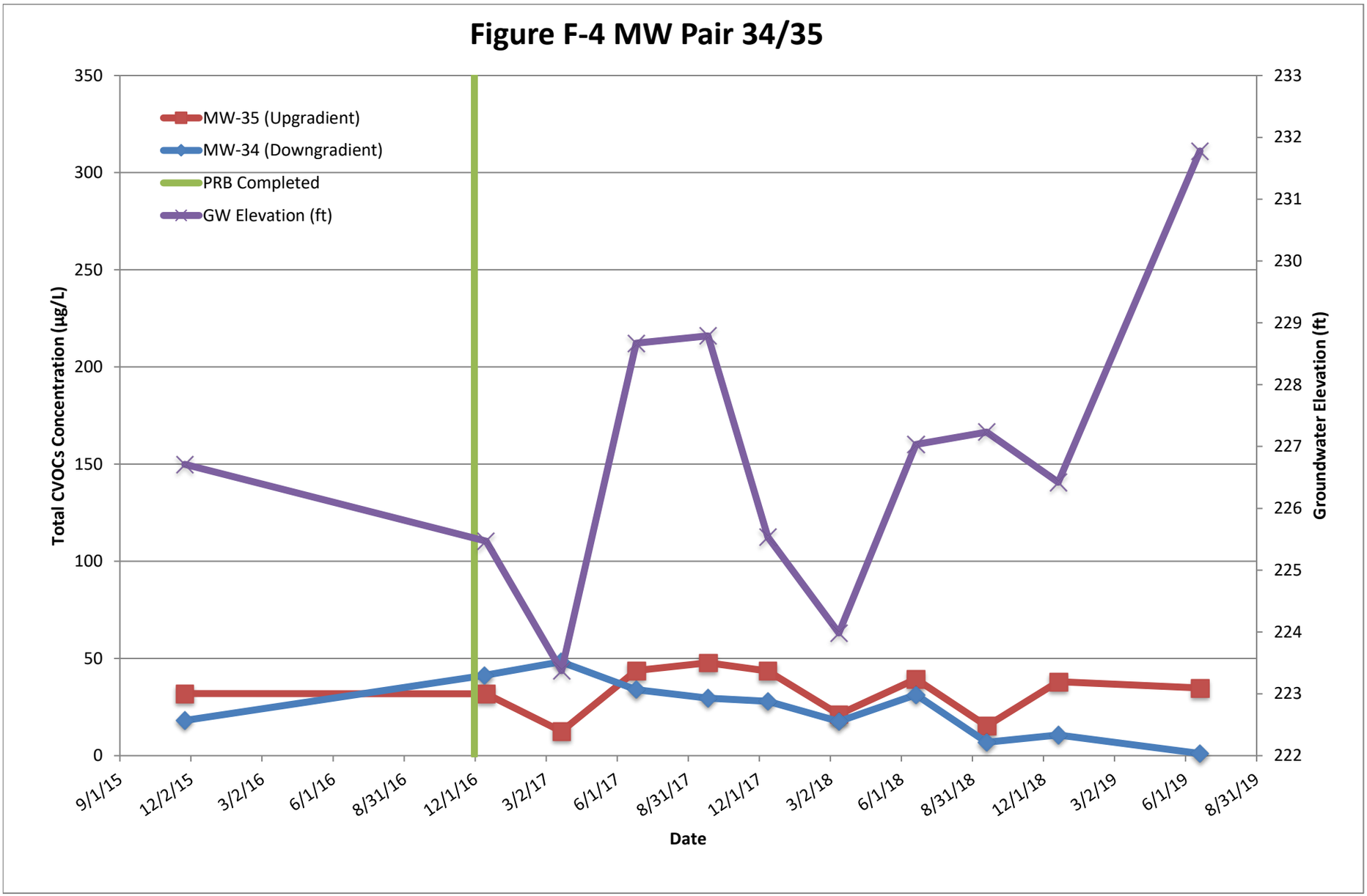


Figure F-4 MW Pair 34/35



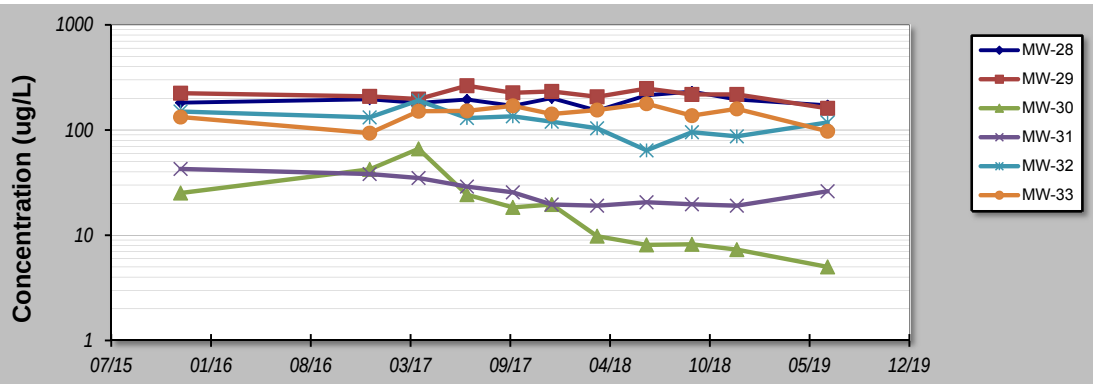
APPENDIX G: Mann-Kendall Trend Analysis Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 20-Aug-19
Facility Name: Former Scotia Navy Depot
Conducted By: M. Zenker

Job ID: Former Scotia Navy Depot
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							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.12	0.12	0.87	0.32	0.28	0.19
Mann-Kendall Statistic (S):		4	-8	-45	-34	-35	11
Confidence Factor:		59.0%	70.3%	>99.9%	99.6%	99.7%	77.7%
Concentration Trend:		No Trend	Stable	Decreasing	Decreasing	Decreasing	No Trend



Notes:

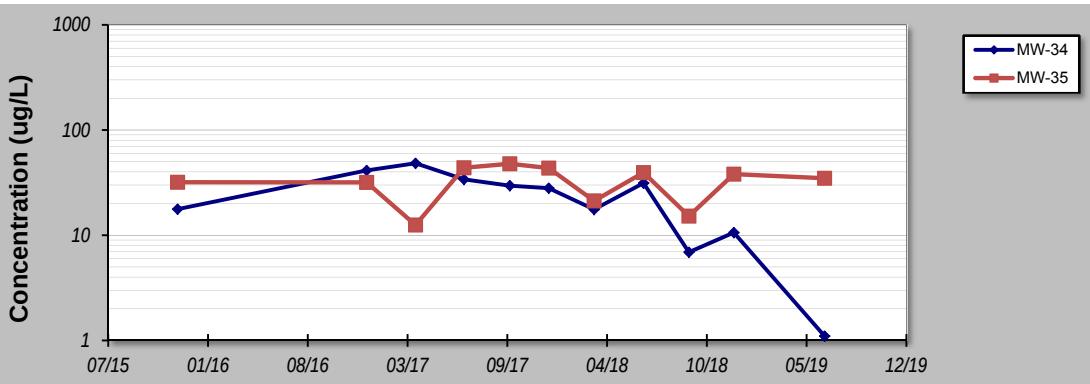
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably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

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	20-Aug-19	Job ID:	Former Scotia Navy Depot
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								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.61	0.36					
Mann-Kendall Statistic (S):		-33	-3					
Confidence Factor:		99.5%	56.0%					
Concentration Trend:		Decreasing	Stable					



Notes:

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

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