GROUNDWATER MONITORING PROGRAM
2017 QUARTER THREE STATUS REPORT
FOR
REMEDIAL ACTION AT
THE DEFENSE NATIONAL STOCKPILE CENTER SCOTIA DEPOT
GLENVILLE, NEW YORK

Prepared For:

U.S. Army Corps of Engineers

Prepared By:

AECOM Technical Services

February 2018

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2017 QUARTER THREE STATUS REPORT

FOR

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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 third quarter of 2017 (September 25, 2017, through September 28 , 2017). This report presents the results of the third 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. This groundwater sampling event was a Site-wide sampling event which included collection of groundwater samples from 12 monitoring wells. Installation of the PRB was completed in 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, and therefore groundwater velocity, conditions may exist at the Site. 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. This variability of hydraulic conductivity results in a 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 QUARTERLY GROUNDWATER MONITORING PROGRAM

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 to of the PRB. The four monitoring wells 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 well 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 annually thereafter. The first quarterly sampling event was conducted in December 2016. Monitoring well locations are shown on Figure 1-2 and are described in Table 2-1 below.

Table 2-1: Location of Monitoring Wells

Monitoring Well ID	Location in Relation to PRB
MW-15	Upgradient
MW-16	Outside of Plume
MW-24	Downgradient
MW-26	Downgradient
MW-28	Downgradient
MW-29	Upgradient
MW-30	Downgradient
MW-31	Upgradient
MW-32	Downgradient
MW-33	Upgradient
MW-34	Downgradient
MW-35	Upgradient

Table 2-2 provides the monitoring well sample 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 Site Management Plan (SMP) (AECOM, 2017b).

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. 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 field 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.

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 and will be disposed of offsite at a later date. 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 courier during the sample collection timeframe. Standard chain of custody procedures were used for sample transport. In total, 12 groundwater samples were collected and analyzed for targeted VOCs (EPA method 8260C) and monitored natural attenuation (MNA) parameters including 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).

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 September 2017 sampling event and compares it to the December 2015 baseline sampling event, December 2016 groundwater elevation data and past sampling event levels. A potentiometric Site map indicating the overburden, groundwater elevation and direction of groundwater flow during the September 2017 sampling event is included as Figure 3-1. Observed groundwater flow direction in September 2017 was to the west, which is similar to past sampling events.

Based on observed trends during the past four sampling events it appears that the groundwater elevation at the Site is subject to seasonal variability. The September 2017 sampling event exhibits similar groundwater elevations as the June 2017 sampling event. Groundwater elevation data for the September 2017 event indicate that groundwater levels are currently higher than the top of the PRB wall. The current potentiometric surface in relation to the PRB is shown in profile on Figure 2-1.

The hydraulic gradient is 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 September 2017 hydrogeologic conditions, was determined to be 0.0028 ft/ft. The September 2017 hydraulic gradient is consistent with the past three quarterly sampling events where the hydraulic gradient was 0.0025ft/ft in December 2016, 0.0039ft/ft in March 2017, and 0.0037 ft/ft in June 2017. The groundwater seepage velocity is the rate of solute transport through the open pore space in the soil. Based on the September 2017 hydraulic gradient of 0.0028 ft/ft, an average estimated site porosity of 0.4 and the range of hydraulic conductivities evaluated for the PRB design (15.66 ft/day to 193.8 ft/day) groundwater seepage velocity at the Site could vary between approximately 0.11 ft/day and 1.375 ft/day. The range of estimated groundwater seepage velocities based on the September 2017 Site conditions (0.11 ft/day-1.375 ft/day) is approximately within the lower end of the range of estimated groundwater seepage velocities used for the PRB design (0.128 ft/day-2.83 ft/day).

3.2 Groundwater MNA Parameter Results

Results of groundwater MNA parameters obtained from September 2017 quarterly sampling event for the PRB monitoring compliance wells are presented in Table 3-2. Site-wide results are presented in Table 3-3. MNA parameters were compared between compliance well pairs. In general conductivity values showed are relativity consistent throughout the compliance well pairs.

During previous quarterly sampling events no significant changes have been observed in DO and ORP concentrations and measurements were variable with some well pairs showing an increase and some pairs showing a decrease. DO measurements during the September 2017 sampling event showed a measurable difference of DO between every upgradient and downgradient

monitoring well pair, with some pairs showing a significant decrease. ORP levels also showed measureable decreases between each upgradient and downgradient pair. These conditions are expected downgradient of the PRB indicating reducing conditions as the groundwater passes through the PRB. Furthermore, low DO and ORP values downgradient indicate that anaerobic conditions exist which promote anaerobic biodegradation that would be expected from the breakdown of the guar in the ZVI delivery fluid. The September 2017 groundwater results showed an increase in methane and ethane, and ethene in most downgradient compliance monitoring wells, particularly for methane in downgradient monitoring wells MW-30, MW-32 and MW-34. The largest increase in methane and ethane this quarter was again seen in compliance monitoring well pairs in the middle of the PRB. Methane, ethane and ethene concentrations are expected to increase over time from the breakdown of the ZVI carrier fluids/guar. To date nitrate and sulfate levels have been variable since the 2015 baseline sampling event. Nitrate and sulfate concentrations are expected to decrease from upgradient to downgradient wells as this would further indicate that bioactivity is occurring.

3.3 Groundwater VOC results

The VOC results from the September 2017 quarterly sampling event are presented in Table 3-2. This groundwater sampling event was a Site wide event which included 12 groundwater samples. Figure 3-2 provides a summary of the groundwater VOC results for the monitoring well compliance pairs 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 2017 sampling event results to the historic sampling event results.

Full analytical reports are included in Appendix C.

The laboratory data was validated by an AECOM chemist and a full data usability summary report (DUSR) was prepared. The DUSR, included in Appendix D, indicated that all data points were usable and no data points were rejected.

A narrative summary of the results is presented below:

- Trichloroethene (TCE), the primary constituent of concern, was detected in 10 of the 12 wells sampled, nine of which were above the AWQS of 5 µg/L. Wells with detectable levels of TCE were MW-15, MW-24, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, and MW-35. The concentration of TCE found in MW-24 was below the AWQS.

- No TCE was detected in samples from monitoring wells MW-16 and MW-26. Monitoring Well MW-16 is a plume bounding well located outside of the estimated area of the contamination plume.

- For the September 2017 event downgradient wells of the compliance well monitoring pairs showed lower levels of TCE concentrations than their upgradient

counterparts. Monitoring wells MW-28, MW-30, and MW-34 were the downgradient members of the confirmation well pairs to show a slight decrease in concentration of TCE. The samples TCE concentration ranged from 18.4 µg/L (MW-30) to 170 µg/L (MW-28). Based on the calculated groundwater velocity these reduced concentrations are not likely from flow through the PRB but may be a result of enhanced biodegradation from the breakdown of the guar fluid.

- In general detected concentrations of TCE, as well as other chlorinated VOCs, for the September 2017 sampling event were consistent with previous groundwater sample results. However, as noted in the preceding bullet there appears to be some reduction in TCE concentrations downgradient of the PRB based on the results of the compliance well pairs.

- 1,1,1-Trichloroethane was detected in 4 of the 12 wells sampled. The concentration of 1,1,1-Trichloroethane in wells MW-15, MW-28 was above the AWQS of 5 µg/L and the concentration in MW-16 and MW-28 was below the AWQS.

- Wells with detectable levels of tetrachloroethene (PCE) were MW-15, MW-28, and MW-29. The concentration of PCE measured in MW-28 and MW-29 was above the AWGS of 5 µg/L and in MW-15 was below the AWQS.

Monitoring well MW-15, which is located directly upgradient of the PRB and is not part of a confirmation well pair, showed a increase in TCE concentration from the June 2017 event. The concentration of TCE increased from 122 µg/L to 185 µg/L.

Graphs showing concentrations of chlorinated volatile organic compounds (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 September 2017. These trend plots are included in Appendix E as Figures E-1 through E-4. To date no definitive trends have been observed as groundwater concentrations have been generally consistent with the baseline sampling event.

4 SUMMARY AND CONCLUSIONS

The September 2017 groundwater monitoring event was the fourth quarterly groundwater sampling event and the first Site wide sampling event at the Site since remedy implementation has been completed. Quarterly groundwater sampling will continue on the selected subset of monitoring wells listed in Table 2-1.The next groundwater sampling event is scheduled for December 2017 and will include groundwater sampling at the 12 designated quarterly sample locations. The next Side-wide sampling event will be conducted in the second quarter of 2018. Details regarding the groundwater sampling program for the Site are included in the SMP (AECOM 2017b).

The laboratory results suggest that concentrations of dissolved VOCs in Site groundwater are currently similar to the baseline concentrations before installation of the ZVI PRB and no significant changes has been observed to date. The mixed MNA results indicate that the PRB and iron carrier fluid are affecting groundwater conditions. Recent increased methane and ethane concentrations at some downgradient monitoring wells indicate the presence of anaerobic conditions within the subsurface in the vicinity of the PRB. This indicates that the ZVI carrier fluid is continuing to be degraded in the subsurface and is moving downgradient with groundwater flow. While there had been increased TOC concentrations at the MW compliance pairs noted in the previous sampling events it appears TOC has moved toward baseline conditions. Results from the future sampling rounds will help to verify this trend.

Current Site groundwater flow conditions indicate that on average the hydraulic gradient is consistent with the design, particularly in the southern and center sections of the PRB. The PRB was designed based on a hydraulic gradient of 0.004 ft/ft which is similar to the estimated hydraulic gradient of 0.0028 ft/ft measured in September 2017. There appears to be a seasonal variability in gradient as observed over the past quarterly monitoring periods. 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 groundwater passing through the PRB has reached the downgradient monitoring wells. Downgradient parameters including the presence of ethane, ethane, and methane suggest that the abiotic degradation of TCE is taking place as impacted groundwater flows through the PRB.

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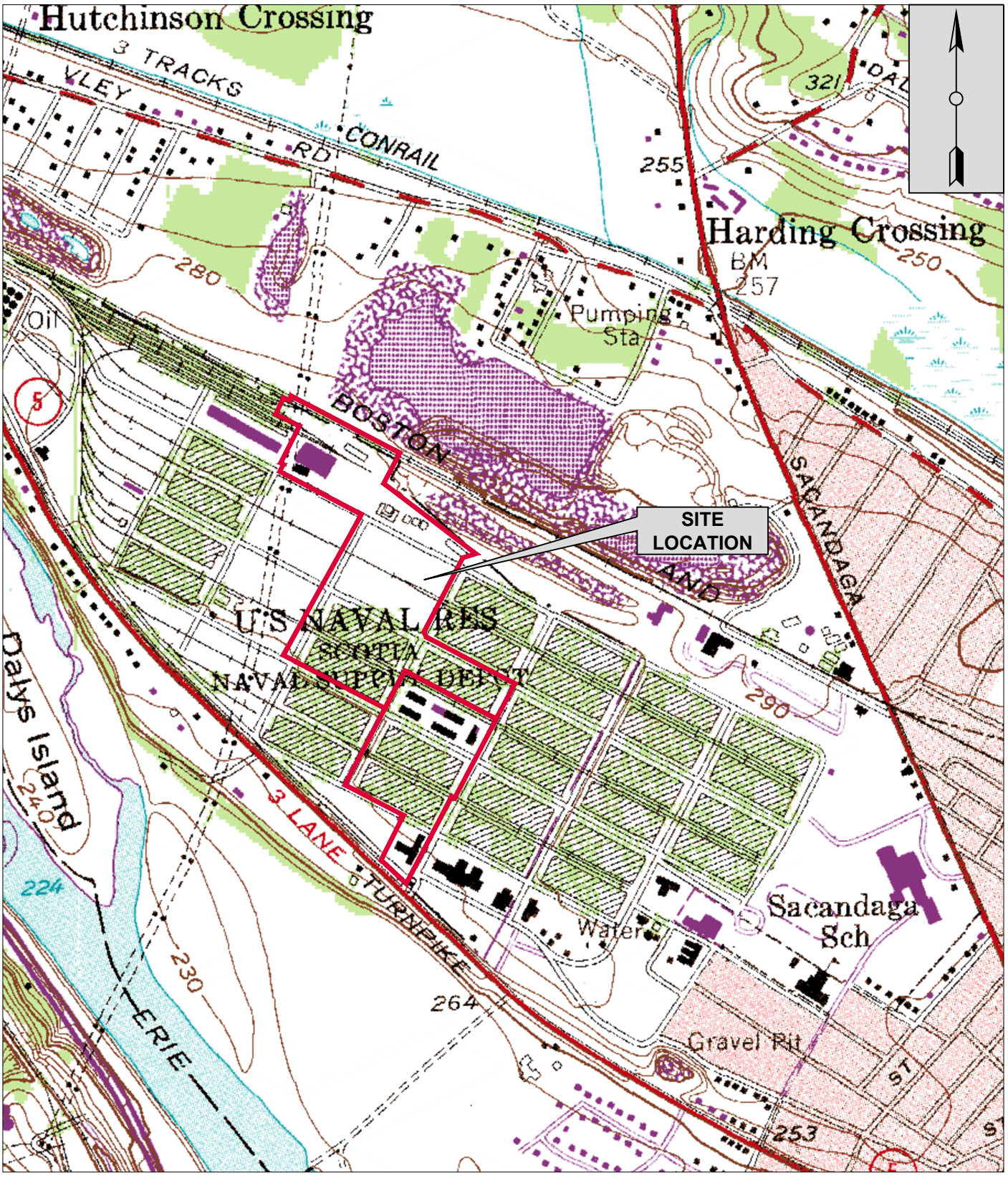
FIGURES



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

0 1000' 2000'

2017 3rd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: December 2017

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of Engineers

SITE LOCATION MAP

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Figure: 1-1

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Figure: 1-2

SITE LAYOUT MAP

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2017 3rd QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: December 2017

1st STREET
2nd STREET
3rd STREET
4th 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
TOWERS
MW-8
MW-5
MW-9
MW-6
MW-12
MW-11
MW-13
MW-27
MW-7
MW-16
MW-21
MW-14
MW-17
MW-19
MW-20
MW-22
MW-36
PMW-2
MW-18
MW-15
MW-28
MW-29
MW-30
MW-31
MW-24
MW-32
MW-33
MW-25
MW B-1
MW-26
MW-34
MW-35
GEP-1
GEP-2
GEP-3
GEP-4
250.0 FT. NATIONAL GRID POWER COMPANY EASEMENT
15.0 FT. (TYP.)
250.0 FT. (SHALLOW ZONE)
900.0 FT.
650.0 FT. (DEEP ZONE)
PROPERTY BOUNDARY (TYP.)
CONCRETE REMAINS
80.0'

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'

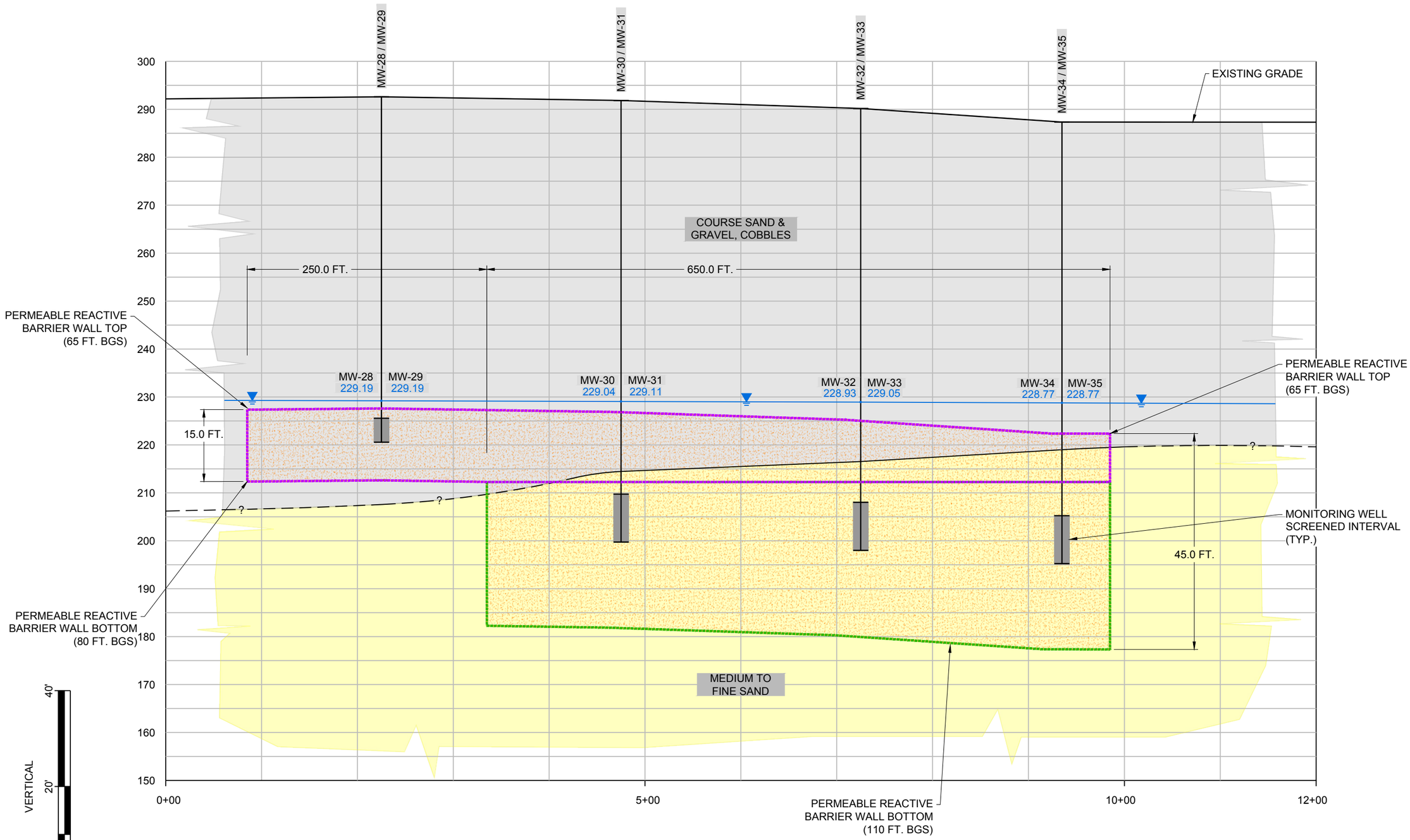

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Figure: 2-1

COMPLIANCE MONITORING WELLS AND PRB WALL PROFILE SEPTEMBER 2017

US ARMY Corps of Engineers

2017 3rd QUARTER GROUNDWATER REPORT
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SCOTIA DEPOT SITE - SCOTIA, NY
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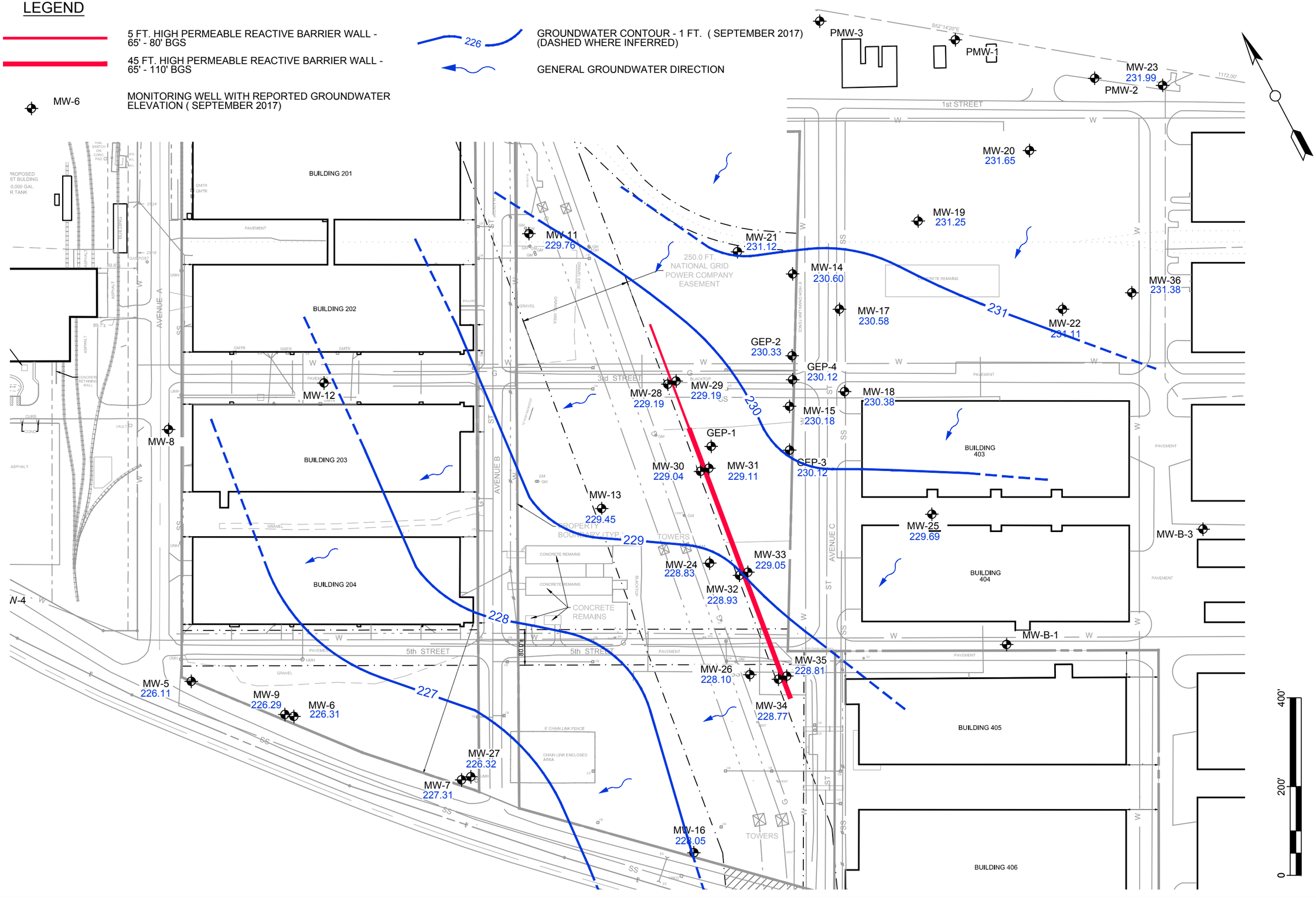
LEGEND

- 5 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 (SEPTEMBER 2017)
- 226 — GROUNDWATER CONTOUR - 1 FT. (SEPTEMBER 2017) (DASHED WHERE INFERRED)
- GENERAL GROUNDWATER DIRECTION



POTENTIOMETRIC SITE MAP
SEPTEMBER 2017

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Figure: 3-1

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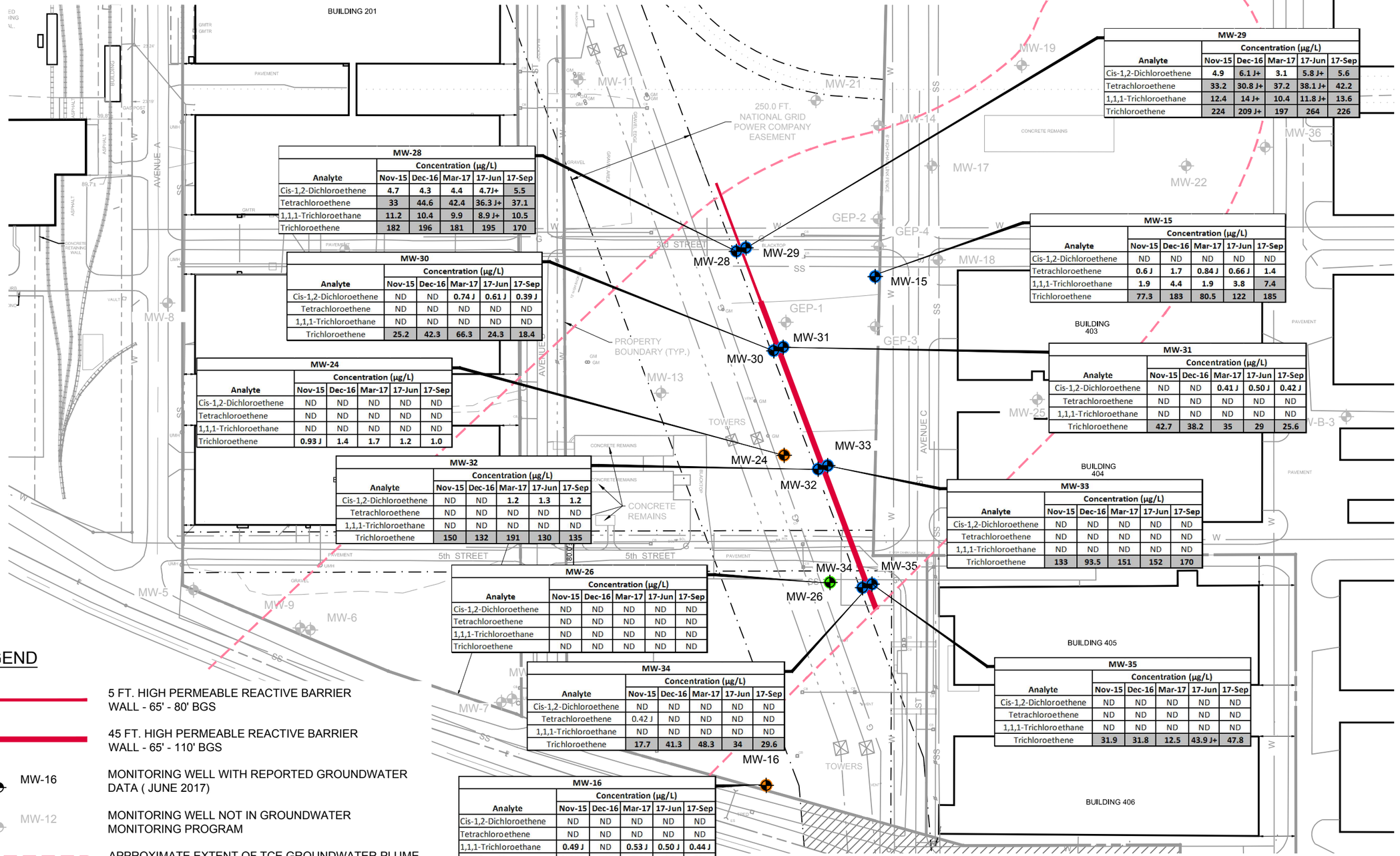
2017 3rd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: December 2017

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
Cis-1,2-Dichloroethene	4.7	4.3	4.4	4.7J+	5.5
Tetrachloroethene	33	44.6	42.4	36.3 J+	37.1
1,1,1-Trichloroethane	11.2	10.4	9.9	8.9 J+	10.5
Trichloroethene	182	196	181	195	170

MW-30

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	0.74 J	0.61 J	0.39 J
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	25.2	42.3	66.3	24.3	18.4

MW-24

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	0.93 J	1.4	1.7	1.2	1.0

MW-32

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	1.2	1.3	1.2
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	150	132	191	130	135

MW-26

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

MW-34

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	0.42 J	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	17.7	41.3	48.3	34	29.6

MW-16

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

MW-29

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	4.9	6.1 J+	3.1	5.8 J+	5.6
Tetrachloroethene	33.2	30.8 J+	37.2	38.1 J+	42.2
1,1,1-Trichloroethane	12.4	14 J+	10.4	11.8 J+	13.6
Trichloroethene	224	209 J+	197	264	226

MW-15

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	0.6 J	1.7	0.84 J	0.66 J	1.4
1,1,1-Trichloroethane	1.9	4.4	1.9	3.8	7.4
Trichloroethene	77.3	183	80.5	122	185

MW-31

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	0.41 J	0.50 J	0.42 J
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	42.7	38.2	35	29	25.6

MW-33

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	133	93.5	151	152	170

MW-35

Analyte	Concentration (µg/L)				
	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	31.9	31.8	12.5	43.9 J+	47.8

LEGEND

- 5 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 2017)
- MW-12 — MONITORING WELL NOT IN GROUNDWATER MONITORING PROGRAM
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

AECOM

Figure: 3-2

GROUNDWATER RESULTS
QUARTERLY MONITORING LOCATIONS
SEPTEMBER 2017

US ARMY Corps of Engineers

2017 3rd QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: December 2017

TABLES

Table 2-1
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 anually	VOCs/MNA	65-80
MW-16	Outside Plume	Quarterly for 2 years then anually	VOCs/MNA	55-70
MW-24	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	100-110
MW-26	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	100-110
MW-28*	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	67-72
MW-29*	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	67-72
MW-30*	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-31*	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-32*	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-33*	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-34*	Downgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
MW-35*	Upgradient	Quarterly for 2 years then anually	VOCs/MNA	82-92
GEP-3	Upgradient	Annually	VOCs	59.6-74.6
MW-B-3	Outside Plume	Annually	VOCs	47.5-67.5
MW-5	Downgradient	Annually	VOCs	62.5-72.5
MW-6	Downgradient	Annually	VOCs	58.5-68.5
MW-7	Outside Plume	Annually	VOCs	61-71
MW-8	CT Plume	Annually	VOCs	66-76
MW-9	Downgradient	Annually	VOCs	110-120

Table 2-1
Monitoring Well Sampling Schedule and Guidelines
The Defense National Stockpile Center Scotia Depot

Monitoring Well ID[1]	Rationale[2]	Sampling Frequency	Analytes[3]	Screen Interval (ft bgs)
MW-11	CT Plume	Annually	VOCs	65-80
MW-12	CT Plume	Annually	VOCs	65-80
MW-14	Upgradient	Annually	VOCs	65-80
MW-17	Upgradient	Annually	VOCs	60-75
MW-18	Upgradient	Annually	VOCs	60-75
MW-19	Upgradient	Annually	VOCs	62-77
MW-20	Upgradient	Annually	VOCs	63-78
MW-22	Upgradient	Annually	VOCs	63-78
MW-23	Outside Plume	Annually	VOCs	63-78
MW-24	Downgradient	Annually	VOCs	90-100
MW-25	Upgradient	Annually	VOCs	65-75
MW-26	Downgradient	Annually	VOCs	100-110
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
Third Quarter 2017 Status Report
AECOM Project 60440641

Well IDs	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	Reference Point Elevation (ft)	Depth To Water (ft bgs) Q 3 2017	Groundwater Elevation 2015	Groundwater Elevation 2016	Groundwater Elevation Q1 2017	Groundwater Elevation Q2 2017	Groundwater Elevation Q3 2017
B-1	48-68	-	287.14		227.74	-	-	**229.80**	**-**
B-3	47.5-67.5	-	287.05		227.95	-	-	**-**	**-**
MW-4	63.8-73.8	289.58	291.74		225.74	-	-	**-**	**-**
MW-5	62.5-72.5	287.95	290.11	64.00	225.75	219.29	219.61	**226.29**	**226.11**
MW-6	58.5-68.5	286.28	288.58	62.27	225.86	219.80	219.80	**226.55**	**226.31**
MW-7	61-71	286.8	289.26	61.95	226.28	223.16	220.79	**227.30**	**227.31**
MW-9	110-120	285.98	288.33	62.04	225.83	219.75	219.78	**226.48**	**226.29**
MW-10	65-80	290.94	293.15	-	228.24	-	-	**-**	**-**
MW-11	65-80	295.73	295.12	65.36	227.7	225.91	225.00	**230.76**	**229.76**
MW-13	65-80	292.62	293.85	64.40	227.32	225.43	223.95	**229.60**	**229.45**
MW-14	65-80	-	296.2	65.60	228.08	226.56	226.07	**231.32**	**230.60**
MW-15	65-80	-	293.67	63.49	227.8	226.27	225.32	**230.60**	**230.18**
MW-16	55-70	-	288.33	60.28	226.39	225.38	221.95	**227.63**	**228.05**
MW-17	60-75	-	295.24	64.66	228.08	226.55	225.99	**231.15**	**230.58**
MW-18	60-75	-	295.24	64.86	227.94	226.46	225.68	**230.75**	**230.38**
MW-19	62-77	-	297.67	66.42	228.43	226.85	227.13	**231.93**	**231.25**
MW-20	63-78	-	301.55	69.90	228.71	227.01	227.83	**232.33**	**231.65**
MW-21	57-72	-	296.52	65.40	228.06	226.50	225.97	**231.33**	**231.12**
MW-22	63-78	-	298.91	67.80	228.29	226.73	226.83	**231.27**	**231.11**
MW-23	63-78	-	300.54	68.55	228.9	227.06	228.40	**232.56**	**231.99**
MW-24	90-100	290.24	292.45	63.62	226.79	225.30	223.60	**229.05**	**228.83**
MW-25	65-75	288.16	290.26	60.57	227.16	225.82	224.82	**229.65**	**229.69**
MW-26	100-110	287.23	286.45	58.35	226.06	224.75	222.60	**228.01**	**228.10**
MW-27	100-110	286.08	288.32	62.00	225.5	223.44	219.65	**226.43**	**226.32**
MW-28	67-72	292.55	292.25	63.06	227.07	225.41	224.31	**229.79**	**229.19**
MW-29	67-72	292.50	292.13	62.94	227.05	225.38	224.33	**229.82**	**229.19**
MW-30	82-92	291.76	291.63	62.59	226.98	225.35	223.98	**229.44**	**229.04**
MW-31	82-92	291.80	291.54	62.43	226.95	225.40	224.12	**229.52**	**229.11**
MW-32	82-92	290.12	289.75	60.82	226.86	225.45	223.70	**229.05**	**228.93**
MW-33	82-92	290.27	289.91	60.86	226.89	225.51	223.80	**229.11**	**229.05**
MW-34	82-92	287.30	287.05	58.28	226.73	225.48	223.35	**228.66**	**228.77**
MW-35	82-92	287.25	286.96	58.15	226.69	225.46	223.40	**228.68**	**228.81**
MW-36	70-80	292.61	292.36	60.98	227.8	226.12	226.26	**230.49**	**231.38**
GEP-1	59.6-74.6	-	294.98	-	227.36	-	224.43	**229.92**	**-**
GEP-2	60.6-75.6	-	296.02	65.69	227.9	226.38	225.59	**230.84**	**230.33**
GEP-3	59.6-74.6	-	292.97	62.85	227.81	226.31	225.26	**230.50**	**230.12**
GEP-4	60.15-75.15	-	295.62	65.50	227.73	226.22	225.39	**230.61**	**230.12**

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-15					MW-16					MW-24					MW-26				
		11/9/2015	12/14/2016	3/22/2017	6/21/2017	9/28/2017	11/11/2015	12/12/2016	3/20/2017	6/20/2017	9/25/2017	11/10/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	11/17/2015	12/13/2016	3/21/2017	6/26/2017	9/25/2017
		Upgradient					Outside Plume					Downgradient					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
1,1,1-Trichloroethane (1,1,1-TCA)	5	**1.9**	**4.4**	**1.9**	**3.8**	**7.4**	**0.49 J**	0.75 U	**0.53 J**	**0.50 J**	**0.44 J**	0.75 U	0.75 U	0.75 U	0.75 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	**0.44 J**	0.75 U	0.75 U	**0.69 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	**0.45 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	**0.57 J**	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	**77.3**	**183**	**80.5**	**122**	**185**	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.93 J**	**1.4**	**1.7**	**1.2**	**1.0**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																					
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**182**	**212**	**201**	**217**	**229**	**248**	**312**	**317**	**322**	**480**	**168**	**198**	**205**	**195**	**282**	**204**	**197**	**196**	**223**	**317**
Chloride (mg/L)	NS	**28.9**	**14.3**	**28.3**	**40.1**	**30.6**	**13.6**	**9.0**	**5.6**	**20.2**	**4.3**	**36.3**	**38.5**	**59.0**	**41.0**	**110.0**	**45.2**	**44.9**	**53.4**	**133**	**86.2**
Nitrate (mg/L)	NS	**0.58**	**0.56**	**0.90**	**0.52**	**0.58**	**1.6**	**1.6**	**2.1 J**	**3.7**	**1.4**	**0.9**	0.060 U	0.060 U	0.20 U	0.06 U	0.06 U	**0.040 J**	0.060 U	0.020 U	0.060 U
Sulfate (mg/L)	NS	**12.3**	**12.4**	**21.3**	**20.5**	**14.3**	**35.2**	**44.8**	**65.3**	**75.5**	**64.8**	**15.5**	**21.4**	**24.1**	**22.1**	0.5 U	**25.1**	**24.6**	**29.4**	**20.9**	**5.9**
Methane (µg/L)	NS	**0.19 J**	0.50 U	**0.21 J**	0.50 U	0.50 U	0.25 U	0.5 U	0.50 U	0.50 U	**0.23 J**	**0.82**	**1.6**	**1.7 J+**	**2.2**	**7.8**	**34.8**	**2.7**	**1.4 J+**	**2.1**	**444**
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	0.50 U	0.50 U	**0.34 J**	0.50 U	0.50 U	0.50 U	**0.29 J**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 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	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.8 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
Total Organic Carbon (mg/L)	NS	**0.55 J**	**0.57 J**	**0.47 J**	**0.21 J**	**0.59 J**	**3.6**	**0.96 J**	**1.1**	**0.67 J**	**0.64 J**	**3.5**	**1.9**	**1.0 J**	**0.79 J**	**94.6**	**9.3**	**2.6**	**1.3 J**	**30.7**	**52.1**
Field Parameters																					
Turbidity (NTU)	NS	11.1	7	15.7	2.1	52.1	8.01	14.8	7.71	4.4	198.66	9.33	13.9	16.3	35.2	88.37	68.3	21.8	31.9	0.4	60.96
ORP (MeV)	NS	91.4	54.6	-0.6	114.6	92.8	137.6	139.9	115.9	298.7	82.2	-80.2	-93.2	-111.3	-108.6	-169.9	-103.6	-28.9	-46.4	-26.9	-138.7
Conductivity (mS/cm)	NS	0.358	0.25	0.387	0.5	709.4	0.361	0.388	0.436	0.486	928.3	0.327	0.57	0.438	0.365	1396.1	0.324	0.59	0.469	0.63	1347.1
Dissolved Oxygen (mg/L)	NS	31.45	8.04	6.37	4.9	9.2	22.27	9.5	10.4	10.82	9.81	0.94	0.44	0.55	1.2	0.3	0	0.33	0.27	0.62	0.3
Groundwater Elevation (ft)	NS	227.80	226.27	225.32	230.6	230.2	226.39	225.38	221.95	227.63	228.05	226.79	225.30	223.60	229.05	228.83	226.06	224.75	222.60	228.01	228.10

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.
U - Indicates that the analyte was not detected (ND).
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 Pair										Confirmation Well Pair									
		MW-28					MW-29					MW-30					MW-31				
		12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/1/2015	12/13/2016	3/21/2017	6/26/2017	9/27/2017	12/1/2015	12/14/2016	3/22/2017	6/26/2017	9/27/2017
		Downgradient					Upgradient					Downgradient					Upgradient				
VOCs (µg/L)																					
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	1.0 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**	**9.9**	**8.9 J+**	**10.5**	**12.4**	**14.0 J+**	**10.4**	**11.8 J+**	**13.6**	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
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	1.0 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	0.75 U	1.0 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-Dichloroethane (1,1-DCA)	5	**1.0**	**0.77 J**	**0.88 J**	**1.0 J+**	**1.3**	**0.97 J**	3.8 U	**0.45 J**	**1.0 J+**	**1.2**	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
1,1-Dichloroethene (1,1-DCE)	5	**0.53 J**	**0.43 J**	**0.53 J**	**0.38 J**	**0.76 J**	**0.68 J**	3.8 U	**0.55 J**	**0.63 J**	**0.99 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	**0.62 J**	0.75 U	**0.53 J**	0.75 U	3.8 U	**0.63 J**	0.75 U	**0.85 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**	**4.4**	**4.7 J+**	**5.5**	**4.9**	**6.1** J+	**3.1**	**5.8 J+**	**5.6**	0.75 U	0.75 U	**0.74 J**	**0.61 J**	**0.39 J**	0.75 U	0.75 U	**0.41 J**	**0.50 J**	**0.42 J**
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**42.4**	**36.3 J+**	**37.1**	**33.2**	**30.8** J+	**37.2**	**38.1 J+**	**42.2**	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
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**	**0.42 J**	**0.37 J**	**0.35 J**	0.75 U	3.8 U	**0.61 J**	**0.70 J**	**0.67 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
Trichloroethene (TCE)	5	**182**	**196**	**181**	**195**	**170**	**224**	**209** J+	**197**	**264**	**226**	**25.2**	**42.3**	**66.3**	**24.3**	**18.4**	**42.7**	**38.2**	**35.0**	**29.0**	**25.6**
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																					
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**352**	**316**	**295**	**352**	**380**	**327**	**301**	**258**	**361**	**374**	**143**	**319**	**210**	**154**	**104**	**178**	**222**	**381**	**150**	**132**
Chloride (mg/L)	NS	**22.1**	**32.4**	**25.7**	**29.0**	**25.7**	**28.2**	**28.4**	**21.3**	**49.4**	**24.2**	**38.4**	**182**	**136**	**49.6**	**35.3**	**41.9**	**56.6**	**98.5**	**31.0**	**31.7**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**0.44**	**1.5**	**0.18 J**	**0.1 J**	**0.26**	**0.52**	**1.3**	**0.12 J**	0.06 U	0.060 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	**0.040 J**	0.20 U	0.06 U
Sulfate (mg/L)	NS	**22.4**	**20.9**	**21.6**	**13.0**	**10.3**	**29.2**	**24.9**	**20.1**	**13.8**	**16.1**	**35.9**	**2.9**	0.5 U	2.0 U	0.5 U	**26.3**	**10.9**	**2.6**	**5.6**	**5.6**
Methane (µg/L)	NS	**3.4**	**3.0**	**0.94**	**1.0**	0.50 U	**13.9**	**0.62**	**1.1**	0.05	0.50 U	**47.4**	**146**	**870**	**3210**	**3560**	**20.7**	**3.5**	**106**	**56.5**	**29.1**
Ethane (µg/L)	NS	0.50 U	**3.6**	**1.0**	0.50 U	**0.45 J**	**0.81 J**	0.50 U	0.5 U	0.50	0.50 U	**4.7**	**5.4**	**23.5**	**36.7**	**39.7**	**2.2**	**1.5**	**10.1**	**2.7**	**2.6**
Ethene (µg/L)	NS	0.75 U	**1.3 J**	**1.9**	0.75 U	**0.72 J**	**0.59 J**	0.75 U	0.75 U	0.75	0.75 U	**2.2**	**3.3**	**9.1**	**12.7**	**8.5**	**0.91 J**	**0.84 J**	**4.7**	**3.2**	**2.3**
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.81 J**	**0.76 J**	**1.90**	**2.3**	**1.4**	**0.91 J**	**0.92**	**2.1**	**2.2**	**225**	**139**	**75.2**	**27.0**	**2.1**	**43.9**	**257**	**2.8**	**1.5**
Field Parameters																					
Turbidity (NTU)	NS	209	1.5	2.07	-3	61.1	82.4	0.62	2.73	2.8	65.1	58.2	3.55	3.82	3	69.1	51.7	8.03	11.4	4.6	8.6
ORP (MeV)	NS	273.2	71.2	77.1	97.4	32.1	-25.1	60.9	46.1	120.2	41.7	-278.4	-166.3	-166.9	-173.3	-212.2	-319.7	-163.1	-201.5	-283.2	-174.4
Conductivity (mS/cm)	NS	0.324	0.366	0.52	0.554	1.044	0.325	0.354	0.424	0.619	1.058	0.21	1.41	0.74	0.32	0.412	0.243	0.348	0.85	0.28	0.526
Dissolved Oxygen (mg/L)	NS	6.75	3.94	5.2	7.59	4.3	4.29	6.17	9.26	7.12	6.46	3.7	0.29	0.17	0.48	0.06	1.29	0.28	0.22	0.7	0.13
Groundwater Elevation (ft)	NS	227.07	225.41	224.31	229.79	229.19	227.05	225.38	224.33	229.79	229.19	226.98	225.35	223.98	229.44	229.04	226.95	225.40	224.12	229.52	229.11

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.
U - Indicates that the analyte was not detected (ND).
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 Pair										Confirmation Well Pair									
		MW-32					MW-33					MW-34					MW-35				
		11/30/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	11/24/2015	12/14/2016	3/22/2017	6/26/2017	9/26/2017	11/24/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	11/24/2015	12/15/2016	3/22/2017	6/26/2017	9/26/2017
		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	0.75 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	0.75 U	0.75 U	0.75 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	0.75 U	**1.2**	**1.3**	**1.2**	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
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**	**132**	**191**	**130**	**135**	**133**	**93.5**	**151**	**152**	**170**	**17.7**	**41.3**	**48.3**	**34.0**	**29.6**	**31.9**	**31.8**	**12.5**	**43.8 J+**	**47.8**
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																					
Alkalinity, Total (as $CaCO_3$) (mg/L)	NS	**196**	**277**	**214**	**129**	**129**	**172**	**218**	**194**	**205**	**202**	**99**	**191**	**597**	**201**	**197**	**181**	**223**	**51**	**202**	**192**
Chloride (mg/L)	NS	**35.6**	**138**	**84.6**	**38.0**	**30.7**	**41.8**	**43.2**	**29.2**	**22.8**	**24.6**	**48.5**	**62.3**	**461**	**15.7**	**11.7**	**42.2**	**53.9**	**2.0**	**17.1**	**14.4**
Nitrate (mg/L)	NS	0.06 U	0.060 U	**0.02 J**	0.20 U	0.06 U	0.06 U	0.060 U	**0.32**	**0.32**	**0.30**	**0.56**	**0.060 J**	0.060 U	0.20 U	0.06 U	0.06 U	**0.040 J**	**0.14 J**	**0.66**	**0.6**
Sulfate (mg/L)	NS	**21.1**	**2.8**	**0.68 J**	2.0 U	**0.4 J**	**25.1**	**8.2**	**15.0**	**11.8**	**12.6**	**64.3**	**23.8**	**0.56 J**	**13.4**	**9.0**	**48.1**	**7.2**	**3.5**	**13.6**	**10.8**
Methane (µg/L)	NS	**6.8**	**16.5**	**309**	**817**	**835**	**64**	**3.4**	**9.2**	**16.0**	**17.8**	**14.5**	**1.2**	**1780**	**12.4**	**88.1**	**13.8**	**0.90**	**5.8**	**7.2**	**7.5**
Ethane (µg/L)	NS	**0.5 J**	**1.5**	**19.3**	**35.9**	**29.4**	**7**	**0.25 J**	0.50 U	0.50 U	0.50 U	**2.2**	0.50 U	**17.3**	0.50 U	**0.45 J**	**2.9**	0.50 U	0.50 U	0.50 U	0.50 U
Ethene (µg/L)	NS	0.75 U	**1.8**	**10.3**	**15.6**	**5.4**	**3.6**	**0.48 J**	0.75 U	0.75 U	0.75 U	**1.8**	0.75 U	**4.4**	0.75 U	**0.58 J**	**1.6**	0.75 U	**0.32 J**	0.75 U	0.75 U
Total Organic Carbon (mg/L)	NS	**2.6**	**133**	**98.0**	**22.0**	**5.0**	**8.1**	**30.9**	**2.1**	**0.54 J**	**0.44 J**	**5.9**	**12**	**631**	**3.3**	**3.8**	**7.7**	**18.3**	**1.4**	**0.75 J**	**0.68 J**
Field Parameters																					
Turbidity (NTU)	NS	180	5.92	4.01	5.1	3.91	23.1	9.31	11.7	3.4	51.2	44.7	3.23	4.59	-4	4.4	381	5.99	16.3	38.2	31.91
ORP (MeV)	NS	-234.2	-107.7	-140.7	-238.7	-149.4	-471.2	-126.8	-64.3	44.9	-3.2	-185.4	-8.4	-144.0	-139.4	-63.1	-404	-167.9	-68.4	-10.6	30
Conductivity (mS/cm)	NS	0.239	1.18	0.64	0.261	0.478	0.247	0.303	0.386	0.35	0.648	0.361	0.63	2.28	0.332	0.578	0.287	0.329	0.078	0.324	0.599
Dissolved Oxygen (mg/L)	NS	0.64	1.81	1.77	2.5	1.8	0.92	0.41	2.5	2.99	2.87	6.9	1.12	0.12	0.46	0.62	0.79	0.41	6.63	3.67	4.58
Groundwater Elevation (ft)	NS	226.86	225.45	223.70	229.05	228.93	226.89	225.51	223.80	229.11	229.05	226.73	225.48	223.35	228.66	228.77	226.69	225.46	223.40	228.68	228.81

Notes:
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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).
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

APPENDICES

APPENDIX A: Groundwater Sample Collection Field Forms

65-80

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-15 Date: 9/28/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-15 092817 QA/QC Collected? DUP-2 092817

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	81.80	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	63.49	feet
4. C = Column of Water in Well:	18.31	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	2.9	gal
6. 3(V) = Target Purge Volume	9.0	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

pump set @ ~ 72'

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 Plus/ Hach 2100Q~~ FXDq Sonde

Parameter	Units	Readings							
Time	24 hr	904	909	914	919	924	929	934	939
Water Level (0.33)	feet	63.58	63.58	63.58	63.58	63.58	63.58	63.58	63.58
Volume Purged	gal	0	0.4	0.95	1.5	1.8	2.4	2.8	3.2
Flow Rate	mL/min	100	200	220	220	220	220	220	220
Turbidity (+/- 10%)	NTU	102.38	99.15	65.32	51.12	48.76	51.64	53.2	52.1
Dissolved Oxygen (+/- 10%)	%	95.1	93.8	91.3	88.4	87.5	87.2	87.5	88.2
Dissolved Oxygen (+/- 10%)	mg/L	9.76	9.77	9.54	9.24	9.14	9.11	9.13	9.22
Eh / ORP (+/- 10)	MeV	174.9	145.3	123.8	111.2	103.5	98.3	93.9	92.8
Specific Conductivity (+/- 3%)	mS/cm^c	917.4	908.5	909.1	909.3	912.5	914.0	913.4	914.5
Conductivity (+/- 3%)	mS/cm	725.3	706.5	705.2	705.3	707.3	709.3	710.3	709.4
pH (+/- 0.1)	pH unit	7.40	7.26	7.20	7.17	7.17	7.16	7.16	7.16
Temp (+/- 0.5)	C°	14.63	13.36	13.25	13.25	13.25	13.27	13.34	13.25
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 939

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-16 Date: 9/25/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-16 092517 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	69.56	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.28	feet
4. C = Column of Water in Well:	9.22	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.5	gal
6. 3(V) = Target Purge Volume	4.5	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

Set pump @ 65'

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 Plus/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	1136	1141	1146	1151	1156	1201	1206
Water Level (0.33)	feet	60.30	60.30	60.30	60.31	60.30	60.30	60.30
Volume Purged	gal	0.15	0.60	1.10	1.45	1.65	2.00	2.40
Flow Rate	mL/min	222	222	222	222	222	222	222
Turbidity (+/- 10%)	NTU	100.58	80.49	136.57	159.05	215.96	261.5	198.66
Dissolved Oxygen (+/- 10%)	%	101.2	97.3	96.9	96.5	96.7	96.9	96.9
Dissolved Oxygen (+/- 10%)	mg/L	9.94	9.80	9.8	9.76	9.78	9.80	9.81
Eh / ORP (+/- 10)	MeV	56.1	77.6	81.6	81.1	81.3	81.5	82.2
Specific Conductivity (+/- 3%)	mS/cm^c	1176.7	1164.9	1162.0	1159.5	1159.2	1157.1	1156.9
Conductivity (+/- 3%)	mS/cm	49.7	940.0	932.8	932.4	931.0	929.6	928.3
pH (+/- 0.1)	pH unit	7.57	7.22	7.14	7.14	7.12	7.12	7.12
Temp (+/- 0.5)	C°	16.817	14.945	14.772	14.747	14.693	14.712	14.654
Color	Visual	clear	cloudy	cloudy	cloudy	cloudy	cloudy	cloudy
Odor	Olfactory	None	None	none	none	none	None	none

Comments: Sampled @

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-16 Date: 9/25/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-16 092517 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	69.50	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.28	feet
4. C = Column of Water in Well:	9.22	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.5	gal
6. 3(V) = Target Purge Volume	4.5	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

Set pump @ 65'

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 Plus/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	1211	1216	1221	1226	1231		
Water Level (0.33)	feet	60.30	60.30	60.30	60.30	60.30		
Volume Purged	gal	2.85	3.15	3.60	4.00	4.25		
Flow Rate	mL/min	222	222	222	222	222		
Turbidity (+/- 10%)	NTU	236.00	255.38	162.30	165.99	168.84		
Dissolved Oxygen (+/- 10%)	%	96.7	96.3	98.2	98.3	98.7		
Dissolved Oxygen (+/- 10%)	mg/L	9.80	9.73	9.91	9.93	10.02		
Eh / ORP (+/- 10)	MeV	84.0	86.0	89.9	91.2	93.0		
Specific Conductivity (+/- 3%)	mS/cm^c	1149.9	1144.4	1147.9	1148.8	1143.4		
Conductivity (+/- 3%)	mS/cm	922.9	919.5	926.1	923.4	914.7		
pH (+/- 0.1)	pH unit	7.11	7.12	7.11	7.12	7.12		
Temp (+/- 0.5)	C°	14.668	14.680	14.887	14.780	14.525		
Color	Visual	Cloudy	cloudy	Cloudy	clear	Clear		
Odor	Olfactory	none	none	none	None	none		

Comments:

Sampled @ 1231

100 - 110

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-24 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-24 092617 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	103.40	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	63.62	feet
4. C = Column of Water in Well:	39.78	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	6.5	gal
6. 3(V) = Target Purge Volume	19.5	gal

Pump Set @ 101.5'

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 Plus/ Hach 2100Q~~ EXO_2 Sonde

Parameter	Units	Readings						
Time	24 hr	1055	1100	1105	1110	1115	1120	1125
Water Level (0.33)	feet	63.61	63.61	63.61	63.60	63.60	63.60	63.60
Volume Purged	gal	0	0.1	0.2	0.3	0.45	0.50	0.60
Flow Rate	mL/min	100	95	95	95	95	95	95
Turbidity (+/- 10%)	NTU	133.93	137.99	136.99	129.7	113.04	102.32	94.13
Dissolved Oxygen (+/- 10%)	%	73.4	40.9	36.7	20.0	9.6	6.3	4.2
Dissolved Oxygen (+/- 10%)	mg/L	7.20	3.75	3.35	2.00	0.90	0.59	0.39
Eh / ORP (+/- 10)	MeV	-82.6	-123.6	-127.5	-134.0	-157.8	-162.7	-167.0
Specific Conductivity (+/- 3%)	mS/cm^c	1305.8	1477.0	1490.4	1534.4	1575.1	1580.1	1591.1
Conductivity (+/- 3%)	mS/cm	1178.0	1317.2	1334.0	1374.1	1383.4	1383.4	1385.2
pH (+/- 0.1)	pH unit	7.58	7.46	7.42	7.38	7.40	7.40	7.40
Temp (+/- 0.5)	C°	19.87	19.23	19.51	19.55	18.67	18.47	18.21
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	No	No	No	No

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-24 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-24 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	(See pg 1)	feet
2. D = Riser Diameter (I.D.):	0.17	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 Plus/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	1130	1135	1140				
Water Level (0.33)	feet	63.60	63.60	63.60				
Volume Purged	gal	0.70	0.85	0.90				
Flow Rate	mL/min	95	95	95				
Turbidity (+/- 10%)	NTU	86.65	88.51	88.37				
Dissolved Oxygen (+/- 10%)	%	3.6	3.4	3.3				
Dissolved Oxygen (+/- 10%)	mg/L	0.34	0.31	0.30				
Eh / ORP (+/- 10)	MeV	-168.0	-169.7	-169.9				
Specific Conductivity (+/- 3%)	mS/cm^c	1596.1	1605.5	1606.5				
Conductivity (+/- 3%)	mS/cm	13869	1390.1	13961				
pH (+/- 0.1)	pH unit	7.40	7.40	7.40				
Temp (+/- 0.5)	C°	18.13	18.27	18.28				
Color	Visual	clear	clear	clear				
Odor	Olfactory	No	No	No				

Comments: Sampled @ 1140

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-26 Date: 9/25/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-26 092517 QA/QC Collected? Yes DUP-1 092517

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	106.70	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	58.35	feet
4. C = Column of Water in Well:	50.35	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	8.2	gal
6. 3(V) = Target Purge Volume	24	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

Sol pump @ 104.5'

100-110

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 EXO2 ~~YSI Pro Plus~~/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	1326	1331	1336	1341	1346	1351	1356
Water Level (0.33)	feet	58.35	58.35	58.35	58.35	58.34	58.34	58.35
Volume Purged	gal	0	0.20	0.50	0.70	0.90	1.1	1.30
Flow Rate	mL/min	222	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	31.6	34.96	42.8	41.31	43.61	48.65	53.79
Dissolved Oxygen (+/- 10%)	%	60.5	33.3	13.3	8.4	5.4	4.3	3.9
Dissolved Oxygen (+/- 10%)	mg/L	5.40	3.07	1.40	0.79	0.51	0.40	0.36
Eh / ORP (+/- 10)	MeV	-48.8	-88.1	-110.1	-125.5	-136.3	-138.6	-141.2
Specific Conductivity (+/- 3%)	mS/cm[c]	985.7	1271.3	1392.8	1422.3	1454.3	1463	1484.0
Conductivity (+/- 3%)	mS/cm	859.5	1128.6	1213.1	1239.1	1260.0	1274.4	1318.1
pH (+/- 0.1)	pH unit	7.71	7.53	7.49	7.47	7.45	7.42	7.42
Temp (+/- 0.5)	C°	21.26	18.52	18.27	18.29	18.00	18.09	18.11
Color	Visual	clear	Clear	Clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-26 Date: 9/20/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-26 092517 QA/QC Collected? D.P-1 092517

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	(see pg. 1)	feet
2. D = Riser Diameter (I.D.):	0.17	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 Plus/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	1401	1406	1411				
Water Level (0.33)	feet	58.35	58.35	58.35				
Volume Purged	gal	1.25	1.50	1.70				
Flow Rate	mL/min	110	110	110				
Turbidity (+/- 10%)	NTU	57.86	60.11	60.96				
Dissolved Oxygen (+/- 10%)	%	3.7	3.6	3.5				
Dissolved Oxygen (+/- 10%)	mg/L	0.35	0.35	0.33				
Eh / ORP (+/- 10)	MeV	-139.5	-138.7	-138.7				
Specific Conductivity (+/- 3%)	mS/cm[c]	1508.4	1542.1	1561.3				
Conductivity (+/- 3%)	mS/cm	1330.4	1338.1	1347.1				
pH (+/- 0.1)	pH unit	7.43	7.41	7.39				
Temp (+/- 0.5)	C°	18.94	18.50	18.03				
Color	Visual	clear	clear	clear				
Odor	Olfactory	None	None	None				

Comments:

Sampled @ 1411

67-72

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-28 Date: 9/27/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-28 092717 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	71.88	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	63.06	feet
4. C = Column of Water in Well:	8.82	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.44	gal
6. 3(V) = Target Purge Volume	4.31	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

Pump set ~ ~~68~~ 69'

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 Plus/ Hach 2100Q~~ EXO$_2$ Sonde

Parameter	Units	Readings							
Time	24 hr	1225	1230	1235	1240	1245	1250	1255	1300
Water Level (0.33)	feet	63.14	63.14	63.14	63.14	63.14	63.14	63.14	63.14
Volume Purged	gal	0	0.6	1.0	1.4	1.6	2.0	2.5	2.8
Flow Rate	mL/min	110	110	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	2.88	5.94	18.81	23.33	38.84	57.45	60.0	61.1
Dissolved Oxygen (+/- 10%)	%	49.7	43.4	42.4	42.2	42.1	42.6	42.9	43.0
Dissolved Oxygen (+/- 10%)	mg/L	4.60	4.27	4.21	4.20	4.19	4.24	4.28	4.30
Eh / ORP (+/- 10)	MeV	-30.3	-42.9	+17.7	18.4	21.1	25.1	28.6	32.1
Specific Conductivity (+/- 3%)	mS/cm[c]	1286.2	1293.5	1292.1	1292.3	1288.1	1287.8	1286.9	1283.2
Conductivity (+/- 3%)	mS/cm	1136.0	1069.5	1057.1	1056.0	1051.7	1055.5	1049.6	1044.5
pH (+/- 0.1)	pH unit	7.55	7.05	6.91	6.90	6.88	6.88	6.87	6.87
Temp (+/- 0.5)	C°	18.89	15.93	15.48	15.42	15.39	15.54	15.34	15.20
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None	None

Comments: Sampled @ 1300

67-72

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-29 Date: 9/27/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-29 092717 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	71.22	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.94	feet
4. C = Column of Water in Well:	8.28	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.35	gal
6. 3(V) = Target Purge Volume	4.04	gal

Set pump ~ 69'

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 Plus/ Hach 2100Q~~ EXO$_2$ Sonde

Parameter	Units	Readings								
Time	24 hr	1330	1335	1340	1345	1350	1355	1400	1405	1410
Water Level (0.33)	feet	62.95	62.95	62.95	62.95	62.95	62.95	62.95	62.95	62.95
Volume Purged	gal	0	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2
Flow Rate	mL/min	225	225	230	230	230	230	230	230	230
Turbidity (+/- 10%)	NTU	32.47	32.86	35.08	46.54	52.35	63.98	64.1	64.8	65.1
Dissolved Oxygen (+/- 10%)	%	70.7	65.3	64.1	63.6	62.8	62.5	62.8	63.0	63.0
Dissolved Oxygen (+/- 10%)	mg/L	6.81	6.58	6.50	6.48	6.38	6.38	6.41	6.43	6.46
Eh / ORP (+/- 10)	MeV	-19.5	7.7	24.3	31.1	35.8	39.1	40.3	41.7	41.7
Specific Conductivity (+/- 3%)	mS/cm^c	1356.1	1344.4	1334.4	1335.7	1333.4	1334.8	1333.4	1334.1	1334.1
Conductivity (+/- 3%)	mS/cm	1175.4	1083.4	1067.7	1062.8	1065.4	1058.9	1060.0	1058.8	1058.
pH (+/- 0.1)	pH unit	7.34	7.09	6.98	6.94	6.93	6.91	6.91	6.91	6.91
Temp (+/- 0.5)	C°	18.02	14.89	14.54	14.30	14.48	14.17	14.26	14.28	14.28
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	No	No	No

Comments:

Sampled @ 1410

*

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-30 Date: 9/27/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-30 092717 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	(see page 1)	feet
2. D = Riser Diameter (I.D.):	0.17	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 Plus/ Hach 2100Q~~ EXO2 Sonde

Parameter	Units	Readings					
Time	24 hr	910	915	920	925	930	935
Water Level (0.33)	feet	62.64	62.65	62.65	62.65	62.65	62.65
Volume Purged	gal	1.70	1.90	2.20	2.30	2.40	2.50
Flow Rate	mL/min	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	25.20	38.24	45.37	63.30	68.80	69.10
Dissolved Oxygen (+/- 10%)	%	1.1	0.9	0.8	0.7	0.7	0.7
Dissolved Oxygen (+/- 10%)	mg/L	0.11	0.09	0.08	0.07	0.07	0.06
Eh / ORP (+/- 10)	MeV	-208.9	-209.9	-210.8	-210.6	-211.6	-212.2
Specific Conductivity (+/- 3%)	mS/cm[c]	461.6	484.7	493.7	506.1	514.9	518.7
Conductivity (+/- 3%)	mS/cm	367.6	384.1	389.0	402.0	408.9	412.2
pH (+/- 0.1)	pH unit	8.07	8.04	8.04	8.03	8.01	8.01
Temp (+/- 0.5)	C°	14.09	14.10	14.22	14.20	14.22	14.25
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None

Comments: Sampled @ 935

82-92

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-30 Date: 9/27/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-30 092717 QA/QC Collected? NO

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	91.44	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.59	feet
4. C = Column of Water in Well:	28.85	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	4.70	gal
6. 3(V) = Target Purge Volume	14.1	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

pump set ~ 87'

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 Plus/ Hach 2100Q~~ EXO, Sonde

Parameter	Units	Readings						
Time	24 hr	835	840	845	850	855	900	905
Water Level (0.33)	feet	62.65	62.65	62.65	62.64	62.64	62.64	62.64
Volume Purged	gal	0	0.15	0.30	0.40	0.55	0.75	0.90
Flow Rate	mL/min	110	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	5.94	5.94	9.60	9.60	13.47	17.77	21.96
Dissolved Oxygen (+/- 10%)	%	20.3	6.1	2.1	2.0	1.8	1.5	1.2
Dissolved Oxygen (+/- 10%)	mg/L	2.05	0.62	0.21	0.20	0.18	0.15	0.12
Eh / ORP (+/- 10)	MeV	-95.3	-156.2	-101.3	-101.5	[redacted]	-208.5	-208.6
Specific Conductivity (+/- 3%)	mS/cm[c]	419.6	410.7	416.3	416.1	419.6	441.1	456.1
Conductivity (+/- 3%)	mS/cm	339.7	328.3	330.1	330.5	333.4	350.0	361.2
pH (+/- 0.1)	pH unit	8.27	8.20	8.17	8.17	8.15	8.12	8.08
Temp (+/- 0.5)	C°	15.17	14.49	14.20	14.22	14.19	14.17	14.11
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: Sampled @ 935

82-92

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-31 Date: 09/27/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-31 092717 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	91.73	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	62.43	feet
4. C = Column of Water in Well:	29.30	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	4.75	gal
6. 3(V) = Target Purge Volume	14.2	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

Pump set @ ~ 87'

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 Plus/ Hach 2100Q~~ EXO, Sonde

Parameter	Units	Readings						
Time	24 hr	1010	1015	1020	1025	1030	1035	1040
Water Level (0.33)	feet	62.61	62.61	62.61	62.61	62.61	62.61	62.61
Volume Purged	gal	0	0.25	0.60	0.75	0.90	1.10	1.40
Flow Rate	mL/min	110	110	110	110	110	110	110
Turbidity (+/- 10%)	NTU	10.37	11.83	11.27	9.31	8.76	8.63	8.60
Dissolved Oxygen (+/- 10%)	%	56.9	10.6	3.9	2.1	1.6	1.5	1.3
Dissolved Oxygen (+/- 10%)	mg/L	5.46	1.05	0.39	0.21	0.16	0.14	0.13
Eh / ORP (+/- 10)	MeV	-120.2	-150.8	-165.1	-167.1	-171.3	-171.1	-174.4
Specific Conductivity (+/- 3%)	mS/cm[c]	655.9	654.4	651.3	647.6	649.6	649.8	650.8
Conductivity (+/- 3%)	mS/cm	558.7	539.7	530.2	525.2	525.5	525.1	526.9
pH (+/- 0.1)	pH unit	7.93	7.75	7.69	7.66	7.64	7.63	7.63
Temp (+/- 0.5)	C°	17.24	16.82	15.28	15.10	15.02	15.00	15.03
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: Sampled @ 1040

Monitoring Well Purging / Sampling Form

82-92

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-82 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-82 092617 QA/QC Collected? NO

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	91.60	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.82	feet
4. C = Column of Water in Well:	30.78	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	5.01	gal
6. 3(V) = Target Purge Volume	15.0	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

Pump Set ~ 87'

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 Plus/ Hach 2100Q~~ EXO$_2$ Sonde

Parameter	Units	Readings							
Time	24 hr	1215	1220	1225	1230	1235	1240	1245	1250
Water Level (0.33)	feet	60.80	60.81	60.80	60.80	60.80	60.80	60.80	60.80
Volume Purged	gal	0	0.4	0.6	0.80	1.00	1.20	1.30	1.50
Flow Rate	mL/min	105	130	130	130	130	130	130	130
Turbidity (+/- 10%)	NTU	5.65	4.42	3.61	3.70	3.79	3.90	3.93	3.91
Dissolved Oxygen (+/- 10%)	%	18.0	6.5	9.8	15.8	16.2	18.0	18.0	18.1
Dissolved Oxygen (+/- 10%)	mg/L	1.74	0.63	0.97	1.57	1.62	1.79	1.79	1.80
Eh / ORP (+/- 10)	MeV	-140.2	-156.9	-156.0	-148.4	-149.7	-143.9	-148.3	-149.4
Specific Conductivity (+/- 3%)	mS/cm[c]	596.0	595.4	595.1	594.1	594.1	589.6	587.2	584.0
Conductivity (+/- 3%)	mS/cm	503.9	495.1	489.5	486.4	486.4	482.7	480.7	478.1
pH (+/- 0.1)	pH unit	7.97	7.77	7.71	7.66	7.66	7.65	7.65	7.65
Temp (+/- 0.5)	C°	16.91	16.16	15.71	15.56	15.56	15.50	15.49	15.51
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	NO	No	NO	NO	No	No

Comments:

Sampled @ 1250

82-92

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-33 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-33 092617 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	92.30	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	60.82	feet
4. C = Column of Water in Well:	31.48	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	5.1	gal
6. 3(V) = Target Purge Volume	15.3	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

Pump Set ~ 87'

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 Plus/ Hach 2100Q~~ EXO_2 Sonde

Parameter	Units	Readings						
Time	24 hr	1336	1341	1346	1351	1356	1401	1406
Water Level (0.33)	feet	61.01	61.01	61.01	61.01	61.01	61.01	61.00
Volume Purged	gal	0	0.4	0.60	0.80	1.00	1.20	1.45
Flow Rate	mL/min	95	95	95	95	95	95	95
Turbidity (+/- 10%)	NTU	27.41	31.17	34.94	35.44	47.55	50.11	51.20
Dissolved Oxygen (+/- 10%)	%	61.4	43.0	33.8	31.9	30.6	29.8	29.0
Dissolved Oxygen (+/- 10%)	mg/L	5.74	4.17	3.33	3.15	3.02	2.96	2.87
Eh / ORP (+/- 10)	MeV	-43.3	-24.7	-14.6	-10.6	-9.9	-7.0	-3.2
Specific Conductivity (+/- 3%)	mS/cm[c]	792.6	791.3	792.1	789.1	788.4	789.7	791.0
Conductivity (+/- 3%)	mS/cm	693.7	666.4	655.6	651.3	650.3	647.9	648.4
pH (+/- 0.1)	pH unit	7.72	7.61	7.55	7.53	7.52	7.52	7.51
Temp (+/- 0.5)	C°	18.46	16.74	15.97	15.84	15.86	15.59	15.59
Color	Visual	cloudy	cloudy	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	No	No	No	No

Comments: Sampled @ 1406

82-92

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-34 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-34 092617 QA/QC Collected? MS/MSD

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	88.20	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	58.28	feet
4. C = Column of Water in Well:	29.92	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	4.87	gal
6. 3(V) = Target Purge Volume	14.6	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

Pump set @ 85'

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~~ EXO2 Plus/ Hach 2100Q

Parameter	Units	Readings						
Time	24 hr	819	824	829	834	839	844	849
Water Level (0.33)	feet	58.20	58.32	58.32	58.32	58.32	58.32	58.32
Volume Purged	gal	0	0.3	0.5	0.70	0.90	1.10	1.30
Flow Rate	mL/min	134	134	134	134	134	134	134
Turbidity (+/- 10%)	NTU	2.21	6.62	5.13	4.64	4.51	4.42	4.40
Dissolved Oxygen (+/- 10%)	%	49.6	17.8	9.4	7.7	7.0	6.8	6.3
Dissolved Oxygen (+/- 10%)	mg/L	4.83	1.77	0.93	0.77	0.70	0.68	0.62
Eh / ORP (+/- 10)	MeV	135.5	15.5	-24.2	-39.4	-44.3	-54.1	-63.1
Specific Conductivity (+/- 3%)	mS/cm[c]	726.7	703.6	701.3	701.7	701.7	701.5	700.1
Conductivity (+/- 3%)	mS/cm	608.5	580.9	576.7	575.4	575.9	577.5	578.0
pH (+/- 0.1)	pH unit	8.03	7.57	7.34	7.30	7.27	7.26	7.26
Temp (+/- 0.5)	C°	16.48	15.87	15.66	15.58	15.53	15.75	15.82
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: # Extra Volume Collected by for MS/MSD

82-92

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-35 Date: 9/26/17

Samplers: Ross McCredy and Joe Scalo

Sample Number: MW-35 092617 QA/QC Collected? No

Purging / Sampling Method: Bladder Pump/Low Flow

1. L = Well Depth:	92.28	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	58.15	feet
4. C = Column of Water in Well:	34.13	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	5.6	gal
6. 3(V) = Target Purge Volume	16.7	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

Pump Set ~ 87'

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 EXO2 Sonde / ~~YSI Pro Plus~~/ ~~Hach 2100Q~~

Parameter	Units	Readings						
Time	24 hr	935	940	945	950	955	1000	1005
Water Level (0.33)	feet	58.24	58.24	58.24	58.24	58.24	58.24	58.24
Volume Purged	gal	0	0.20	0.40	0.60	0.80	1.00	1.10
Flow Rate	mL/min	115	115	115	115	115	115	115
Turbidity (+/- 10%)	NTU	46.69	50.27	42.61	40.17	34.93	32.61	31.91
Dissolved Oxygen (+/- 10%)	%	75.9	52.2	48.0	47.1	46.6	46.2	46.4
Dissolved Oxygen (+/- 10%)	mg/L	7.18	5.05	4.67	4.62	4.59	4.55	4.58
Eh / ORP (+/- 10)	MeV	1.8	11.6	19.0	20.7	25.1	28.1	30.0
Specific Conductivity (+/- 3%)	mS/cm[c]	696.5	719.2	726.5	726.1	725.2	723.1	725.5
Conductivity (+/- 3%)	mS/cm	602.6	607.3	609.4	605.0	599.9	598.8	599.6
pH (+/- 0.1)	pH unit	7.75	7.59	7.51	7.50	7.48	7.47	7.46
Temp (+/- 0.5)	C°	18.42	16.99	16.56	16.27	15.95	16.00	15.91
Color	Visual	cloudy	cloudy	cloudy	cloudy	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: Sampled @ 1005

APPENDIX B: Field Calibration Forms

Calibration Log

Date:	9/25/17	Time:	10:00		Instrument:	EXO2 Sonde		
PH_1	7.08	->	7.00	ORP	211.6	->	220	
PH_2	9.97	->	10.0	Cond.	846.5	->	1412.7	
PH_3	4.03	->	4.00	Turb.	0.2	->	0.0	
Date:	9/26/17	Time:	730		Instrument:	EXO2 Sonde		
PH_1	7.04	->	7.00	ORP	222.8	->	220	
PH_2	9.91	->	10.00	Cond.	1420.1	->	1413.0	
PH_3	4.11	->	4.00	Turb.	0.1	->	0.0	
Date:	9/27	Time:	730		Instrument:	EXO2 Sonde		
PH_1	10.08	->	10.00	ORP	224.4	->	220.0	
PH_2	7.02	->	7.00	Cond.	1433.1	->	1413.1	
PH_3	4.03	->	4.00	Turb.	0.29	->	0.00	
Date:	9/28	Time:	0800		Instrument:	EXO2 Sonde		
PH_1	10.01	->	10.00	ORP	217.9	->	220.0	
PH_2	7.10	->	7.00	Cond.	1430.3	->	1413.1	
PH_3	4.01	->	4.00	Turb.	0.02	->	0.01	
Date:		Time:			Instrument:			
PH_1		->		ORP		->		
PH_2		->		Cond.		->		
PH_3		->		Turb.		->		
Date:		Time:			Instrument:			
PH_1		->		ORP		->		
PH_2		->		Cond.		->		
PH_3		->		Turb.		->		

APPENDIX C: Laboratory Reports

ALS Environmental

34 Dogwood Lane ▪ 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: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

October 16, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2264517**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN025|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, September 26, 2017.

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. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

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

CC: Ms. Kelly Lurie , Mr. Scott Underhill

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

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

October 16, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2264517**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN025|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

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

CC: Ms. Kelly Lurie , Mr. Scott Underhill

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

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2264517001	MW-16 092517	Ground Water	9/25/2017 12:31	9/26/2017 09:23	Collected by Client
2264517002	Dup-1 092517	Ground Water	9/25/2017 12:31	9/26/2017 09:23	Collected by Client
2264517003	MW-20 092517	Ground Water	9/25/2017 14:11	9/26/2017 09:23	Collected by Client
2264517004	Trip Blank	Ground Water	9/26/2017 09:23	9/26/2017 09:23	Collected by Client

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2264517 ASN025|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 incurbator and the "Analyzed" value is the date/time out the incubator.

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

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517001** Date Collected: 9/25/2017 12:31 Matrix: Ground Water

Sample ID: **MW-16 092517** Date Received: 9/26/2017 09:23

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			9/28/17 14:56	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,1,1-Trichloroethane	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 14:56	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			9/28/17 14:56	TMP	H
4-Bromofluorobenzene (S)	103		%	85 - 114			SW846 8260C			9/28/17 14:56	TMP	H
Dibromofluoromethane (S)	109		%	80 - 119			SW846 8260C			9/28/17 14:56	TMP	H
Toluene-d8 (S)	106		%	89 - 112			SW846 8260C			9/28/17 14:56	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175			9/28/17 09:17	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175			9/28/17 09:17	EGO	A
Methane	0.23J	J	ug/L	0.50	0.25	0.13	RSK 175			9/28/17 09:17	EGO	A
WET CHEMISTRY												
Alkalinity, Total	480	1	mg/L	5	5	0.8	S2320B-97			9/28/17 21:30	MSA	F
Chloride	4.3		mg/L	2.0	0.50	0.16	EPA 300.0			9/27/17 11:48	CHW	E
Nitrate-N	1.4		mg/L	0.20	0.060	0.020	EPA 300.0			9/27/17 11:48	CHW	E
Sulfate	64.8		mg/L	2.0	0.50	0.20	EPA 300.0			9/27/17 11:48	CHW	E
Total Organic Carbon (TOC)	0.64J	J	mg/L	1.0	0.50	0.18	S5310B-00			10/10/17 10:45	PAG	C

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517002** Date Collected: 9/25/2017 12:31 Matrix: Ground Water

Sample ID: **Dup-1 092517** Date Received: 9/26/2017 09:23

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			9/28/17 15:14	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:14	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118			SW846 8260C			9/28/17 15:14	TMP	H
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			9/28/17 15:14	TMP	H
Dibromofluoromethane (S)	111		%	80 - 119			SW846 8260C			9/28/17 15:14	TMP	H
Toluene-d8 (S)	108		%	89 - 112			SW846 8260C			9/28/17 15:14	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175			9/28/17 09:40	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175			9/28/17 09:40	EGO	A
Methane	410		ug/L	0.50	0.25	0.13	RSK 175			9/28/17 09:40	EGO	A
WET CHEMISTRY												
Alkalinity, Total	339	1	mg/L	5	5	0.8	S2320B-97			9/28/17 21:43	MSA	F
Chloride	89.6		mg/L	2.0	0.50	0.16	EPA 300.0			9/27/17 12:07	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			9/27/17 12:07	CHW	E
Sulfate	6.2		mg/L	2.0	0.50	0.20	EPA 300.0			9/27/17 12:07	CHW	E
Total Organic Carbon (TOC)	52.8		mg/L	10.0	5.0	1.8	S5310B-00			10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517003** Date Collected: 9/25/2017 14:11 Matrix: Ground Water

Sample ID: **MW-20 092517** Date Received: 9/26/2017 09:23

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			9/28/17 15:32	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			9/28/17 15:32	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			9/28/17 15:32	TMP	H
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C			9/28/17 15:32	TMP	H
Dibromofluoromethane (S)	108		%	80 - 119			SW846 8260C			9/28/17 15:32	TMP	H
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C			9/28/17 15:32	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175			9/28/17 10:13	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175			9/28/17 10:13	EGO	A
Methane	444		ug/L	0.50	0.25	0.13	RSK 175			9/28/17 10:13	EGO	A
WET CHEMISTRY												
Alkalinity, Total	317	1	mg/L	5	5	0.8	S2320B-97			9/28/17 21:55	MSA	F
Chloride	86.2		mg/L	2.0	0.50	0.16	EPA 300.0			9/27/17 12:27	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			9/27/17 12:27	CHW	E
Sulfate	5.9		mg/L	2.0	0.50	0.20	EPA 300.0			9/27/17 12:27	CHW	E
Total Organic Carbon (TOC)	52.1		mg/L	10.0	5.0	1.8	S5310B-00			10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517004** Date Collected: 9/26/2017 09:23 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/26/2017 09:23

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		9/28/17 12:12	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118	SW846 8260C		9/28/17 12:12	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		9/28/17 12:12	TMP	A
Dibromofluoromethane (S)	108		%	80 - 119	SW846 8260C		9/28/17 12:12	TMP	A
Toluene-d8 (S)	109		%	89 - 112	SW846 8260C		9/28/17 12:12	TMP	A

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2264517001	1	MW-16 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264517002	1	Dup-1 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264517003	1	MW-20 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/46806 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 2264517001, 2264517002, 2264517003

METHOD BLANK: 2615368

Parameter	Blank Result	Units	Reporting Limit
Ethane	0.50U	ug/L	1.0
Ethene	0.75U	ug/L	1.5
Methane	0.19J	ug/L	0.50

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/44611 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2264517001, 2264517002, 2264517003, 2264517004

METHOD BLANK: 2615774

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)	106	%	81 - 118
4-Bromofluorobenzene (S)	103	%	85 - 114
Dibromofluoromethane (S)	108	%	80 - 119
Toluene-d8 (S)	107	%	89 - 112

LABORATORY CONTROL SAMPLE: 2615775

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	134	ug/L	20	26.7	72 - 136
1,1-Dichloroethane	122	ug/L	20	24.4	77 - 125
1,2-Dichloroethane	114	ug/L	20	22.9	73 - 128
1,1-Dichloroethene	136*	ug/L	20	27.2	71 - 131
cis-1,2-Dichloroethene	114	ug/L	20	22.7	78 - 123
trans-1,2-Dichloroethene	128*	ug/L	20	25.7	75 - 124
1,1,1,2-Tetrachloroethane	111	ug/L	20	22.1	78 - 124
1,1,2,2-Tetrachloroethane	105	ug/L	20	20.9	71 - 121
Tetrachloroethene	115	ug/L	20	23.0	74 - 129
Toluene	110	ug/L	20	22.0	80 - 121
1,1,1-Trichloroethane	128	ug/L	20	25.7	74 - 131
1,1,2-Trichloroethane	105	ug/L	20	21.1	80 - 119
Trichloroethene	119	ug/L	20	23.9	79 - 123

QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	102	ug/L	20	20.5	58 - 137
1,2-Dichloroethane-d4 (S)	99.6	%			81 - 118
4-Bromofluorobenzene (S)	106	%			85 - 114
Dibromofluoromethane (S)	105	%			80 - 119
Toluene-d8 (S)	100	%			89 - 112

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/193795 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2264517001, 2264517002, 2264517003

METHOD BLANK: 2615306

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

SAMPLE DUPLICATE: 2615311 ORIGINAL: 2264460001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	263.9426	mg/L	255.79555	3.14	20

METHOD BLANK: 2615314

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

SAMPLE DUPLICATE: 2615315 ORIGINAL: 2264460002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	421.56116	mg/L	447.43155	5.95	20

METHOD BLANK: 2615318

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

SAMPLE DUPLICATE: 2615319 ORIGINAL: 2264460003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	1090.4973	mg/L	1043.854	4.37	20

METHOD BLANK: 2615322

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

SAMPLE DUPLICATE: 2615323 ORIGINAL: 2264432001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	47.91453	mg/L	44.71606	6.91	20

METHOD BLANK: 2615326

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

SAMPLE DUPLICATE: 2615327 ORIGINAL: 2264460005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	205.37218	mg/L	195.18312	5.09	20

METHOD BLANK: 2615330

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

SAMPLE DUPLICATE: 2615331 ORIGINAL: 2264568001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	41.26645	mg/L	40.90023	.89	20

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 2615334

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

SAMPLE DUPLICATE: 2615335 ORIGINAL: 2264605001

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

METHOD BLANK: 2615627

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

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/193800 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2264517001, 2264517002, 2264517003

LABORATORY CONTROL SAMPLE: 2615433

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	94.7	mg/L	20	18.9	87 - 111
Nitrate-N	96.8	mg/L	2.5	2.4	88 - 111
Sulfate	98	mg/L	20	19.6	87 - 112

METHOD BLANK: 2615436

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

METHOD BLANK: 2615438

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

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/194385 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2264517001, 2264517002

METHOD BLANK: 2622716

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

LABORATORY CONTROL SAMPLE: 2622717

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	94.1	mg/L	1	0.94J	85 - 115

MATRIX SPIKE: 2622718 DUPLICATE: 2622719 ORIGINAL: 2264430007

****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)	1.508	mg/L	6	7.508	7.546	100	101	85 - 115	.5	20

MATRIX SPIKE: 2622720 DUPLICATE: 2622721 ORIGINAL: 2264513001

****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)	.042	mg/L	6	6.691	6.289	111	104	85 - 115	6.19	20

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QUALITY CONTROL DATA

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/194457 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2264517002, 2264517003

METHOD BLANK: 2623621

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

LABORATORY CONTROL SAMPLE: 2623622

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	94.1	mg/L	1	0.94J	85 - 115

MATRIX SPIKE: 2623623 DUPLICATE: 2623624 ORIGINAL: 2264945001

****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)	2.503	mg/L	6	8.257	8.326	95.9	97.1	85 - 115	.83	20

MATRIX SPIKE: 2623625 DUPLICATE: 2623626 ORIGINAL: 2264848002

****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)	1.273	mg/L	6	7.324	7.321	101	101	85 - 115	.04	20

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

QUALITY CONTROL PARAMETER QUALIFIERS

Lab ID	#	Sample Type	Analytical Method	Analyte
2615775	1	Lab Control Standard	SW846 8260C	1,1-Dichloroethene

The QC sample type LCS for method SW846 8260C was outside the control limits for the analyte 1,1-Dichloroethene. The % Recovery was reported as 136 and the control limits were 71 to 131.

2615775	2	Lab Control Standard	SW846 8260C	trans-1,2-Dichloroethene

The QC sample type LCS for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 128 and the control limits were 75 to 124.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2264517001	MW-16 092517			S2320B-97	WETC/193795
2264517002	Dup-1 092517			S2320B-97	WETC/193795
2264517003	MW-20 092517			S2320B-97	WETC/193795
2264517001	MW-16 092517			RSK 175	SVGC/46806
2264517002	Dup-1 092517			RSK 175	SVGC/46806
2264517003	MW-20 092517			RSK 175	SVGC/46806
2264517001	MW-16 092517			EPA 300.0	WETC/193800
2264517002	Dup-1 092517			EPA 300.0	WETC/193800
2264517003	MW-20 092517			EPA 300.0	WETC/193800
2264517001	MW-16 092517			SW846 8260C	VOMS/44611
2264517002	Dup-1 092517			SW846 8260C	VOMS/44611
2264517003	MW-20 092517			SW846 8260C	VOMS/44611
2264517004	Trip Blank			SW846 8260C	VOMS/44611
2264517001	MW-16 092517			S5310B-00	WETC/194385
2264517002	Dup-1 092517			S5310B-00	WETC/194457
2264517003	MW-20 092517			S5310B-00	WETC/194457

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Page 1 of 1

Courier: Fed Ex

Tracking #: 6470831020 29

* 2 2 6 4 5 1 7 *

Co. Name: AECOM / John Santacroce

Contact (Report to): John Santacroce Phone: 518 951 2200

Address: 40 British American BLVD
Latham, NY

Bill to (if different than Report to): PO#: 60441641

Project Name/#: Scotia Navy Dept ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ -Y John.Santacroce@aecom.com
Fax? ☐ -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260C	TOC	RSKITS	Cl, SO4, NO3	Alkalinity						
1 MW-16 092517		9/25/17	1231	G	GW	2x	2x	2x	1x	x1						
2 DUP-1 092517		9/25/17	-	G	GW	2x	2x	2x	1x	x1						
3 MW-20 092517		9/25/17	1411	G	GW	2x	2x	2x	1x	x1						
4 Trip Blank		-	-	-	-	2x										
5																
6																
7																
8																

***Container Type: H H H
***Container Size:
*** Preservative: HCL HCL HCL - -

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

Cooler Temp: 3°C
Therm. ID: 309
No. of Coolers:
Notes:

Circle appropriate Y or N.	Container in good condition?	COC/Labels complete/accurate?	Received on ice?	(if present) Seals intact?	Custody seals Present?
Correct containers?	N Y				
Correct sample volume?	N Y				
Correct preservation?	N Y				
Headspace/Volatiles?	N Y	N Y	N Y	N Y	N Y

SAMPLED BY (Please Print): Ric McCurdy

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ric McCurdy	9/27/17	330	2 Brian McGuirk	9/27/17	330
3 Brian McGuirk	9/27/17	1350	4		
5			6	9/28	0823
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ other

EDDs Required? ☐ If yes, format type: AECOM EQUIS

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐ ⇨ Enter PWSID No.

State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐ Other

DOD Criteria Required?

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

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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October 18, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2264940**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN026|2015SCOTIA NAVY-PO 6044**

Dear Mr. Santacroce:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, September 27, 2017.

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. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

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

CC: Ms. Kelly Lurie , Mr. Scott Underhill

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

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

October 18, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2264940**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN026|2015SCOTIA NAVY-PO 6044**

Dear Mr. Santacroce:

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

CC: Ms. Kelly Lurie , Mr. Scott Underhill

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

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2264940001	MW-34 092617	Ground Water	9/26/2017 08:49	9/27/2017 08:44	Collected by Client
2264940002	MW-35 092617	Ground Water	9/26/2017 10:05	9/27/2017 08:44	Collected by Client
2264940003	EB-1 092617	Ground Water	9/26/2017 18:20	9/27/2017 08:44	Collected by Client
2264940004	MW-24 092617	Ground Water	9/26/2017 11:40	9/27/2017 08:44	Collected by Client
2264940005	MW-32 092617	Ground Water	9/26/2017 12:50	9/27/2017 08:44	Collected by Client
2264940006	MW-33 092617	Ground Water	9/26/2017 14:06	9/27/2017 08:44	Collected by Client
2264940007	Trip Blank	Ground Water	9/27/2017 08:44	9/27/2017 08:44	Collected by Client

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SAMPLE SUMMARY

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

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 incurbator and the "Analyzed" value is the date/time out the incubator.

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: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940001** Date Collected: 9/26/2017 08:49 Matrix: Ground Water

Sample ID: **MW-34 092617** Date Received: 9/27/2017 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		10/6/17 13:26	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Trichloroethene	29.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.7		%	81 - 118			SW846 8260C		10/6/17 13:26	TMP	A
4-Bromofluorobenzene (S)	91.5		%	85 - 114			SW846 8260C		10/6/17 13:26	TMP	A
Dibromofluoromethane (S)	94.1		%	80 - 119			SW846 8260C		10/6/17 13:26	TMP	A
Toluene-d8 (S)	93.8		%	89 - 112			SW846 8260C		10/6/17 13:26	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.45J	J	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 00:12	EGO	C
Ethene	0.58J	J	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 00:12	EGO	C
Methane	88.1		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 00:12	EGO	C
WET CHEMISTRY											
Alkalinity, Total	197	1	mg/L	5	5	0.8	S2320B-97		9/29/17 23:51	MSA	H
Chloride	11.7		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 07:08	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 07:08	CHW	G
Sulfate	9.0		mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 07:08	CHW	G
Total Organic Carbon (TOC)	3.8		mg/L	2.0	1.0	0.37	S5310B-00		10/10/17 10:45	PAG	E

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940002** Date Collected: 9/26/2017 10:05 Matrix: Ground Water

Sample ID: **MW-35 092617** Date Received: 9/27/2017 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		10/6/17 13:44	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Trichloroethene	47.8		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.8		%	81 - 118			SW846 8260C		10/6/17 13:44	TMP	A
4-Bromofluorobenzene (S)	89		%	85 - 114			SW846 8260C		10/6/17 13:44	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119			SW846 8260C		10/6/17 13:44	TMP	A
Toluene-d8 (S)	93.3		%	89 - 112			SW846 8260C		10/6/17 13:44	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 00:45	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 00:45	EGO	C
Methane	7.5		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 00:45	EGO	C
WET CHEMISTRY											
Alkalinity, Total	192	1	mg/L	5	5	0.8	S2320B-97		9/30/17 00:15	MSA	H
Chloride	14.4		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 08:07	CHW	G
Nitrate-N	0.60		mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 08:07	CHW	G
Sulfate	10.8		mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 08:07	CHW	G
Total Organic Carbon (TOC)	0.68J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/10/17 10:45	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940003** Date Collected: 9/26/2017 18:20 Matrix: Ground Water

Sample ID: **EB-1 092617** Date Received: 9/27/2017 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		10/6/17 13:08	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.2		%	81 - 118			SW846 8260C		10/6/17 13:08	TMP	A
4-Bromofluorobenzene (S)	91.4		%	85 - 114			SW846 8260C		10/6/17 13:08	TMP	A
Dibromofluoromethane (S)	93.7		%	80 - 119			SW846 8260C		10/6/17 13:08	TMP	A
Toluene-d8 (S)	91.7		%	89 - 112			SW846 8260C		10/6/17 13:08	TMP	A

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940004** Date Collected: 9/26/2017 11:40 Matrix: Ground Water

Sample ID: **MW-24 092617** Date Received: 9/27/2017 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		10/6/17 14:02	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Trichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.7		%	81 - 118			SW846 8260C		10/6/17 14:02	TMP	A
4-Bromofluorobenzene (S)	92.3		%	85 - 114			SW846 8260C		10/6/17 14:02	TMP	A
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C		10/6/17 14:02	TMP	A
Toluene-d8 (S)	93.2		%	89 - 112			SW846 8260C		10/6/17 14:02	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.29J	J	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 01:01	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 01:01	EGO	C
Methane	7.8		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 01:01	EGO	C
WET CHEMISTRY											
Alkalinity, Total	282	1	mg/L	5	5	0.8	S2320B-97		9/30/17 00:27	MSA	H
Chloride	110		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 08:26	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 08:26	CHW	G
Sulfate	0.50U	U	mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 08:26	CHW	G
Total Organic Carbon (TOC)	94.6		mg/L	25.0	12.5	4.6	S5310B-00		10/11/17 15:52	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940005** Date Collected: 9/26/2017 12:50 Matrix: Ground Water

Sample ID: **MW-32 092617** Date Received: 9/27/2017 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			10/6/17 14:20	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,1-Dichloroethene	0.60J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
cis-1,2-Dichloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
Trichloroethene	135		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:20	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118			SW846 8260C			10/6/17 14:20	TMP	A
4-Bromofluorobenzene (S)	92.3		%	85 - 114			SW846 8260C			10/6/17 14:20	TMP	A
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C			10/6/17 14:20	TMP	A
Toluene-d8 (S)	94.7		%	89 - 112			SW846 8260C			10/6/17 14:20	TMP	A
LIGHT HYDROCARBON GASES												
Ethane	29.4		ug/L	1.0	0.50	0.25	RSK 175			10/3/17 01:17	EGO	C
Ethene	5.4		ug/L	1.5	0.75	0.31	RSK 175			10/3/17 01:17	EGO	C
Methane	835		ug/L	0.50	0.25	0.13	RSK 175			10/3/17 01:17	EGO	C
WET CHEMISTRY												
Alkalinity, Total	129	1	mg/L	5	5	0.8	S2320B-97			9/30/17 00:38	MSA	H
Chloride	30.7		mg/L	2.0	0.50	0.16	EPA 300.0			9/28/17 08:46	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			9/28/17 08:46	CHW	G
Sulfate	0.40J	J	mg/L	2.0	0.50	0.20	EPA 300.0			9/28/17 08:46	CHW	G
Total Organic Carbon (TOC)	5.0		mg/L	1.0	0.50	0.18	S5310B-00			10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940006** Date Collected: 9/26/2017 14:06 Matrix: Ground Water

Sample ID: **MW-33 092617** Date Received: 9/27/2017 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			10/6/17 14:39	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
Trichloroethene	170		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:39	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.6		%	81 - 118			SW846 8260C			10/6/17 14:39	TMP	A
4-Bromofluorobenzene (S)	90.5		%	85 - 114			SW846 8260C			10/6/17 14:39	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C			10/6/17 14:39	TMP	A
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C			10/6/17 14:39	TMP	A
LIGHT HYDROCARBON GASES												
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175			10/3/17 01:33	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175			10/3/17 01:33	EGO	C
Methane	17.8		ug/L	0.50	0.25	0.13	RSK 175			10/3/17 01:33	EGO	C
WET CHEMISTRY												
Alkalinity, Total	202	1	mg/L	5	5	0.8	S2320B-97			9/30/17 00:50	MSA	H
Chloride	24.6		mg/L	2.0	0.50	0.16	EPA 300.0			9/28/17 09:05	CHW	G
Nitrate-N	0.30		mg/L	0.20	0.060	0.020	EPA 300.0			9/28/17 09:05	CHW	G
Sulfate	12.6		mg/L	2.0	0.50	0.20	EPA 300.0			9/28/17 09:05	CHW	G
Total Organic Carbon (TOC)	0.44J	J	mg/L	1.0	0.50	0.18	S5310B-00			10/10/17 10:45	PAG	E

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940007** Date Collected: 9/27/2017 08:44 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/27/2017 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			10/6/17 12:49	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 12:49	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	93.4		%	81 - 118	SW846 8260C			10/6/17 12:49	TMP	A
4-Bromofluorobenzene (S)	92.7		%	85 - 114	SW846 8260C			10/6/17 12:49	TMP	A
Dibromofluoromethane (S)	92.6		%	80 - 119	SW846 8260C			10/6/17 12:49	TMP	A
Toluene-d8 (S)	91.9		%	89 - 112	SW846 8260C			10/6/17 12:49	TMP	A

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2264940001	1	MW-34 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940002	1	MW-35 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940004	1	MW-24 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940005	1	MW-32 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940006	1	MW-33 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: SVGC/46854 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 2264940001, 2264940002, 2264940004, 2264940005, 2264940006

METHOD BLANK: 2618110

Parameter	Blank Result	Units	Reporting Limit
Ethane	0.50U	ug/L	1.0
Ethene	0.75U	ug/L	1.5
Methane	0.28J	ug/L	0.50

SAMPLE DUPLICATE: 2618111 ORIGINAL: 2264940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	.45	ug/L	.45	0	20
Ethene	.58	ug/L	.58	0	20
Methane	88.13	ug/L	86.7	1.64	20

SAMPLE DUPLICATE: 2618112 ORIGINAL: 2265542002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	0	ug/L	0	NC	20
Ethene	0	ug/L	0	NC	20
Methane	.28	ug/L	.19	38.3*	20

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: VOMS/44693 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2264940001, 2264940002, 2264940003, 2264940004, 2264940005, 2264940006, 2264940007

METHOD BLANK: 2620904

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	94.8	%	81 - 118
4-Bromofluorobenzene (S)	89.6	%	85 - 114
Dibromofluoromethane (S)	93.9	%	80 - 119
Toluene-d8 (S)	92	%	89 - 112

LABORATORY CONTROL SAMPLE: 2620905

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	109	ug/L	20	21.9	72 - 136
1,1-Dichloroethane	103	ug/L	20	20.5	77 - 125
1,2-Dichloroethane	101	ug/L	20	20.2	73 - 128
1,1-Dichloroethene	109	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	97.4	ug/L	20	19.5	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	94	ug/L	20	18.8	78 - 124
1,1,2,2-Tetrachloroethane	92.3	ug/L	20	18.5	71 - 121
Tetrachloroethene	108	ug/L	20	21.6	74 - 129
Toluene	102	ug/L	20	20.3	80 - 121
1,1,1-Trichloroethane	105	ug/L	20	21.0	74 - 131
1,1,2-Trichloroethane	92.9	ug/L	20	18.6	80 - 119
Trichloroethene	107	ug/L	20	21.5	79 - 123

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Vinyl Chloride	93.5	ug/L	20	18.7	58 - 137
1,2-Dichloroethane-d4 (S)	90.7	%			81 - 118
4-Bromofluorobenzene (S)	91.8	%			85 - 114
Dibromofluoromethane (S)	89.7	%			80 - 119
Toluene-d8 (S)	89.1	%			89 - 112

MATRIX SPIKE: 2621001 DUPLICATE: 2621002 ORIGINAL: 2264940001

****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	24.8511	24.8203	124	124	72 - 136	.12	30
1,1-Dichloroethane	0	ug/L	20	21.7079	21.5832	109	108	77 - 125	.58	30
1,2-Dichloroethane	0	ug/L	20	20.3983	20.6181	102	103	73 - 128	1.07	30
1,1-Dichloroethene	0	ug/L	20	24.6167	24.3202	123	122	71 - 131	1.21	30
cis-1,2-Dichloroethene	0	ug/L	20	20.6386	20.793	103	104	78 - 123	.75	30
trans-1,2-Dichloroethene	0	ug/L	20	23.5133	23.7254	118	119	75 - 124	.9	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.2883	19.0118	96.4	95.1	78 - 124	1.44	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	18.7891	18.956	93.9	94.8	71 - 121	.88	30
Tetrachloroethene	0	ug/L	20	23.0143	22.3929	115	112	74 - 129	2.74	30
Toluene	0	ug/L	20	21.7322	20.9008	109	105	80 - 121	3.9	30
1,1,1-Trichloroethane	0	ug/L	20	23.0986	22.9788	115	115	74 - 131	.52	30
1,1,2-Trichloroethane	0	ug/L	20	19.3583	19.3292	96.8	96.6	80 - 119	.15	30
Trichloroethene	29.5724	ug/L	20	52.4055	52.8905	114	117	79 - 123	.92	30
Vinyl Chloride	0	ug/L	20	21.1912	21.102	106	106	58 - 137	.42	30
1,2-Dichloroethane-d4 (S)	92.7	%				92.7	88.7	81 - 118		
4-Bromofluorobenzene (S)	90.2	%				90.2	91.7	85 - 114		
Dibromofluoromethane (S)	89.4	%				89.4	90.6	80 - 119		
Toluene-d8 (S)	88.9	%				88.9*	90.1	89 - 112		

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: WETC/193866 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2264940001, 2264940002, 2264940004, 2264940005, 2264940006

METHOD BLANK: 2616366

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

SAMPLE DUPLICATE: 2616371 ORIGINAL: 2263734001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	246.48193	mg/L	246.93694	.18	20

METHOD BLANK: 2616374

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

SAMPLE DUPLICATE: 2616375 ORIGINAL: 2264673001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	31.15386	mg/L	27.02201	14.2	20

METHOD BLANK: 2616378

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

SAMPLE DUPLICATE: 2616379 ORIGINAL: 2264733004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Alkalinity, Total	111.67287	mg/L	107.04971	4.23	20

METHOD BLANK: 2616382

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

SAMPLE DUPLICATE: 2616383 ORIGINAL: 2264847001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	89.10402	mg/L	80.8147	9.76	20

METHOD BLANK: 2616386

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

SAMPLE DUPLICATE: 2616387 ORIGINAL: 2264861003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	92.55238	mg/L	90.41083	2.34	20

METHOD BLANK: 2616390

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

SAMPLE DUPLICATE: 2616391 ORIGINAL: 2264869009

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	5.31125	mg/L	6.40409	18.7	20

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

METHOD BLANK: 2616394

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

SAMPLE DUPLICATE: 2616395 ORIGINAL: 2264872006

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	86.41079	mg/L	86.25674	.18	20

METHOD BLANK: 2616398

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

SAMPLE DUPLICATE: 2616399 ORIGINAL: 2264911001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	201.97025	mg/L	197.8726	2.05	20

METHOD BLANK: 2616402

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

SAMPLE DUPLICATE: 2616403 ORIGINAL: 2264940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	196.97389	mg/L	185.76651	5.86	20

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

METHOD BLANK: 2616406

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

SAMPLE DUPLICATE: 2616407 ORIGINAL: 2264941005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	9.80894	mg/L	9.95457	1.47	20

METHOD BLANK: 2616410

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

SAMPLE DUPLICATE: 2616411 ORIGINAL: 2264944006

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	80.6779	mg/L	76.68095	5.08	20

METHOD BLANK: 2616414

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

SAMPLE DUPLICATE: 2616415 ORIGINAL: 2264953001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	58.60804	mg/L	60.89386	3.83	20

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

METHOD BLANK: 2616418

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

SAMPLE DUPLICATE: 2616419 ORIGINAL: 2264958001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	172.22223	mg/L	166.61166	3.31	20

METHOD BLANK: 2616426

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

METHOD BLANK: 2617328

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

QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: WETC/193868 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2264940001, 2264940002, 2264940004, 2264940005, 2264940006

METHOD BLANK: 2616432

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

LABORATORY CONTROL SAMPLE: 2616434

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	95.1	mg/L	20	19.0	87 - 111
Nitrate-N	96	mg/L	2.5	2.4	88 - 111
Sulfate	97.2	mg/L	20	19.4	87 - 112

MATRIX SPIKE: 2616436 DUPLICATE: 2616437 ORIGINAL: 2264940001

****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	11.74	mg/L	40	48.88	47.78	92.9	90.1	87 - 111	2.28	15
Nitrate-N	0	mg/L	5	4.84	4.74	96.8	94.8	88 - 111	2.09	15
Sulfate	9	mg/L	40	47.34	46.28	95.9	93.2	87 - 112	2.26	15

METHOD BLANK: 2616439

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

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: WETC/194386 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2264940001, 2264940002, 2264940004, 2264940005, 2264940006

METHOD BLANK: 2622722

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

LABORATORY CONTROL SAMPLE: 2622723

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	94.1	mg/L	1	0.94J	85 - 115

MATRIX SPIKE: 2622726 DUPLICATE: 2622727 ORIGINAL: 2264941007

****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)	1.84	mg/L	6	7.842	7.912	100	101	85 - 115	.89	20

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: WETC/194457 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2264940004

METHOD BLANK: 2623621

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

LABORATORY CONTROL SAMPLE: 2623622

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	94.1	mg/L	1	0.94J	85 - 115

MATRIX SPIKE: 2623623 DUPLICATE: 2623624 ORIGINAL: 2264945001

****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)	2.503	mg/L	6	8.257	8.326	95.9	97.1	85 - 115	.83	20

MATRIX SPIKE: 2623625 DUPLICATE: 2623626 ORIGINAL: 2264848002

****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)	1.273	mg/L	6	7.324	7.321	101	101	85 - 115	.04	20

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QUALITY CONTROL DATA

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

QC Batch: WETC/194533 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2264940005

METHOD BLANK: 2624515

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

LABORATORY CONTROL SAMPLE: 2624516

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	99.3	mg/L	1	0.99J	85 - 115

MATRIX SPIKE: 2624517 DUPLICATE: 2624518 ORIGINAL: 2265519006

****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)	1.67	mg/L	6	7.523	7.574	97.6	98.4	85 - 115	.68	20

MATRIX SPIKE: 2624519 DUPLICATE: 2624520 ORIGINAL: 2265838005

****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)	.585	mg/L	6	6.545	6.583	99.3	100	85 - 115	.58	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2264940001	MW-34 092617			S2320B-97	WETC/193866
2264940002	MW-35 092617			S2320B-97	WETC/193866
2264940004	MW-24 092617			S2320B-97	WETC/193866
2264940005	MW-32 092617			S2320B-97	WETC/193866
2264940006	MW-33 092617			S2320B-97	WETC/193866
2264940001	MW-34 092617			EPA 300.0	WETC/193868
2264940002	MW-35 092617			EPA 300.0	WETC/193868
2264940004	MW-24 092617			EPA 300.0	WETC/193868
2264940005	MW-32 092617			EPA 300.0	WETC/193868
2264940006	MW-33 092617			EPA 300.0	WETC/193868
2264940001	MW-34 092617			RSK 175	SVGC/46854
2264940002	MW-35 092617			RSK 175	SVGC/46854
2264940004	MW-24 092617			RSK 175	SVGC/46854
2264940005	MW-32 092617			RSK 175	SVGC/46854
2264940006	MW-33 092617			RSK 175	SVGC/46854
2264940001	MW-34 092617			SW846 8260C	VOMS/44693
2264940002	MW-35 092617			SW846 8260C	VOMS/44693
2264940003	EB-1 092617			SW846 8260C	VOMS/44693
2264940004	MW-24 092617			SW846 8260C	VOMS/44693
2264940005	MW-32 092617			SW846 8260C	VOMS/44693
2264940006	MW-33 092617			SW846 8260C	VOMS/44693
2264940007	Trip Blank			SW846 8260C	VOMS/44693
2264940001	MW-34 092617			S5310B-00	WETC/194386
2264940002	MW-35 092617			S5310B-00	WETC/194386
2264940006	MW-33 092617			S5310B-00	WETC/194386
2264940004	MW-24 092617			S5310B-00	WETC/194457

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2264940005	MW-32 092617			S5310B-00	WETC/194533

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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.

Page 1 of 1
Courier:
Tracking #:

* 2264940 *

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 971 2200
Address: 40 British American BLVD
Latham, NY

Bill to (if different than Report to): PO#: 60446041
Project Name/#: Scotia Navy Depot ALS Quote #:
TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:
Email? ☑ Y John.Santacroce@aecom.com
Fax? ☐ Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260C	TOC	7196/1TS	Cl, SO4, NO3	Alkalinity						
***Container Type						CG	AG	CG	PL	PL						
***Container Size						40mL	40mL	40mL	8oz	8oz						
***Preservative						HCL	HCL	HCL	–	–						
1 MW-34 092617	Extra VOL MS/MSD	9/26/17	849	G	GW	X	X	X	X	X						
2 MW-35 092617			1005	G	GW	X	X	X	X	X						
3 EB-1 092617	Equipment Blank		1020	–	–	X										
4 MW-24 092617			1140			X	X	X	X	X						
5 MW-32 092617			1250			X	X	X	X	X						
6 MW-33 092617			1406			X	X	X	X	X						
7 TRIP BLANK		–	–	–	–	X										
8																

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Cooler Temp: 4
Therm. ID: 309
No. of Coolers:
Notes: Temp > 6C DW 9/27/17

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Ross McCready
Project Comments: GLFM 1787

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible]	9/26/17	3:10	2 Brian McGuirk	9/26/17	3:10
3 Brian McGuirk	9/26/17	3:50	4 Campbell Lem	9/27/17	8:14
5			6		
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ other
EDDs Required? ☐ If yes, format type: AECOM EQUIS
DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐
State Samples Collected In? MD ☐ NJ ☐ NY ☑ PA ☐
Other

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
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY
Rev 01-2013

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

October 16, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2265227**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN027|Scotia Navy Depot 60440**

Dear Mr. Santacroce:

Enclosed are the analytical results for samples received by the laboratory on Thursday, September 28, 2017.

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.

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

CC: Ms. Kelly Lurie , 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: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2265227001	MW-30 092717	Ground Water	9/27/2017 09:35	9/28/2017 09:32	Collected by Client
2265227002	MW-31 092717	Ground Water	9/27/2017 10:40	9/28/2017 09:32	Collected by Client
2265227003	MW-28 092717	Ground Water	9/27/2017 13:00	9/28/2017 09:32	Collected by Client
2265227004	MW-29 092717	Ground Water	9/27/2017 14:10	9/28/2017 09:32	Collected by Client
2265227005	Trip Blank	Ground Water	9/28/2017 09:32	9/28/2017 09:32	Collected by Client

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SAMPLE SUMMARY

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Notes

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

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: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227001** Date Collected: 9/27/2017 09:35 Matrix: Ground Water

Sample ID: **MW-30 092717** Date Received: 9/28/2017 09:32

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			10/6/17 14:57	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
cis-1,2-Dichloroethene	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
Trichloroethene	18.4		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 14:57	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.1		%	81 - 118			SW846 8260C			10/6/17 14:57	TMP	H
4-Bromofluorobenzene (S)	91		%	85 - 114			SW846 8260C			10/6/17 14:57	TMP	H
Dibromofluoromethane (S)	98		%	80 - 119			SW846 8260C			10/6/17 14:57	TMP	H
Toluene-d8 (S)	92		%	89 - 112			SW846 8260C			10/6/17 14:57	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	39.7		ug/L	1.0	0.50	0.25	RSK 175			10/3/17 01:50	EGO	A
Ethene	8.5		ug/L	1.5	0.75	0.31	RSK 175			10/3/17 01:50	EGO	A
Methane	3560		ug/L	0.50	0.25	0.13	RSK 175			10/3/17 01:50	EGO	A
WET CHEMISTRY												
Alkalinity, Total	104	1	mg/L	5	5	0.8	S2320B-97			10/2/17 04:10	MSA	F
Chloride	35.3		mg/L	2.0	0.50	0.16	EPA 300.0			9/29/17 07:14	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			9/29/17 07:14	CHW	E
Sulfate	0.50U	U	mg/L	2.0	0.50	0.20	EPA 300.0			9/29/17 07:14	CHW	E
Total Organic Carbon (TOC)	27.0		mg/L	25.0	12.5	4.6	S5310B-00			10/11/17 15:52	PAG	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227002** Date Collected: 9/27/2017 10:40 Matrix: Ground Water

Sample ID: **MW-31 092717** Date Received: 9/28/2017 09:32

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			10/6/17 15:15	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
cis-1,2-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
Trichloroethene	25.6		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:15	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95		%	81 - 118			SW846 8260C			10/6/17 15:15	TMP	H
4-Bromofluorobenzene (S)	90.4		%	85 - 114			SW846 8260C			10/6/17 15:15	TMP	H
Dibromofluoromethane (S)	96.9		%	80 - 119			SW846 8260C			10/6/17 15:15	TMP	H
Toluene-d8 (S)	91.4		%	89 - 112			SW846 8260C			10/6/17 15:15	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	2.6		ug/L	1.0	0.50	0.25	RSK 175			10/3/17 02:06	EGO	A
Ethene	2.3		ug/L	1.5	0.75	0.31	RSK 175			10/3/17 02:06	EGO	A
Methane	29.1		ug/L	0.50	0.25	0.13	RSK 175			10/3/17 02:06	EGO	A
WET CHEMISTRY												
Alkalinity, Total	132	1	mg/L	5	5	0.8	S2320B-97			10/2/17 04:22	MSA	F
Chloride	31.7		mg/L	2.0	0.50	0.16	EPA 300.0			9/29/17 07:33	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			9/29/17 07:33	CHW	E
Sulfate	5.6		mg/L	2.0	0.50	0.20	EPA 300.0			9/29/17 07:33	CHW	E
Total Organic Carbon (TOC)	1.5		mg/L	1.0	0.50	0.18	S5310B-00			10/11/17 15:52	PAG	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227003** Date Collected: 9/27/2017 13:00 Matrix: Ground Water

Sample ID: **MW-28 092717** Date Received: 9/28/2017 09:32

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1-Dichloroethane	1.3		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1-Dichloroethene	0.76J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
cis-1,2-Dichloroethene	5.5		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
trans-1,2-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
Tetrachloroethene	37.1		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1,1-Trichloroethane	10.5		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
Trichloroethene	170		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 15:33	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.9		%	81 - 118			SW846 8260C			10/6/17 15:33	TMP	H
4-Bromofluorobenzene (S)	92		%	85 - 114			SW846 8260C			10/6/17 15:33	TMP	H
Dibromofluoromethane (S)	95.8		%	80 - 119			SW846 8260C			10/6/17 15:33	TMP	H
Toluene-d8 (S)	91.9		%	89 - 112			SW846 8260C			10/6/17 15:33	TMP	H
LIGHT HYDROCARBON GASES												
Ethane	0.45J	J	ug/L	1.0	0.50	0.25	RSK 175			10/3/17 02:22	EGO	A
Ethene	0.72J	J	ug/L	1.5	0.75	0.31	RSK 175			10/3/17 02:22	EGO	A
Methane	0.37J	J	ug/L	0.50	0.25	0.13	RSK 175			10/3/17 02:22	EGO	A
WET CHEMISTRY												
Alkalinity, Total	380	1	mg/L	5	5	0.8	S2320B-97			10/2/17 04:34	MSA	F
Chloride	25.7		mg/L	2.0	0.50	0.16	EPA 300.0			9/29/17 07:52	CHW	E
Nitrate-N	0.18J	J	mg/L	0.20	0.060	0.020	EPA 300.0			9/29/17 07:52	CHW	E
Sulfate	10.3		mg/L	2.0	0.50	0.20	EPA 300.0			9/29/17 07:52	CHW	E
Total Organic Carbon (TOC)	1.9		mg/L	1.0	0.50	0.18	S5310B-00			10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227004** Date Collected: 9/27/2017 14:10 Matrix: Ground Water

Sample ID: **MW-29 092717** Date Received: 9/28/2017 09:32

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.85J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1-Dichloroethane	1.2		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1-Dichloroethene	0.99J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
cis-1,2-Dichloroethene	5.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
trans-1,2-Dichloroethene	0.67J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Tetrachloroethene	42.2		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,1-Trichloroethane	13.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Trichloroethene	226		ug/L	5.0	3.8	1.7	SW846 8260C		10/10/17 15:59	DD	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C		10/10/17 15:59	DD	H
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		10/6/17 17:59	TMP	H
4-Bromofluorobenzene (S)	94.8		%	85 - 114			SW846 8260C		10/10/17 15:59	DD	H
4-Bromofluorobenzene (S)	92.9		%	85 - 114			SW846 8260C		10/6/17 17:59	TMP	H
Dibromofluoromethane (S)	96.7		%	80 - 119			SW846 8260C		10/6/17 17:59	TMP	H
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C		10/10/17 15:59	DD	H
Toluene-d8 (S)	93.6		%	89 - 112			SW846 8260C		10/10/17 15:59	DD	H
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C		10/6/17 17:59	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:40	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:40	EGO	A
Methane	0.21J	J	ug/L	0.50	0.25	0.13	RSK 175		10/3/17 02:40	EGO	A
WET CHEMISTRY											
Alkalinity, Total	374	1	mg/L	5	5	0.8	S2320B-97		10/2/17 04:47	MSA	F
Chloride	24.2		mg/L	2.0	0.50	0.16	EPA 300.0		9/29/17 08:11	CHW	E
Nitrate-N	0.12J	J	mg/L	0.20	0.060	0.020	EPA 300.0		9/29/17 08:11	CHW	E
Sulfate	16.1		mg/L	2.0	0.50	0.20	EPA 300.0		9/29/17 08:11	CHW	E
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.18	S5310B-00		10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227004** Date Collected: 9/27/2017 14:10 Matrix: Ground Water

Sample ID: **MW-29 092717** Date Received: 9/28/2017 09:32

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

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227005** Date Collected: 9/28/2017 09:32 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/28/2017 09:32

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			10/6/17 16:46	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 16:46	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	93.6		%	81 - 118	SW846 8260C			10/6/17 16:46	TMP	A
4-Bromofluorobenzene (S)	91.4		%	85 - 114	SW846 8260C			10/6/17 16:46	TMP	A
Dibromofluoromethane (S)	92.4		%	80 - 119	SW846 8260C			10/6/17 16:46	TMP	A
Toluene-d8 (S)	93.6		%	89 - 112	SW846 8260C			10/6/17 16:46	TMP	A

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2265227001	1	MW-30 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227002	1	MW-31 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227003	1	MW-28 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227004	1	MW-29 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: SVGC/46854 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 2265227001, 2265227002, 2265227003, 2265227004

METHOD BLANK: 2618110

Parameter	Blank Result	Units	Reporting Limit
Ethane	0.50U	ug/L	1.0
Ethene	0.75U	ug/L	1.5
Methane	0.28J	ug/L	0.50

SAMPLE DUPLICATE: 2618111 ORIGINAL: 2264940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	.45	ug/L	.45	0	20
Ethene	.58	ug/L	.58	0	20
Methane	88.13	ug/L	86.7	1.64	20

SAMPLE DUPLICATE: 2618112 ORIGINAL: 2265542002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	0	ug/L	0	NC	20
Ethene	0	ug/L	0	NC	20
Methane	.28	ug/L	.19	38.3*	20

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: VOMS/44693 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2265227001, 2265227002, 2265227003, 2265227004, 2265227005

METHOD BLANK: 2620904

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	94.8	%	81 - 118
4-Bromofluorobenzene (S)	89.6	%	85 - 114
Dibromofluoromethane (S)	93.9	%	80 - 119
Toluene-d8 (S)	92	%	89 - 112

LABORATORY CONTROL SAMPLE: 2620905

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	109	ug/L	20	21.9	72 - 136
1,1-Dichloroethane	103	ug/L	20	20.5	77 - 125
1,2-Dichloroethane	101	ug/L	20	20.2	73 - 128
1,1-Dichloroethene	109	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	97.4	ug/L	20	19.5	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	94	ug/L	20	18.8	78 - 124
1,1,2,2-Tetrachloroethane	92.3	ug/L	20	18.5	71 - 121
Tetrachloroethene	108	ug/L	20	21.6	74 - 129
Toluene	102	ug/L	20	20.3	80 - 121
1,1,1-Trichloroethane	105	ug/L	20	21.0	74 - 131
1,1,2-Trichloroethane	92.9	ug/L	20	18.6	80 - 119
Trichloroethene	107	ug/L	20	21.5	79 - 123

QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Vinyl Chloride	93.5	ug/L	20	18.7	58 - 137
1,2-Dichloroethane-d4 (S)	90.7	%			81 - 118
4-Bromofluorobenzene (S)	91.8	%			85 - 114
Dibromofluoromethane (S)	89.7	%			80 - 119
Toluene-d8 (S)	89.1	%			89 - 112

MATRIX SPIKE: 2621001 DUPLICATE: 2621002 ORIGINAL: 2264940001

****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	24.8511	24.8203	124	124	72 - 136	.12	30
1,1-Dichloroethane	0	ug/L	20	21.7079	21.5832	109	108	77 - 125	.58	30
1,2-Dichloroethane	0	ug/L	20	20.3983	20.6181	102	103	73 - 128	1.07	30
1,1-Dichloroethene	0	ug/L	20	24.6167	24.3202	123	122	71 - 131	1.21	30
cis-1,2-Dichloroethene	0	ug/L	20	20.6386	20.793	103	104	78 - 123	.75	30
trans-1,2-Dichloroethene	0	ug/L	20	23.5133	23.7254	118	119	75 - 124	.9	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.2883	19.0118	96.4	95.1	78 - 124	1.44	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	18.7891	18.956	93.9	94.8	71 - 121	.88	30
Tetrachloroethene	0	ug/L	20	23.0143	22.3929	115	112	74 - 129	2.74	30
Toluene	0	ug/L	20	21.7322	20.9008	109	105	80 - 121	3.9	30
1,1,1-Trichloroethane	0	ug/L	20	23.0986	22.9788	115	115	74 - 131	.52	30
1,1,2-Trichloroethane	0	ug/L	20	19.3583	19.3292	96.8	96.6	80 - 119	.15	30
Trichloroethene	29.5724	ug/L	20	52.4055	52.8905	114	117	79 - 123	.92	30
Vinyl Chloride	0	ug/L	20	21.1912	21.102	106	106	58 - 137	.42	30
1,2-Dichloroethane-d4 (S)	92.7	%				92.7	88.7	81 - 118		
4-Bromofluorobenzene (S)	90.2	%				90.2	91.7	85 - 114		
Dibromofluoromethane (S)	89.4	%				89.4	90.6	80 - 119		
Toluene-d8 (S)	88.9	%				88.9*	90.1	89 - 112		

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: VOMS/44728 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2265227004

METHOD BLANK: 2622593

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)	99.8	%	81 - 118
4-Bromofluorobenzene (S)	98.9	%	85 - 114
Dibromofluoromethane (S)	94.9	%	80 - 119
Toluene-d8 (S)	96.6	%	89 - 112

LABORATORY CONTROL SAMPLE: 2622594

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Trichloroethene	101	ug/L	20	20.2	79 - 123
1,1,1,2-Tetrachloroethane	106	ug/L	20	21.2	78 - 124
1,1,1-Trichloroethane	104	ug/L	20	20.9	74 - 131
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.1	71 - 121
1,1,2-Trichloroethane	105	ug/L	20	21.0	80 - 119
1,1-Dichloroethane	105	ug/L	20	21.0	77 - 125
1,1-Dichloroethene	103	ug/L	20	20.6	71 - 131
1,2-Dichloroethane	102	ug/L	20	20.3	73 - 128
Carbon Tetrachloride	103	ug/L	20	20.5	72 - 136
Tetrachloroethene	105	ug/L	20	21.0	74 - 129
Toluene	109	ug/L	20	21.8	80 - 121
Vinyl Chloride	85.2	ug/L	20	17.0	58 - 137
cis-1,2-Dichloroethene	102	ug/L	20	20.3	78 - 123

QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

trans-1,2-Dichloroethene	107	ug/L	20	21.5	75 - 124
1,2-Dichloroethane-d4 (S)	97.1	%			81 - 118
4-Bromofluorobenzene (S)	96.6	%			85 - 114
Dibromofluoromethane (S)	91.4	%			80 - 119
Toluene-d8 (S)	93.3	%			89 - 112

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: WETC/193940 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2265227001, 2265227002, 2265227003, 2265227004

METHOD BLANK: 2617116

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

LABORATORY CONTROL SAMPLE: 2617118

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	95.1	mg/L	20	19.0	87 - 111
Nitrate-N	96	mg/L	2.5	2.4	88 - 111
Sulfate	97.2	mg/L	20	19.4	87 - 112

METHOD BLANK: 2617121

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

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: WETC/193963 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2265227001, 2265227002, 2265227003, 2265227004

METHOD BLANK: 2617503

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

SAMPLE DUPLICATE: 2617545 ORIGINAL: 2265068001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	78.8203	mg/L	76.95675	2.39	20

METHOD BLANK: 2617511

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

METHOD BLANK: 2617515

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

SAMPLE DUPLICATE: 2617516 ORIGINAL: 2265072001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	72.50734	mg/L	81.05997	11.1	20

METHOD BLANK: 2617519

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 2617520 ORIGINAL: 2265072002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	81.01339	mg/L	78.41123	3.26	20

METHOD BLANK: 2617523

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

SAMPLE DUPLICATE: 2617524 ORIGINAL: 2265181001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	153.54985	mg/L	144.82178	5.85	20

METHOD BLANK: 2617527

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

SAMPLE DUPLICATE: 2617528 ORIGINAL: 2265271001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	115.15617	mg/L	116.121	.83	20

METHOD BLANK: 2617531

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

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

SAMPLE DUPLICATE: 2617532 ORIGINAL: 2265273001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	74.20904	mg/L	73.75854	.61	20

METHOD BLANK: 2617535

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

SAMPLE DUPLICATE: 2617536 ORIGINAL: 2265395001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	69.21134	mg/L	66.87466	3.43	20

METHOD BLANK: 2617539

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

SAMPLE DUPLICATE: 2617540 ORIGINAL: 2265406008

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	53.1151	mg/L	51.10602	3.86	20

METHOD BLANK: 2617543

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

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QUALITY CONTROL DATA

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

QC Batch: WETC/194458 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2265227001, 2265227002, 2265227003, 2265227004

METHOD BLANK: 2623627

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

LABORATORY CONTROL SAMPLE: 2623628

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	94.1	mg/L	1	0.94J	85 - 115

MATRIX SPIKE: 2623629 DUPLICATE: 2623630 ORIGINAL: 2265286001

****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)	.805	mg/L	6	6.806	6.851	100	101	85 - 115	.66	20

MATRIX SPIKE: 2623631 DUPLICATE: 2623632 ORIGINAL: 2265406011

****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)	.544	mg/L	6	6.727	6.853	103	105	85 - 115	1.86	20

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2265227001	MW-30 092717			EPA 300.0	WETC/193940
2265227002	MW-31 092717			EPA 300.0	WETC/193940
2265227003	MW-28 092717			EPA 300.0	WETC/193940
2265227004	MW-29 092717			EPA 300.0	WETC/193940
2265227001	MW-30 092717			S2320B-97	WETC/193963
2265227002	MW-31 092717			S2320B-97	WETC/193963
2265227003	MW-28 092717			S2320B-97	WETC/193963
2265227004	MW-29 092717			S2320B-97	WETC/193963
2265227001	MW-30 092717			RSK 175	SVGC/46854
2265227002	MW-31 092717			RSK 175	SVGC/46854
2265227003	MW-28 092717			RSK 175	SVGC/46854
2265227004	MW-29 092717			RSK 175	SVGC/46854
2265227001	MW-30 092717			SW846 8260C	VOMS/44693
2265227002	MW-31 092717			SW846 8260C	VOMS/44693
2265227003	MW-28 092717			SW846 8260C	VOMS/44693
2265227004	MW-29 092717			SW846 8260C	VOMS/44693
2265227005	Trip Blank			SW846 8260C	VOMS/44693
2265227004	MW-29 092717			SW846 8260C	VOMS/44728
2265227001	MW-30 092717			S5310B-00	WETC/194458
2265227002	MW-31 092717			S5310B-00	WETC/194458
2265227003	MW-28 092717			S5310B-00	WETC/194458
2265227004	MW-29 092717			S5310B-00	WETC/194458

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Middletown, PA 17057
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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Courier:

Tracking #:

* 2 2 6 5 2 2 7 *

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 951 2200
Address: 40 British American BLVD
Latham, NY 12110

Bill to (if different than Report to):

PO#: 60440641

Project Name/#: Scotia Navy Dept

ALS Quote #:

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

Date Required:

Approved By:

Email? [✓] Y John.Santacroce@aecom.com
Fax? [ ] Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	ANALYSES/METHOD REQUESTED: Enter Number of Containers Per Analysis									
***Container Type						GG	CG	AG	PL	PL					
***Container Size						40mL	40mL	40mL	8oz	8oz					
*** Preservative						HCL	HCL	HCL	–	–					
						8260c	2SIC175	TOC	Cl, NO3, SO4	Alkalinity					
1 MW-30 092717		9/27/17	935	G	GW	X	X	X	X	X					
2 MW-31 092717			1040			X	X	X	X	X					
3 MW-28 092717			1300			X	X	X	X	X					
4 MW-29 092717			1410			X	X	X	X	X					
5 TRIP BLANK		–	–	–	–	X									
6															
7															
8															

(completed by Sample Receipt)

Performed by: JS

Cooler Temp: 3°

Therm. ID: IR309

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	N	
	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Rose McCredy

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	9/27/17	2:50	2 Brian McGuirk	9/27/17	2:50
3 Brian McGuirk	9/27/17	3:20	4	9/28/17	9:32
5			6		
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [✓] If yes, format type: AECOM EDDs

DOD Criteria Required?

SDWA Forms?⇨ yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

Other

⇦Enter PWSID No

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

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

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

October 18, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2265542**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN028|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

Enclosed are the analytical results for samples received by the laboratory on Friday, September 29, 2017.

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.

CC: Ms. Kelly Lurie , 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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October 18, 2017

Mr. John Santacroce
AECOM - LATHAM NY
40 British American Blvd.
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**2265542**
Purchase Order:	**66432/60440641.11**	Workorder ID:	**ASN028|2015-SCOTIA NAVY DEPOT-**

Dear Mr. Santacroce:

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

CC: Ms. Kelly Lurie , 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: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2265542001	MW-15 092817	Ground Water	9/28/2017 09:39	9/29/2017 09:00	Collected by Client
2265542002	DUP-2 092817	Ground Water	9/28/2017 00:00	9/29/2017 09:00	Collected by Client
2265542003	Trip Blank	Ground Water	9/29/2017 09:00	9/29/2017 09:00	Collected by Client

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SAMPLE SUMMARY

Workorder: 2265542 ASN028|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 incurbator and the "Analyzed" value is the date/time out the incubator.

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: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542001** Date Collected: 9/28/2017 09:39 Matrix: Ground Water

Sample ID: **MW-15 092817** Date Received: 9/29/2017 09:00

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1-Dichloroethene	0.69J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Tetrachloroethene	1.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,1-Trichloroethane	7.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Trichloroethene	185		ug/L	5.0	3.8	1.7	SW846 8260C		10/10/17 15:15	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C		10/10/17 15:15	DD	A
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C		10/6/17 17:23	TMP	A
4-Bromofluorobenzene (S)	98.3		%	85 - 114			SW846 8260C		10/10/17 15:15	DD	A
4-Bromofluorobenzene (S)	90		%	85 - 114			SW846 8260C		10/6/17 17:23	TMP	A
Dibromofluoromethane (S)	97.9		%	80 - 119			SW846 8260C		10/6/17 17:23	TMP	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C		10/10/17 15:15	DD	A
Toluene-d8 (S)	94.5		%	89 - 112			SW846 8260C		10/10/17 15:15	DD	A
Toluene-d8 (S)	95.6		%	89 - 112			SW846 8260C		10/6/17 17:23	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:57	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:57	EGO	C
Methane	0.21J	J	ug/L	0.50	0.25	0.13	RSK 175		10/3/17 02:57	EGO	C
WET CHEMISTRY											
Alkalinity, Total	229	1	mg/L	5	5	0.8	S2320B-97		10/3/17 08:45	MSA	H
Chloride	30.6		mg/L	2.0	0.50	0.16	EPA 300.0		9/30/17 06:44	CHW	G
Nitrate-N	0.58		mg/L	0.20	0.060	0.020	EPA 300.0		9/30/17 06:44	CHW	G
Sulfate	14.3		mg/L	2.0	0.50	0.20	EPA 300.0		9/30/17 06:44	CHW	G
Total Organic Carbon (TOC)	0.59J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542001** Date Collected: 9/28/2017 09:39 Matrix: Ground Water
Sample ID: **MW-15 092817** Date Received: 9/29/2017 09:00

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

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542002** Date Collected: 9/28/2017 00:00 Matrix: Ground Water

Sample ID: **DUP-2 092817** Date Received: 9/29/2017 09:00

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1-Dichloroethene	0.76J	J	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
Tetrachloroethene	1.4		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1,1-Trichloroethane	7.7		ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
Trichloroethene	198		ug/L	5.0	3.8	1.7	SW846 8260C			10/10/17 15:37	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:41	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C			10/10/17 15:37	DD	A
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118			SW846 8260C			10/6/17 17:41	TMP	A
4-Bromofluorobenzene (S)	90.1		%	85 - 114			SW846 8260C			10/6/17 17:41	TMP	A
4-Bromofluorobenzene (S)	99.6		%	85 - 114			SW846 8260C			10/10/17 15:37	DD	A
Dibromofluoromethane (S)	96.5		%	80 - 119			SW846 8260C			10/6/17 17:41	TMP	A
Dibromofluoromethane (S)	98.6		%	80 - 119			SW846 8260C			10/10/17 15:37	DD	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C			10/10/17 15:37	DD	A
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C			10/6/17 17:41	TMP	A
LIGHT HYDROCARBON GASES												
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175			10/3/17 03:30	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175			10/3/17 03:30	EGO	C
Methane	0.28J	J,1	ug/L	0.50	0.25	0.13	RSK 175			10/3/17 03:30	EGO	C
WET CHEMISTRY												
Alkalinity, Total	232	2	mg/L	5	5	0.8	S2320B-97			10/3/17 08:56	MSA	H
Chloride	30.1		mg/L	2.0	0.50	0.16	EPA 300.0			9/30/17 07:11	CHW	G
Nitrate-N	0.68		mg/L	0.20	0.060	0.020	EPA 300.0			9/30/17 07:11	CHW	G
Sulfate	14.1		mg/L	2.0	0.50	0.20	EPA 300.0			9/30/17 07:11	CHW	G
Total Organic Carbon (TOC)	0.63J	J	mg/L	1.0	0.50	0.18	S5310B-00			10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542002** Date Collected: 9/28/2017 00:00 Matrix: Ground Water

Sample ID: **DUP-2 092817** Date Received: 9/29/2017 09:00

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

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542003** Date Collected: 9/29/2017 09:00 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/29/2017 09:00

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			10/6/17 17:04	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			10/6/17 17:04	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.3		%	81 - 118	SW846 8260C			10/6/17 17:04	TMP	A
4-Bromofluorobenzene (S)	90		%	85 - 114	SW846 8260C			10/6/17 17:04	TMP	A
Dibromofluoromethane (S)	97		%	80 - 119	SW846 8260C			10/6/17 17:04	TMP	A
Toluene-d8 (S)	92.6		%	89 - 112	SW846 8260C			10/6/17 17:04	TMP	A

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2265542001	1	MW-15 092817	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265542002	1	DUP-2 092817	RSK 175	Methane
The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 41.7 and the upper control limit is 20.				
2265542002	2	DUP-2 092817	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/46854 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 2265542001, 2265542002

METHOD BLANK: 2618110

Parameter	Blank Result	Units	Reporting Limit
Ethane	0.50U	ug/L	1.0
Ethene	0.75U	ug/L	1.5
Methane	0.28J	ug/L	0.50

SAMPLE DUPLICATE: 2618111 ORIGINAL: 2264940001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	.45	ug/L	.45	0	20
Ethene	.58	ug/L	.58	0	20
Methane	88.13	ug/L	86.7	1.64	20

SAMPLE DUPLICATE: 2618112 ORIGINAL: 2265542002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Ethane	0	ug/L	0	NC	20
Ethene	0	ug/L	0	NC	20
Methane	.28	ug/L	.19	38.3*	20

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QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/44693 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2265542001, 2265542002, 2265542003

METHOD BLANK: 2620904

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	94.8	%	81 - 118
4-Bromofluorobenzene (S)	89.6	%	85 - 114
Dibromofluoromethane (S)	93.9	%	80 - 119
Toluene-d8 (S)	92	%	89 - 112

LABORATORY CONTROL SAMPLE: 2620905

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	109	ug/L	20	21.9	72 - 136
1,1-Dichloroethane	103	ug/L	20	20.5	77 - 125
1,2-Dichloroethane	101	ug/L	20	20.2	73 - 128
1,1-Dichloroethene	109	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	97.4	ug/L	20	19.5	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	94	ug/L	20	18.8	78 - 124
1,1,2,2-Tetrachloroethane	92.3	ug/L	20	18.5	71 - 121
Tetrachloroethene	108	ug/L	20	21.6	74 - 129
Toluene	102	ug/L	20	20.3	80 - 121
1,1,1-Trichloroethane	105	ug/L	20	21.0	74 - 131
1,1,2-Trichloroethane	92.9	ug/L	20	18.6	80 - 119
Trichloroethene	107	ug/L	20	21.5	79 - 123

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	93.5	ug/L	20	18.7	58 - 137
1,2-Dichloroethane-d4 (S)	90.7	%			81 - 118
4-Bromofluorobenzene (S)	91.8	%			85 - 114
Dibromofluoromethane (S)	89.7	%			80 - 119
Toluene-d8 (S)	89.1	%			89 - 112

MATRIX SPIKE: 2621001 DUPLICATE: 2621002 ORIGINAL: 2264940001

****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	24.8511	24.8203	124	124	72 - 136	.12	30
1,1-Dichloroethane	0	ug/L	20	21.7079	21.5832	109	108	77 - 125	.58	30
1,2-Dichloroethane	0	ug/L	20	20.3983	20.6181	102	103	73 - 128	1.07	30
1,1-Dichloroethene	0	ug/L	20	24.6167	24.3202	123	122	71 - 131	1.21	30
cis-1,2-Dichloroethene	0	ug/L	20	20.6386	20.793	103	104	78 - 123	.75	30
trans-1,2-Dichloroethene	0	ug/L	20	23.5133	23.7254	118	119	75 - 124	.9	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.2883	19.0118	96.4	95.1	78 - 124	1.44	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	18.7891	18.956	93.9	94.8	71 - 121	.88	30
Tetrachloroethene	0	ug/L	20	23.0143	22.3929	115	112	74 - 129	2.74	30
Toluene	0	ug/L	20	21.7322	20.9008	109	105	80 - 121	3.9	30
1,1,1-Trichloroethane	0	ug/L	20	23.0986	22.9788	115	115	74 - 131	.52	30
1,1,2-Trichloroethane	0	ug/L	20	19.3583	19.3292	96.8	96.6	80 - 119	.15	30
Trichloroethene	29.5724	ug/L	20	52.4055	52.8905	114	117	79 - 123	.92	30
Vinyl Chloride	0	ug/L	20	21.1912	21.102	106	106	58 - 137	.42	30
1,2-Dichloroethane-d4 (S)	92.7	%				92.7	88.7	81 - 118		
4-Bromofluorobenzene (S)	90.2	%				90.2	91.7	85 - 114		
Dibromofluoromethane (S)	89.4	%				89.4	90.6	80 - 119		
Toluene-d8 (S)	88.9	%				88.9*	90.1	89 - 112		

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/44728 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 2265542001, 2265542002

METHOD BLANK: 2622593

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)	99.8	%	81 - 118
4-Bromofluorobenzene (S)	98.9	%	85 - 114
Dibromofluoromethane (S)	94.9	%	80 - 119
Toluene-d8 (S)	96.6	%	89 - 112

LABORATORY CONTROL SAMPLE: 2622594

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Trichloroethene	101	ug/L	20	20.2	79 - 123
1,1,1,2-Tetrachloroethane	106	ug/L	20	21.2	78 - 124
1,1,1-Trichloroethane	104	ug/L	20	20.9	74 - 131
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.1	71 - 121
1,1,2-Trichloroethane	105	ug/L	20	21.0	80 - 119
1,1-Dichloroethane	105	ug/L	20	21.0	77 - 125
1,1-Dichloroethene	103	ug/L	20	20.6	71 - 131
1,2-Dichloroethane	102	ug/L	20	20.3	73 - 128
Carbon Tetrachloride	103	ug/L	20	20.5	72 - 136
Tetrachloroethene	105	ug/L	20	21.0	74 - 129
Toluene	109	ug/L	20	21.8	80 - 121
Vinyl Chloride	85.2	ug/L	20	17.0	58 - 137
cis-1,2-Dichloroethene	102	ug/L	20	20.3	78 - 123

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

trans-1,2-Dichloroethene	107	ug/L	20	21.5	75 - 124
1,2-Dichloroethane-d4 (S)	97.1	%			81 - 118
4-Bromofluorobenzene (S)	96.6	%			85 - 114
Dibromofluoromethane (S)	91.4	%			80 - 119
Toluene-d8 (S)	93.3	%			89 - 112

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/194012 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 2265542001, 2265542002

METHOD BLANK: 2618104

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

LABORATORY CONTROL SAMPLE: 2618106

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	95.2	mg/L	20	19.0	87 - 111
Nitrate-N	96.8	mg/L	2.5	2.4	88 - 111
Sulfate	97.9	mg/L	20	19.6	87 - 112

METHOD BLANK: 2618109

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

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QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/194022 **Analysis Method:** S2320B-97

QC Batch Method: S2320B-97

Associated Lab Samples: 2265542001, 2265542002

METHOD BLANK: 2618229

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

SAMPLE DUPLICATE: 2618234 ORIGINAL: 2265559001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	163.00301	mg/L	166.1414	1.91	20

METHOD BLANK: 2618237

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

SAMPLE DUPLICATE: 2618238 ORIGINAL: 2265560001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	213.45786	mg/L	203.97588	4.54	20

METHOD BLANK: 2618241

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

SAMPLE DUPLICATE: 2618242 ORIGINAL: 2265440001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	75.55871	mg/L	66.25602	13.1	20

METHOD BLANK: 2618245

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

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/194533 **Analysis Method:** S5310B-00

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 2265542001, 2265542002

METHOD BLANK: 2624515

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

LABORATORY CONTROL SAMPLE: 2624516

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	99.3	mg/L	1	0.99J	85 - 115

MATRIX SPIKE: 2624517 DUPLICATE: 2624518 ORIGINAL: 2265519006

****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)	1.67	mg/L	6	7.523	7.574	97.6	98.4	85 - 115	.68	20

MATRIX SPIKE: 2624519 DUPLICATE: 2624520 ORIGINAL: 2265838005

****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)	.585	mg/L	6	6.545	6.583	99.3	100	85 - 115	.58	20

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2265542001	MW-15 092817			EPA 300.0	WETC/194012
2265542002	DUP-2 092817			EPA 300.0	WETC/194012
2265542001	MW-15 092817			RSK 175	SVGC/46854
2265542002	DUP-2 092817			RSK 175	SVGC/46854
2265542001	MW-15 092817			S2320B-97	WETC/194022
2265542002	DUP-2 092817			S2320B-97	WETC/194022
2265542001	MW-15 092817			SW846 8260C	VOMS/44693
2265542002	DUP-2 092817			SW846 8260C	VOMS/44693
2265542003	Trip Blank			SW846 8260C	VOMS/44693
2265542001	MW-15 092817			SW846 8260C	VOMS/44728
2265542002	DUP-2 092817			SW846 8260C	VOMS/44728
2265542001	MW-15 092817			S5310B-00	WETC/194533
2265542002	DUP-2 092817			S5310B-00	WETC/194533

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

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Page 1 of 1

Courier:

Tracking #: 6470 8310 2121

* 2 2 6 5 5 4 2 *

Co. Name: AECOM
Contact (Report to): John Santacroce Phone:
Address: 40 British American BLVD
Latham, NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [✓] Y John.SantaCroce@aecom.com
Fax? [ ] Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260C	TOC	RSK175	Alkalinity	Cl, NO3, SO4					
						Enter Number of Containers Per Analysis									
1 MW-15 092817		9/28/17	939	G	GW	2	2	2	1	1					
2 DUP-2 092817		9/28/17	-	G	GW	2	2	2	1	1					
3 TRIP BLANK		-	-												
4															
5															
6															
7															
8															

***Container Type: 4 4 4 8oz 8oz
***Container Size: 40 40 40 - -
***Preservative: HCL HCL HCL - -

ANALYSES/METHOD REQUESTED

(completed by Sample Receiving)
Performed by: [illegible]
Cooler Temp: 1
Therm. ID: TH309
No. of Coolers: ---
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N		
Y	Y	Y	Y		

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N	N
Y	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Ross McCady

Project Comments: @ 10/4/17 1733

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ross McCady AECOM	9/28/17	1032	2 [signature]	9/28/17	1032
3 [signature]	9/28/17	1700	4 [signature]	9/29	0920
5			6		
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [✓] If yes, format type: AECOM EQUIS

DOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

Other

⇨ Enter PWSID No

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

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

APPENDIX D: AECOM Data Usability Summary Report (DUSR)

AECOM

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

Prepared by:
AECOM
Pittsburgh, PA
60440641-9
November 2017

November 22, 2017

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
September 2017
Final

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

Prepared by:
AECOM
Pittsburgh, PA
60440641-9
November 2017

November 22, 2017

Data Usability Summary Report
Defense National Stockpile Center
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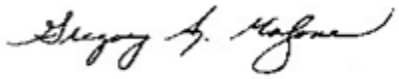
Glenville, New York
Groundwater Sampling Event
September 2017
Final



Prepared By
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AECOM
Gulf Tower
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Reviewed By
Robert Davis, Data Validator/Database Technician
AECOM
1360 Peachtree Street NE, Suite 500
Atlanta, GA 30309

Contents

List of Appendices

Executive Summary

Overview

Data validation was performed by Gregory A. Malzone of AECOM-Pittsburgh on the fixed-laboratory analytical data for groundwater samples collected from the Defense National Stockpile Center Scotia Depot, Glenville, New York, from September 25, 2017 through September 28, 2017. 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, 34 Dogwood Lane, Middletown, Pennsylvania 17057.

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

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

- Volatile Organic Compounds by USEPA SW-846 Method 8260B
- Methane, Ethane and Ethene by RSK -175
- Chloride, Nitrate as N and Sulfate by Method EPA Method 300.0
- Alkalinity by Standard Methods 2320B
- Total Organic Carbon by Standard Methods 5310B

The trip blanks and the equipment blank were analyzed for VOCs only. Sample MW-34-092617 was designated in the field to be processed as the quality control samples, that is, as the matrix spike/matrix spike duplicate (MS/MSD). 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	Date Sampled	Work Order Number	SDG Number
MW-16-092517	2264517001	Groundwater	9/25/2017	2264517	ASN025
Dup-1-092517 [MW-20]	2264517002	Groundwater (QC)	9/25/2017	2264517	ASN025
MW-20-092517	2264517003	Groundwater	9/25/2017	2264517	ASN025
Trip Blank-092517	2264517004	Aqueous (QC)	—	2264517	ASN025
MW-34-092617	2264940001	Groundwater	9/26/2017	2264940	ASN026
MW-35-092617	2264940002	Groundwater	9/26/2017	2264940	ASN026
EB-1-092617	2264940003	Aqueous (QC)	9/26/2017	2264940	ASN026
MW-24-092617	2264940004	Groundwater	9/26/2017	2264940	ASN026
MW-32-092617	2264940005	Groundwater	9/26/2017	2264940	ASN026
MW-33-092617	2264940006	Groundwater	9/26/2017	2264940	ASN026
Trip Blank-092617	2264940007	Aqueous (QC)	—	2264940	ASN026
MW-30-092717	2265227001	Groundwater	9/27/2017	2265227	ASN027
MW-31-092717	2265227002	Groundwater	9/27/2017	2265227	ASN027
MW-28-092717	2265227003	Groundwater	9/27/2017	2265227	ASN027
MW-29-092717	2265227004	Groundwater	9/27/2017	2265227	ASN027
Trip Blank-092617	2265227005	Aqueous (QC)	9/28/2017	2265227	ASN027

Table 1 (Continued) - Sample Submittals

Field ID	ALS ID	Matrix	Date Sampled	Work Order Number	SDG Number
MW-15-092817	2265542001	Groundwater	9/28/2017	2265542	ASN028
DUP-2-092817 [MW-15]	2265542002	Groundwater (QC)	9/28/2017	2265542	ASN028
Trip Blank-092917	2265542003	Aqueous (QC)	—	2265542	ASN028

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 Superfund Organic Methods Data Review*, EPA-540-R-014-002, August 2014 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-013-001, August 2014, 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.

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 data qualifier 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 are presented below for each of the four laboratory reports. Analytical results for VOCs were reviewed for the following measurement performance indicators:

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

Work Order 2264517 (SDG ASN025)

Laboratory Control Sample Recoveries (p.27): LCS 2615775, analyzed on September 28, 2017, had recoveries for 1,1-dichloroethene and trans-1,2-dichloroethene that were greater than the upper quality control limits. The 1,1-dichloroethene and trans-1,2-dichloroethene results for associated samples MW-16-092517, Dup-1-092517, MW-20-092517 and Trip Blank-092517 were non-detect and did not require qualification in response to the high method bias.

Work Order 2264940 (SDG ASN026)

Sample Receipt Temperature (p.4): The sample shipment temperature upon receipt at ALS was 9° C (degrees Celsius) on September 26, 2017. This temperature is outside the optimal range of 2-6° C. The sample receipt temperature was less than 10° C and the samples were dropped off on ice within four hours of the last sample collection time on September 26, 2017. Sample cooling had just begun. No data qualifications were required.

Work Order 2265227 (SDG ASN027)

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

Work Order 2265542 (SDG ASN028)

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

2.0 Methane, Ethane, Ethene

Measurement performance indicators which did not meet criteria for methane, ethane, ethene (MEE) analysis are presented below for each of the four laboratory reports. Analytical results for MEE 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 2264517 (SDG ASN025)

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

Work Order 2264940 (SDG ASN026)

Sample Receipt Temperature (p.4): The sample shipment temperature upon receipt at ALS was 9° C (degrees Celsius) on September 26, 2017. This temperature is outside the optimal range of 2-6° C. The sample receipt temperature was less than 10° C and the samples were dropped off on ice within four hours of the last sample collection time on September 26, 2017. Sample cooling had just begun. No data qualifications were required.

Laboratory Method Blank (p. 1914): Methane was detected in method blank 2618110 (10/02/17) at a concentration greater than the limit of detection LOD (0.28 µg/L). The results for methane in associated samples MW-24-092617, MW-32-092617, MW-33-092617, MW-34-092617 and MW-35-092617 were greater than the LOQ and greater than five times the method blank level. No data qualifications were required.

Work Order 2265227 (SDG ASN027)

Laboratory Method Blank (p. 3064): Methane was detected in method blank 2618110 (10/02/17) at a concentration greater than the limit of detection LOD (0.28 µg/L). The results for methane in associated samples MW-28-092717 and MW-29-092717 were less than the LOD and was qualified as non-detect (U) at the LOQ. The results for methane in associated samples MW-30-092717 and MW-31-092717 were greater than the LOQ and greater than five times the method blank level and did not require qualification.

Work Order 2265542 (SDG ASN028)

Laboratory Method Blank (p. 3026): Methane was detected in method blank 2618110 (10/02/17) at a concentration greater than the limit of detection LOD (0.28 µg/L). The results for methane in associated samples MW-15 092817 and DUP-2 092817 were less than the LOD and were qualified as non-detect (U) at the LOQ.

3.0 Chloride, Sulfate, Nitrate as N

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

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

Work Order 2264517 (SDG ASN025)

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

Work Order 2264940 (SDG ASN026)

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

Work Order 2265227 (SDG ASN027)

Laboratory Control Sample Recovery (p. 3090): The sulfate recovery for the low-level (L) calibration verification (CCV) standard analyzed on 09/29/17 at 06:17 on instrument IC-7 was less than the lower quality control limit of 90%, at 89.6%. The sulfate results for associated samples MW-25-092717, MW-29-092717, MW-30-092717 and MW-31-092717 were quantitated from the high-level (A) calibration. The CCV recoveries were acceptable for the high-level calibration. No data qualifications were required.

Work Order 2265542 (SDG ASN028)

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

4.0 Alkalinity

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

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

Work Order 2264517 (SDG ASN025)

Laboratory Method Blank (p. 1608): Method blanks 2615306, 2615330 and 2615334 associated with samples MW-16-092517, MW-20-092517 and DUP-1-092517 were contaminated at concentrations greater than the LOD but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No data qualification was required.

Work Order 2264940 (SDG ASN026)

Laboratory Method Blank (p. 1930): Method blanks 2616366, 2616402 and 2616406 associated with samples MW-24-092617, MW-32-092617, MW-33-092617, MW-34-092617 and MW-35-092617 were contaminated at concentrations greater than the LOD but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No data qualification was required.

Work Order 2265227 (SDG ASN027)

Laboratory Method Blank (p. 3074): Method blanks 2617503, 2617527 and 2617531 associated with samples MW-25-092717, MW-29-092717, MW-30-092717 and MW-31-092717 were contaminated at concentrations greater than the LOD but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No data qualification was required.

Work Order 2265542 (SDG ASN028)

Laboratory Method Blank (p. 3042): Method blanks 2618229, 2618241 and 2618245 associated with samples MW-15-092817and DUP-2-092817 were contaminated at concentrations greater than the LOD but less than the LOQ. The associated sample results were greater than the LOQ, and greater than the highest blank contamination level. No data qualification was required.

5.0 Total Organic Carbon

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

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

Work Order 2264517 (SDG ASN025)

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

Work Order 2264940 (SDG ASN026)

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

Work Order 2265227 (SDG ASN027)

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

Work Order 2265542 (SDG ASN028)

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

6.0 Field Duplicate Comparison

Field duplicate samples were collected at groundwater wells MW-15 and MW-20. See Table 2 below for the calculated RPDs for all 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 reporting limit. If one of the results is non-detect or less than two times the reporting limit, and the duplicate is greater than two times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

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

Inorganics: The RPD must be ≤ 30% for groundwaters, for results greater than or equal to five times the reporting limit. 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 reporting limit.

Action applies to the affected analyte in all inorganic samples of the same matrix prepared and analyzed by the same method.

The following notations are used in the field precision table.

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-20-092517	DUP-1-092517	RPD (%)	Qual
Methane	µg/L	444	339	27	None
Alkalinity, total	mg/L	317	339	6.7	None
Chloride	mg/L	86.2	89.6	3.9	None
Sulfate	mg/L	5.9	6.2	5.0	None
Total Organic Carbon	mg/L	52.1	52.8	1.3	None
Parameter	**Units**	**MW-15-092817**	**DUP-2-092817**	**RPD (%)**	**Qual**
Carbon tetrachloride	µg/L	0.45 J	0.35 J	25	None
1,1-Dichloroethene	µg/L	0.69 J	0.76 J	9.7	None
Tetrachloroethene	µg/L	1.4	1.4	0	None
1,1,1-Trichloroethane	µg/L	7.4	7.7	4.0	None
Trichloroethene	µg/L	185	198	6.8	None
Alkalinity, total	mg/L	229	232	1.3	None
Chloride	mg/L	30.6	30.1	1.7	None
Nitrate	mg/L	0.58	0.68	16	None
Sulfate	mg/L	14.3	14.1	1.4	None
Total Organic Carbon	mg/L	0.59 J	0.63 J	6.6	None

The RPDs between the parent and field duplicate results were within the advisory limits of 0-30%. Field sampling/laboratory precision and sample homogeneity were acceptable. No data qualifications were required.

7.0 Notes

Positive organic and inorganic results less than the LOQ, but greater than the detection limit were qualified “J,” as estimated concentrations, due to increased uncertainty near the detection limit. The “J” qualifiers were maintained in the data validation.

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

ALS Environmental

34 Dogwood Lane ▪ 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: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517001** Date Collected: 9/25/2017 12:31 Matrix: Ground Water

Sample ID: **MW-16 092517** Date Received: 9/26/2017 09:23

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		9/28/17 14:56	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,1,1-Trichloroethane	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 14:56	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C		9/28/17 14:56	TMP	H
4-Bromofluorobenzene (S)	103		%	85 - 114			SW846 8260C		9/28/17 14:56	TMP	H
Dibromofluoromethane (S)	109		%	80 - 119			SW846 8260C		9/28/17 14:56	TMP	H
Toluene-d8 (S)	106		%	89 - 112			SW846 8260C		9/28/17 14:56	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		9/28/17 09:17	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		9/28/17 09:17	EGO	A
Methane	0.23J	J	ug/L	0.50	0.25	0.13	RSK 175		9/28/17 09:17	EGO	A
WET CHEMISTRY											
Alkalinity, Total	480	✗	mg/L	5	5	0.8	S2320B-97		9/28/17 21:30	MSA	F
Chloride	4.3		mg/L	2.0	0.50	0.16	EPA 300.0		9/27/17 11:48	CHW	E
Nitrate-N	1.4		mg/L	0.20	0.060	0.020	EPA 300.0		9/27/17 11:48	CHW	E
Sulfate	64.8		mg/L	2.0	0.50	0.20	EPA 300.0		9/27/17 11:48	CHW	E
Total Organic Carbon (TOC)	0.64J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/10/17 10:45	PAG	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517002** Date Collected: 9/25/2017 12:31 Matrix: Ground Water

Sample ID: **Dup-1 092517** Date Received: 9/26/2017 09:23

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		9/28/17 15:14	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:14	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118			SW846 8260C		9/28/17 15:14	TMP	H
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		9/28/17 15:14	TMP	H
Dibromofluoromethane (S)	111		%	80 - 119			SW846 8260C		9/28/17 15:14	TMP	H
Toluene-d8 (S)	108		%	89 - 112			SW846 8260C		9/28/17 15:14	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		9/28/17 09:40	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		9/28/17 09:40	EGO	A
Methane	410		ug/L	0.50	0.25	0.13	RSK 175		9/28/17 09:40	EGO	A
WET CHEMISTRY											
Alkalinity, Total	339	✗	mg/L	5	5	0.8	S2320B-97		9/28/17 21:43	MSA	F
Chloride	89.6		mg/L	2.0	0.50	0.16	EPA 300.0		9/27/17 12:07	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/27/17 12:07	CHW	E
Sulfate	6.2		mg/L	2.0	0.50	0.20	EPA 300.0		9/27/17 12:07	CHW	E
Total Organic Carbon (TOC)	52.8		mg/L	10.0	5.0	1.8	S5310B-00		10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517003** Date Collected: 9/25/2017 14:11 Matrix: Ground Water

Sample ID: **MW-20 092517** Date Received: 9/26/2017 09:23

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		9/28/17 15:32	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 15:32	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C		9/28/17 15:32	TMP	H
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		9/28/17 15:32	TMP	H
Dibromofluoromethane (S)	108		%	80 - 119			SW846 8260C		9/28/17 15:32	TMP	H
Toluene-d8 (S)	107		%	89 - 112			SW846 8260C		9/28/17 15:32	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		9/28/17 10:13	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		9/28/17 10:13	EGO	A
Methane	444		ug/L	0.50	0.25	0.13	RSK 175		9/28/17 10:13	EGO	A
WET CHEMISTRY											
Alkalinity, Total	317	✗	mg/L	5	5	0.8	S2320B-97		9/28/17 21:55	MSA	F
Chloride	86.2		mg/L	2.0	0.50	0.16	EPA 300.0		9/27/17 12:27	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/27/17 12:27	CHW	E
Sulfate	5.9		mg/L	2.0	0.50	0.20	EPA 300.0		9/27/17 12:27	CHW	E
Total Organic Carbon (TOC)	52.1		mg/L	10.0	5.0	1.8	S5310B-00		10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID: **2264517004** Date Collected: 9/26/2017 09:23 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/26/2017 09:23

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		9/28/17 12:12	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		9/28/17 12:12	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	81 - 118	SW846 8260C		9/28/17 12:12	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		9/28/17 12:12	TMP	A
Dibromofluoromethane (S)	108		%	80 - 119	SW846 8260C		9/28/17 12:12	TMP	A
Toluene-d8 (S)	109		%	89 - 112	SW846 8260C		9/28/17 12:12	TMP	A

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940001** Date Collected: 9/26/2017 08:49 Matrix: Ground Water

Sample ID: **MW-34 092617** Date Received: 9/27/2017 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		10/6/17 13:26	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Trichloroethene	29.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:26	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.7		%	81 - 118			SW846 8260C		10/6/17 13:26	TMP	A
4-Bromofluorobenzene (S)	91.5		%	85 - 114			SW846 8260C		10/6/17 13:26	TMP	A
Dibromofluoromethane (S)	94.1		%	80 - 119			SW846 8260C		10/6/17 13:26	TMP	A
Toluene-d8 (S)	93.8		%	89 - 112			SW846 8260C		10/6/17 13:26	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.45J	J	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 00:12	EGO	C
Ethene	0.58J	J	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 00:12	EGO	C
Methane	88.1		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 00:12	EGO	C
WET CHEMISTRY											
Alkalinity, Total	197	✗	mg/L	5	5	0.8	S2320B-97		9/29/17 23:51	MSA	H
Chloride	11.7		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 07:08	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 07:08	CHW	G
Sulfate	9.0		mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 07:08	CHW	G
Total Organic Carbon (TOC)	3.8		mg/L	2.0	1.0	0.37	S5310B-00		10/10/17 10:45	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940002** Date Collected: 9/26/2017 10:05 Matrix: Ground Water

Sample ID: **MW-35 092617** Date Received: 9/27/2017 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		10/6/17 13:44	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Trichloroethene	47.8		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:44	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.8		%	81 - 118			SW846 8260C		10/6/17 13:44	TMP	A
4-Bromofluorobenzene (S)	89		%	85 - 114			SW846 8260C		10/6/17 13:44	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119			SW846 8260C		10/6/17 13:44	TMP	A
Toluene-d8 (S)	93.3		%	89 - 112			SW846 8260C		10/6/17 13:44	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 00:45	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 00:45	EGO	C
Methane	7.5		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 00:45	EGO	C
WET CHEMISTRY											
Alkalinity, Total	192	1	mg/L	5	5	0.8	S2320B-97		9/30/17 00:15	MSA	H
Chloride	14.4		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 08:07	CHW	G
Nitrate-N	0.60		mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 08:07	CHW	G
Sulfate	10.8		mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 08:07	CHW	G
Total Organic Carbon (TOC)	0.68J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/10/17 10:45	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940003** Date Collected: 9/26/2017 18:20 Matrix: Ground Water

Sample ID: **EB-1 092617** Date Received: 9/27/2017 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		10/6/17 13:08	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 13:08	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.2		%	81 - 118	SW846 8260C		10/6/17 13:08	TMP	A
4-Bromofluorobenzene (S)	91.4		%	85 - 114	SW846 8260C		10/6/17 13:08	TMP	A
Dibromofluoromethane (S)	93.7		%	80 - 119	SW846 8260C		10/6/17 13:08	TMP	A
Toluene-d8 (S)	91.7		%	89 - 112	SW846 8260C		10/6/17 13:08	TMP	A

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940004** Date Collected: 9/26/2017 11:40 Matrix: Ground Water

Sample ID: **MW-24 092617** Date Received: 9/27/2017 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		10/6/17 14:02	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Trichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:02	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.7		%	81 - 118			SW846 8260C		10/6/17 14:02	TMP	A
4-Bromofluorobenzene (S)	92.3		%	85 - 114			SW846 8260C		10/6/17 14:02	TMP	A
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C		10/6/17 14:02	TMP	A
Toluene-d8 (S)	93.2		%	89 - 112			SW846 8260C		10/6/17 14:02	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.29J	J	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 01:01	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 01:01	EGO	C
Methane	7.8		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 01:01	EGO	C
WET CHEMISTRY											
Alkalinity, Total	282		mg/L	5	5	0.8	S2320B-97		9/30/17 00:27	MSA	H
Chloride	110		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 08:26	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 08:26	CHW	G
Sulfate	0.50U	U	mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 08:26	CHW	G
Total Organic Carbon (TOC)	94.6		mg/L	25.0	12.5	4.6	S5310B-00		10/11/17 15:52	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940005** Date Collected: 9/26/2017 12:50 Matrix: Ground Water

Sample ID: **MW-32 092617** Date Received: 9/27/2017 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		10/6/17 14:20	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,1-Dichloroethene	0.60J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
cis-1,2-Dichloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
Trichloroethene	135		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:20	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118			SW846 8260C		10/6/17 14:20	TMP	A
4-Bromofluorobenzene (S)	92.3		%	85 - 114			SW846 8260C		10/6/17 14:20	TMP	A
Dibromofluoromethane (S)	97.4		%	80 - 119			SW846 8260C		10/6/17 14:20	TMP	A
Toluene-d8 (S)	94.7		%	89 - 112			SW846 8260C		10/6/17 14:20	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	29.4		ug/L	1.0	0.50	0.25	RSK 175		10/3/17 01:17	EGO	C
Ethene	5.4		ug/L	1.5	0.75	0.31	RSK 175		10/3/17 01:17	EGO	C
Methane	835		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 01:17	EGO	C
WET CHEMISTRY											
Alkalinity, Total	129	✗	mg/L	5	5	0.8	S2320B-97		9/30/17 00:38	MSA	H
Chloride	30.7		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 08:46	CHW	G
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 08:46	CHW	G
Sulfate	0.40J	J	mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 08:46	CHW	G
Total Organic Carbon (TOC)	5.0		mg/L	1.0	0.50	0.18	S5310B-00		10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940006** Date Collected: 9/26/2017 14:06 Matrix: Ground Water

Sample ID: **MW-33 092617** Date Received: 9/27/2017 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		10/6/17 14:39	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
Trichloroethene	170		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:39	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.6		%	81 - 118			SW846 8260C		10/6/17 14:39	TMP	A
4-Bromofluorobenzene (S)	90.5		%	85 - 114			SW846 8260C		10/6/17 14:39	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C		10/6/17 14:39	TMP	A
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C		10/6/17 14:39	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 01:33	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 01:33	EGO	C
Methane	17.8		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 01:33	EGO	C
WET CHEMISTRY											
Alkalinity, Total	202	✗	mg/L	5	5	0.8	S2320B-97		9/30/17 00:50	MSA	H
Chloride	24.6		mg/L	2.0	0.50	0.16	EPA 300.0		9/28/17 09:05	CHW	G
Nitrate-N	0.30		mg/L	0.20	0.060	0.020	EPA 300.0		9/28/17 09:05	CHW	G
Sulfate	12.6		mg/L	2.0	0.50	0.20	EPA 300.0		9/28/17 09:05	CHW	G
Total Organic Carbon (TOC)	0.44J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/10/17 10:45	PAG	E

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ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID: **2264940007** Date Collected: 9/27/2017 08:44 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/27/2017 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		10/6/17 12:49	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 12:49	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	93.4		%	81 - 118	SW846 8260C		10/6/17 12:49	TMP	A
4-Bromofluorobenzene (S)	92.7		%	85 - 114	SW846 8260C		10/6/17 12:49	TMP	A
Dibromofluoromethane (S)	92.6		%	80 - 119	SW846 8260C		10/6/17 12:49	TMP	A
Toluene-d8 (S)	91.9		%	89 - 112	SW846 8260C		10/6/17 12:49	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227001** Date Collected: 9/27/2017 09:35 Matrix: Ground Water

Sample ID: **MW-30 092717** Date Received: 9/28/2017 09:32

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		10/6/17 14:57	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
cis-1,2-Dichloroethene	0.39J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
Trichloroethene	18.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 14:57	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.1		%	81 - 118			SW846 8260C		10/6/17 14:57	TMP	H
4-Bromofluorobenzene (S)	91		%	85 - 114			SW846 8260C		10/6/17 14:57	TMP	H
Dibromofluoromethane (S)	98		%	80 - 119			SW846 8260C		10/6/17 14:57	TMP	H
Toluene-d8 (S)	92		%	89 - 112			SW846 8260C		10/6/17 14:57	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	39.7		ug/L	1.0	0.50	0.25	RSK 175		10/3/17 01:50	EGO	A
Ethene	8.5		ug/L	1.5	0.75	0.31	RSK 175		10/3/17 01:50	EGO	A
Methane	3560		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 01:50	EGO	A
WET CHEMISTRY											
Alkalinity, Total	104	✗	mg/L	5	5	0.8	S2320B-97		10/2/17 04:10	MSA	F
Chloride	35.3		mg/L	2.0	0.50	0.16	EPA 300.0		9/29/17 07:14	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/29/17 07:14	CHW	E
Sulfate	0.50U	U	mg/L	2.0	0.50	0.20	EPA 300.0		9/29/17 07:14	CHW	E
Total Organic Carbon (TOC)	27.0		mg/L	25.0	12.5	4.6	S5310B-00		10/11/17 15:52	PAG	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227002** Date Collected: 9/27/2017 10:40 Matrix: Ground Water

Sample ID: **MW-31 092717** Date Received: 9/28/2017 09:32

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		10/6/17 15:15	TMP	H
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
cis-1,2-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
Trichloroethene	25.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:15	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95		%	81 - 118			SW846 8260C		10/6/17 15:15	TMP	H
4-Bromofluorobenzene (S)	90.4		%	85 - 114			SW846 8260C		10/6/17 15:15	TMP	H
Dibromofluoromethane (S)	96.9		%	80 - 119			SW846 8260C		10/6/17 15:15	TMP	H
Toluene-d8 (S)	91.4		%	89 - 112			SW846 8260C		10/6/17 15:15	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	2.6		ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:06	EGO	A
Ethene	2.3		ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:06	EGO	A
Methane	29.1		ug/L	0.50	0.25	0.13	RSK 175		10/3/17 02:06	EGO	A
WET CHEMISTRY											
Alkalinity, Total	132	✗	mg/L	5	5	0.8	S2320B-97		10/2/17 04:22	MSA	F
Chloride	31.7		mg/L	2.0	0.50	0.16	EPA 300.0		9/29/17 07:33	CHW	E
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		9/29/17 07:33	CHW	E
Sulfate	5.6		mg/L	2.0	0.50	0.20	EPA 300.0		9/29/17 07:33	CHW	E
Total Organic Carbon (TOC)	1.5		mg/L	1.0	0.50	0.18	S5310B-00		10/11/17 15:52	PAG	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227003** Date Collected: 9/27/2017 13:00 Matrix: Ground Water

Sample ID: **MW-28 092717** Date Received: 9/28/2017 09:32

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1-Dichloroethane	1.3		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1-Dichloroethene	0.76J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
cis-1,2-Dichloroethene	5.5		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
trans-1,2-Dichloroethene	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
Tetrachloroethene	37.1		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1,1-Trichloroethane	10.5		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
Trichloroethene	170		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 15:33	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.9		%	81 - 118			SW846 8260C		10/6/17 15:33	TMP	H
4-Bromofluorobenzene (S)	92		%	85 - 114			SW846 8260C		10/6/17 15:33	TMP	H
Dibromofluoromethane (S)	95.8		%	80 - 119			SW846 8260C		10/6/17 15:33	TMP	H
Toluene-d8 (S)	91.9		%	89 - 112			SW846 8260C		10/6/17 15:33	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.45J	J	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:22	EGO	A
Ethene	0.72J	J	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:22	EGO	A
Methane 0.50U	~~0.87J~~	~~J~~	~~ug/L~~	0.50	0.25	0.13	RSK 175		10/3/17 02:22	EGO	A
WET CHEMISTRY											
Alkalinity, Total	380	✗	mg/L	5	5	0.8	S2320B-97		10/2/17 04:34	MSA	F
Chloride	25.7		mg/L	2.0	0.50	0.16	EPA 300.0		9/29/17 07:52	CHW	E
Nitrate-N	0.18J	J	mg/L	0.20	0.060	0.020	EPA 300.0		9/29/17 07:52	CHW	E
Sulfate	10.3		mg/L	2.0	0.50	0.20	EPA 300.0		9/29/17 07:52	CHW	E
Total Organic Carbon (TOC)	1.9		mg/L	1.0	0.50	0.18	S5310B-00		10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227004** Date Collected: 9/27/2017 14:10 Matrix: Ground Water

Sample ID: **MW-29 092717** Date Received: 9/28/2017 09:32

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.85J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1-Dichloroethane	1.2		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1-Dichloroethene	0.99J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
cis-1,2-Dichloroethene	5.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
trans-1,2-Dichloroethene	0.67J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Tetrachloroethene	42.2		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,1-Trichloroethane	13.6		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Trichloroethene	226		ug/L	5.0	3.8	1.7	SW846 8260C		10/10/17 15:59	DD	H
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:59	TMP	H
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	106		%	81 - 118			SW846 8260C		10/10/17 15:59	DD	H
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		10/6/17 17:59	TMP	H
4-Bromofluorobenzene (S)	94.8		%	85 - 114			SW846 8260C		10/10/17 15:59	DD	H
4-Bromofluorobenzene (S)	92.9		%	85 - 114			SW846 8260C		10/6/17 17:59	TMP	H
Dibromofluoromethane (S)	96.7		%	80 - 119			SW846 8260C		10/6/17 17:59	TMP	H
Dibromofluoromethane (S)	97.2		%	80 - 119			SW846 8260C		10/10/17 15:59	DD	H
Toluene-d8 (S)	93.6		%	89 - 112			SW846 8260C		10/10/17 15:59	DD	H
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C		10/6/17 17:59	TMP	H
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:40	EGO	A
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:40	EGO	A
Methane 0.50U	~~0.21J~~	~~J~~	ug/L	0.50	0.25	0.13	RSK 175		10/3/17 02:40	EGO	A
WET CHEMISTRY											
Alkalinity, Total	374	✗	mg/L	5	5	0.8	S2320B-97		10/2/17 04:47	MSA	F
Chloride	24.2		mg/L	2.0	0.50	0.16	EPA 300.0		9/29/17 08:11	CHW	E
Nitrate-N	0.12J	J	mg/L	0.20	0.060	0.020	EPA 300.0		9/29/17 08:11	CHW	E
Sulfate	16.1		mg/L	2.0	0.50	0.20	EPA 300.0		9/29/17 08:11	CHW	E
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.18	S5310B-00		10/11/17 15:52	PAG	C

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID:	**2265227004**	Date Collected:	9/27/2017 14:10	Matrix:	Ground Water
Sample ID:	**MW-29 092717**	Date Received:	9/28/2017 09:32		

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

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ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID: **2265227005** Date Collected: 9/28/2017 09:32 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/28/2017 09:32

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		10/6/17 16:46	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 16:46	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	93.6		%	81 - 118	SW846 8260C		10/6/17 16:46	TMP	A
4-Bromofluorobenzene (S)	91.4		%	85 - 114	SW846 8260C		10/6/17 16:46	TMP	A
Dibromofluoromethane (S)	92.4		%	80 - 119	SW846 8260C		10/6/17 16:46	TMP	A
Toluene-d8 (S)	93.6		%	89 - 112	SW846 8260C		10/6/17 16:46	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542001** Date Collected: 9/28/2017 09:39 Matrix: Ground Water

Sample ID: **MW-15 092817** Date Received: 9/29/2017 09:00

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1-Dichloroethene	0.69J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Tetrachloroethene	1.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,1-Trichloroethane	7.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Trichloroethene	185		ug/L	5.0	3.8	1.7	SW846 8260C		10/10/17 15:15	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:23	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	103		%	81 - 118			SW846 8260C		10/10/17 15:15	DD	A
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C		10/6/17 17:23	TMP	A
4-Bromofluorobenzene (S)	98.3		%	85 - 114			SW846 8260C		10/10/17 15:15	DD	A
4-Bromofluorobenzene (S)	90		%	85 - 114			SW846 8260C		10/6/17 17:23	TMP	A
Dibromofluoromethane (S)	97.9		%	80 - 119			SW846 8260C		10/6/17 17:23	TMP	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C		10/10/17 15:15	DD	A
Toluene-d8 (S)	94.5		%	89 - 112			SW846 8260C		10/10/17 15:15	DD	A
Toluene-d8 (S)	95.6		%	89 - 112			SW846 8260C		10/6/17 17:23	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 02:57	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 02:57	EGO	C
Methane 0.50 U	~~0.21J~~	~~J~~	ug/L	0.50	0.25	0.13	RSK 175		10/3/17 02:57	EGO	C
WET CHEMISTRY											
Alkalinity, Total	229	✗	mg/L	5	5	0.8	S2320B-97		10/3/17 08:45	MSA	H
Chloride	30.6		mg/L	2.0	0.50	0.16	EPA 300.0		9/30/17 06:44	CHW	G
Nitrate-N	0.58		mg/L	0.20	0.060	0.020	EPA 300.0		9/30/17 06:44	CHW	G
Sulfate	14.3		mg/L	2.0	0.50	0.20	EPA 300.0		9/30/17 06:44	CHW	G
Total Organic Carbon (TOC)	0.59J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID:	**2265542001**	Date Collected:	9/28/2017 09:39	Matrix:	Ground Water
Sample ID:	**MW-15 092817**	Date Received:	9/29/2017 09:00		

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: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542002** Date Collected: 9/28/2017 00:00 Matrix: Ground Water

Sample ID: **DUP-2 092817** Date Received: 9/29/2017 09:00

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.35J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1-Dichloroethene	0.76J	J	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
Tetrachloroethene	1.4		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1,1-Trichloroethane	7.7		ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
Trichloroethene	198		ug/L	5.0	3.8	1.7	SW846 8260C		10/10/17 15:37	DD	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:41	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118			SW846 8260C		10/10/17 15:37	DD	A
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118			SW846 8260C		10/6/17 17:41	TMP	A
4-Bromofluorobenzene (S)	90.1		%	85 - 114			SW846 8260C		10/6/17 17:41	TMP	A
4-Bromofluorobenzene (S)	99.6		%	85 - 114			SW846 8260C		10/10/17 15:37	DD	A
Dibromofluoromethane (S)	96.5		%	80 - 119			SW846 8260C		10/6/17 17:41	TMP	A
Dibromofluoromethane (S)	98.6		%	80 - 119			SW846 8260C		10/10/17 15:37	DD	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C		10/10/17 15:37	DD	A
Toluene-d8 (S)	94.3		%	89 - 112			SW846 8260C		10/6/17 17:41	TMP	A
LIGHT HYDROCARBON GASES											
Ethane	0.50U	U	ug/L	1.0	0.50	0.25	RSK 175		10/3/17 03:30	EGO	C
Ethene	0.75U	U	ug/L	1.5	0.75	0.31	RSK 175		10/3/17 03:30	EGO	C
Methane 0.50U	~~0.28J~~	~~J~~	ug/L	0.50	0.25	0.13	RSK 175		10/3/17 03:30	EGO	C
WET CHEMISTRY											
Alkalinity, Total	232		mg/L	5	5	0.8	S2320B-97		10/3/17 08:56	MSA	H
Chloride	30.1		mg/L	2.0	0.50	0.16	EPA 300.0		9/30/17 07:11	CHW	G
Nitrate-N	0.68		mg/L	0.20	0.060	0.020	EPA 300.0		9/30/17 07:11	CHW	G
Sulfate	14.1		mg/L	2.0	0.50	0.20	EPA 300.0		9/30/17 07:11	CHW	G
Total Organic Carbon (TOC)	0.63J	J	mg/L	1.0	0.50	0.18	S5310B-00		10/12/17 11:44	PAG	E

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ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542002** Date Collected: 9/28/2017 00:00 Matrix: Ground Water

Sample ID: **DUP-2 092817** Date Received: 9/29/2017 09:00

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: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID: **2265542003** Date Collected: 9/29/2017 09:00 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 9/29/2017 09:00

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		10/6/17 17:04	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		10/6/17 17:04	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.3		%	81 - 118	SW846 8260C		10/6/17 17:04	TMP	A
4-Bromofluorobenzene (S)	90		%	85 - 114	SW846 8260C		10/6/17 17:04	TMP	A
Dibromofluoromethane (S)	97		%	80 - 119	SW846 8260C		10/6/17 17:04	TMP	A
Toluene-d8 (S)	92.6		%	89 - 112	SW846 8260C		10/6/17 17:04	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Appendix C

Support Documentation

ALS Environmental

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SAMPLE SUMMARY

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2264517001	MW-16 092517	Ground Water	9/25/2017 12:31	9/26/2017 09:23	Collected by Client
2264517002	Dup-1 092517	Ground Water	9/25/2017 12:31	9/26/2017 09:23	Collected by Client
2264517003	MW-20 092517	Ground Water	9/25/2017 14:11	9/26/2017 09:23	Collected by Client
2264517004	Trip Blank	Ground Water	9/26/2017 09:23	9/26/2017 09:23	Collected by Client

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Middletown, PA 17057
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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Page 1 of 1

Courier: Fed Ex

Tracking #: 6470831020

* 2264517 *

Co. Name: AECOM / John Santacroce

Contact (Report to): John Santacroce Phone: 518 951 2200

Address: 40 British American BLVD
Latham, NY

Bill to (if different than Report to):

PO#: 60444641

Project Name/#: Scotia Navy Dept ALS Quote #:

TAT: ☑ Normal-Standard TAT is 10-12 business days. Date Required:
☐ Rush-Subject to ALS approval and surcharges. Approved By:

Email? ☑ -Y John.Santacroce@aecom.com

Fax? ☐ -Y No.:

	Container Type										
	Container Size										
	Preservative	HCL	HCL	HCL	-	-					
	ANALYSES/METHOD REQUESTED	8260C	TOC	RSKITS	Cl, SO4, NO3	Alkalinity					

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis					
1 MW-16 092517		9/21/17	1230	G	GW	2x	2x	2x	1x	x1	
2 DUP-1 092517		9/21/17	-	G	GW	2x	2x	2x	1x	x1	
3 MW-20 092517		9/21/17	1411	G	GW	2x	2x	2x	1x	x1	
4 Trip Blank		-	-	-	-	2x					
5											
6											
7											
8											

Receipt by: Fed Ex

Cooler Temp: 3 °C

Therm. ID: 309

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	N	
Y	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N	
Y	Y	Y	Y	Y	

SAMPLED BY (Please Print): Rich McCurdy

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible]	9/21/17	1330	2 Brian McGuirk	9/21/17	1330
3 Brian McGuirk	9/21/17	1350	4		
5			6	9/26	0823
7			8		
9			10		

Data Deliverables: ☑ Standard ☐ CLP-like ☐ NJ-Reduced ☐ NJ-Full ☐ ____

EDDs Required? ☐ If yes, format type: AECOM EQUIS

SDWA Forms? yes ☐ Other ☐ Enter PWSID No

State Samples Collected In? MD ☐ NJ ☐ NY ☐ PA ☐

DOD Criteria Required?

ALS FIELD SERVICES
☐ Pickup
☐ Labor
☐ Composite Sampling
☐ Packet Equipment
☐ Other:

* G=Grab; C=Composite

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

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

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ANALYTICAL RESULTS

Workorder: 2264517 ASN025|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2264517001	1	MW-16 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264517002	1	Dup-1 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264517003	1	MW-20 092517	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-026 (2264940)

Sample Management

This report contains the results of the analysis of four (4) ground water samples collected on September 25-26, 2017. 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 September 26, 2017. 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. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples, except as follows:

- In 2615775 LCS, 1,1-Dichloroethene and trans-1,2-Dichloroethene were recovered above control limits.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Three (3) 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.

Anions by EPA 300.0

Sample handling. Three (03) aqueous samples were analyzed for chloride, nitrate-N, 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. All calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. No analyte was detected above ½ the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2615433, 2615422, and SSL were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Total Alkalinity by SM 2320B

Sample handling. Three (03) 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 ½ the reporting limit in the blanks.

Calibration. The standards were recovered within the alkalinity QC limits.

Total Organic Carbon by SM 5310B

Sample handling. Three (03) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The 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.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above ½ the reporting limit in the blanks.

3A

WATER VOLATILE LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-025

Laboratory Control Spike - Sample No: 2615775

COMPOUND	SPIKE ADDED (ug/L)		LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMIT REC
Carbon Tetrachloride	20		26.7	134	(72-136)
1,1-Dichloroethane	20		24.4	122	(77-125)
1,2-Dichloroethane	20		22.9	114	(73-128)
1,1-Dichloroethene	20		27.2	136*	(71-131)
cis-1,2-Dichloroethene	20		22.7	114	(78-123)
trans-1,2-Dichloroethen	20		25.7	128*	(75-124)
1,1,1,2-Tetrachloroetha	20		22.1	111	(78-124)
1,1,2,2-Tetrachloroetha	20		20.9	105	(71-121)
Tetrachloroethene	20		23.0	115	(74-129)
Toluene	20		22.0	110	(80-121)
1,1,1-Trichloroethane	20		25.7	128	(74-131)
1,1,2-Trichloroethane	20		21.1	105	(80-119)
Trichloroethene	20		23.9	119	(79-123)
Vinyl Chloride	20		20.5	102	(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: 2 out of 14 outside limits

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN025

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2615306	Alkalinity, Total	MB	QC-Water	09/28/2017 09:19	3	J	mg/L
2615330	Alkalinity, Total	MB	QC-Water	09/28/2017 20:54	1	J	mg/L
2615334	Alkalinity, Total	MB	QC-Water	09/28/2017 23:01	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:

ALS Environmental

34 Dogwood Lane ▪ 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: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2264940001	MW-34 092617	Ground Water	9/26/2017 08:49	9/27/2017 08:44	Collected by Client
2264940002	MW-35 092617	Ground Water	9/26/2017 10:05	9/27/2017 08:44	Collected by Client
2264940003	EB-1 092617	Ground Water	9/26/2017 18:20	9/27/2017 08:44	Collected by Client
2264940004	MW-24 092617	Ground Water	9/26/2017 11:40	9/27/2017 08:44	Collected by Client
2264940005	MW-32 092617	Ground Water	9/26/2017 12:50	9/27/2017 08:44	Collected by Client
2264940006	MW-33 092617	Ground Water	9/26/2017 14:06	9/27/2017 08:44	Collected by Client
2264940007	Trip Blank	Ground Water	9/27/2017 08:44	9/27/2017 08:44	Collected by Client

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

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Page 1 of 1
Courier:
Tracking #:

* 2264940 *

Co. Name: AECOM
Contact (Report to): John Santacroce Phone: 518 971 2200
Address: 40 British American BLVD
Latham, NY

Bill to (if different than Report to): PO#: 60044041
Project Name/#: Scotia Navy Depot ALS Quote #:
TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:
Email? [✓] -Y John.Santacroce@aecom.com
Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260C	TOC	RSKIT	Cl, SO4, NO3	Alkalinity					
	***Container Type						CG	AG	CG	PL	PL					
	***Container Size						40mL	40mL	40mL	8oz	8oz					
	Preservative						HCL	HCL	HCL	-	-					
1	MW-34 092617	Extra VOL MS/MSD	9/26/17	849	G	GW	X	X	X	X	X					
2	MW-35 092617			1005	G	GW	X	X	X	X	X					
3	EB-1 092617	Equipment Blank		1020	-	-	X									
4	MW-24 092617			1140			X	X	X	X	X					
5	MW-32 092617			1250			X	X	X	X	X					
6	MW-33 092617			1406			X	X	X	X	X					
7	TRIP BLANK		-	-	-	-	X									
8																

ANALYSES/METHOD REQUESTED
Enter Number of Containers Per Analysis

Preserved by: DWN (date/time)
Cooler Temp: 4
Therm. ID: 309
No. of Coolers:
Notes: Temp > 0 DW 9/27/17

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	(Y) N	

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Ross McCready
Project Comments: 9.27.17 1757

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible]	9/26/17	3:10	2 Brian McQuirk	9/26/17	3:10
3 Brian McQuirk	9/26/17	3:50	4 Walgott Van Norden	9/26/17	
5			6		
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other
SDWA Format? yes [ ] yes [ ] yes [ ]
State Samples Collected in? MD [ ] NJ [ ] NY [✓] PA [ ]
EDDs Required? [ ] If yes, format type: AECOM EDD 15 Other
DOD Criteria Required?

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
Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.
Rev 01-2013

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2264940 ASN026|2015SCOTIA NAVY-PO 6044

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2264940001	1	MW-34 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940002	1	MW-35 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940004	1	MW-24 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940005	1	MW-32 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2264940006	1	MW-33 092617	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-025 (2264940)

Sample Management

This report contains the results of the analysis of seven (7) ground water samples collected on September 26-27, 2017. 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 September 27, 2017. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Seven (7) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits, except as follows:

- In 2621001MS, Toluene-d8 was recovered below control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Five (5) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank; except as follows:

- Methane was detected at 0.28J µg/L.

Duplicate Samples. A duplicate sample, identified as 2618111, from project sample MW-34 092617 (2264940001). Target analytes were detected as follows:

- Methane was detected at 88.1 µg/L in the sample and at 86.7 µg/L in the duplicate sample. The %RPD is 2%.
- Ethene was detected at 0.58J µg/L in the sample and at 0.58J µg/L in the duplicate sample. The %RPD is 0%.
- Ethane was detected at 0.45J µg/L in the sample and at 0.45J µg/L in the duplicate sample. The %RPD is 0%.

<u>Anions by EPA 300.0</u>

Sample handling. Five (05) aqueous samples were analyzed for chloride, nitrate-N, 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. All calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. No analyte was detected above ½ the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2616434 and SSL were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spike. A matrix spike and matrix spike duplicate identified as 2616436 and 2616437 were prepared on sample 2264940001 (MW-34-092617). Recoveries were within the QC limits.

<u>Total Alkalinity by SM 2320B</u>

Sample handling. Five (05) 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 ½ the reporting limit in the blanks.

Calibration. The standards were recovered within the alkalinity QC limits.

Duplicate. A duplicate analysis identified as 2616403 was performed on sample 2264940001 (MW-34-092617). The recovery was within QC limits.

<u>Total Organic Carbon by SM 5310B</u>

Sample handling. Five (05) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The 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.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above ½ the reporting limit in the blanks.

Spike. A matrix spike identified as 22622725 was prepared on sample 2264940001 (MW-34-092617). The matrix spike recovery was within the QC limit.

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN026

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2616366	Alkalinity, Total	MB	QC-Water	09/29/2017 02:45	2	J	mg/L
2616402	Alkalinity, Total	MB	QC-Water	09/29/2017 23:27	2	J	mg/L
2616406	Alkalinity, Total	MB	QC-Water	09/30/2017 02:07	2	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: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2265227001	MW-30 092717	Ground Water	9/27/2017 09:35	9/28/2017 09:32	Collected by Client
2265227002	MW-31 092717	Ground Water	9/27/2017 10:40	9/28/2017 09:32	Collected by Client
2265227003	MW-28 092717	Ground Water	9/27/2017 13:00	9/28/2017 09:32	Collected by Client
2265227004	MW-29 092717	Ground Water	9/27/2017 14:10	9/28/2017 09:32	Collected by Client
2265227005	Trip Blank	Ground Water	9/28/2017 09:32	9/28/2017 09:32	Collected by Client

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

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Page 1 of 1

Courier:

Tracking #:

* 2 2 6 5 2 2 7 *

Co. Name: AECOM

Contact (Report to): John Sentacroce Phone: 518 951 2200

Address: 40 British American BLVD
Latham, NY 12110

Bill to (If different than Report to): PO#: 60440641

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: ✓ Normal-Standard TAT is 10-12 business days. Date Required:
Rush-Subject to ALS approval and surcharges. Approved By:

Email? ✓ Y John.Sentacroce@aecom.com
Fax? N No:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Container Type	Container Size	Preservative	8260c	2SIC175	TOC	Cl, NO3, SO4	Alkalinity							
						**Container Type			CG	CG	AG	PL	PL							
						**Container Size			40mL	40mL	40mL	8oz	8oz							
						Preservative			HCL	HCL	HCL	-	-							
1	MW-30 092717		9/27/17	935	G	GW	X	X	X	X	X									
2	MW-31 092717			1040			X	X	X	X	X									
3	MW-28 092717			1300			X	X	X	X	X									
4	MW-29 092717			1410			X	X	X	X	X									
5	TRIP BLANK		-	-	-	-	X													
6																				
7																				
8																				

Enter Number of Containers Per Analysis

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	
1	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y

Custody seals Present?	(If present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
Y N	Y N	Y N	Y N	Y N
Y	Y	Y	Y	Y

(Completed by Sample Receiving)
Performed by: JSH
Cooler Temp: 3.0
Therm. ID: IR309
No. of Coolers:
Notes:

SAMPLED BY (Please Print): Rose McCready

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	9/27/17	2:50	2 Brian McGuirk	9/27/17	2:50
3 Brian McGuirk	9/27/17	3:20	4	9/28/17	9:32
5			6		
7			8		
9			10		

Data Deliverables: ✓ Standard; CLP-like; NJ-Reduced; NJ-Full; Other

EDDs Required? ✓ If yes, format type: AECOM EDDs

DOD Criteria Required?

SDWA Forms? yes
State Samples Collected in? MD NJ NY PA

Other

Enter PWSID No.

ALS FIELD SERVICES: Pickup; Labor; Composite Sampling; Rental Equipment; Other:

* G=Grab; C=Composite

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

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

**Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265227 ASN027|Scotia Navy Depot 60440

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2265227001	1	MW-30 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227002	1	MW-31 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227003	1	MW-28 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265227004	1	MW-29 092717	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-027 (2265227)

Sample Management

This report contains the results of the analysis of five (5) ground water samples collected on September 27-28, 2017. 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 September 28, 2017. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Five (5) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Four (4) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank; except as follows:

- Methane was detected at 0.28J µg/L.

Anions by EPA 300.0

Sample handling. Four (04) aqueous samples were analyzed for chloride, nitrate-N, 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. All calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. No analyte was detected above ½ the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2617118 and SSL were analyzed initially and every 20 samples. Recoveries were within the QC limits with the exception of sulfate in the SSL.

Total Alkalinity by SM 2320B

Sample handling. Four (04) 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 ½ the reporting limit in the blanks.

Calibration. The standards were recovered within the alkalinity QC limits.

Total Organic Carbon by SM 5310B

Sample handling. Four (04) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The 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.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above ½ the reporting limit in the blanks.

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN027

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2617503	Alkalinity, Total	MB	QC-Water	10/01/2017 16:06	2	J	mg/L
2617527	Alkalinity, Total	MB	QC-Water	10/02/2017 03:02	2	J	mg/L
2617531	Alkalinity, Total	MB	QC-Water	10/02/2017 05:35	2	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 8B
Laboratory Control Sample (LCS) Recovery Summary

Analysis Method: EPA 300.0 SDG No.: ASN027

Matrix (soil/water): Instrument ID: IC-7

Units: mg/L Level: L

Sample ID	Analyte	Type	Analyzed	True Conc.	Conc. Recovered	Recovery (%)	(1)	Acc. Limit (%)
SSL	Sulfate	SSL	09/29/2017 06:17	2.5	2.24	89.6	*	90 - 110
SSL	Nitrate-N	SSL	09/29/2017 06:17	0.5	0.46	92		90 - 110
SSL	Chloride	SSL	09/29/2017 06:17	2.5	2.31	92.4		90 - 110

(1) The following qualifiers are used:

* : Values outside of acceptable limits

Comments:

ALS Environmental

34 Dogwood Lane ▪ 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: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2265542001	MW-15 092817	Ground Water	9/28/2017 09:39	9/29/2017 09:00	Collected by Client
2265542002	DUP-2 092817	Ground Water	9/28/2017 00:00	9/29/2017 09:00	Collected by Client
2265542003	Trip Blank	Ground Water	9/29/2017 09:00	9/29/2017 09:00	Collected by Client

ALS Environmental
34 Dogwood Lane
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.

Page 1 of 1

Courier:

Tracking #: 6470 9310 2121

* 2 2 6 5 5 4 2 *

Co. Name: AECOM

Contact (Report to): John Santacroce Phone:

Address: 40 British American BLVD
Latham, NY 12110

Bill to (if different than Report to): PO#:

Project Name/#: Scotia Navy Depot ALS Quote #:

TAT: [✓] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [✓] Y John.Santacroce@aecom.com
Fax? [ ] Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	8260C	TOC	RSK175	Alkalinity	Cl, NO3, SO4					
	***Container Type															
	***Container Size						40	40	40	80Z	80Z					
	Preservative						HCL	HCL	HCL	-	-					
1	MW-15 092817		9/28/17	939	G	GW	2	2	2	1	1					
2	DUP-2 092817		9/28/17	-	G	GW	2	2	2	1	1					
3	TRIP BLANK		-	-												
4																
5																
6																
7																
8																

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

(provided by Severn Trent Labs)
Performed by: STL-BUF
Cooler Temp: 1
Therm. ID: TH309
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	N	
Y	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals Intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N	
Y	Y	Y	Y	Y	

SAMPLED BY (Please Print): Ross McCady

Project Comments: 10/2/17 1733

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ross McCady AECOM	9/28/17	1032	2	9/28/17	1032
3	9/28/17	1700	4	9/29	0900
5			6		
7			8		
9			10		

Data Deliverables: [✓] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ]

EDDs Required? [✓] If yes, format type: AECOM EQUIS

DOD Criteria Required?

SDWA Forms? yes [ ] State Samples Collected In? MD [ ] yes [ ] NJ [ ] yes [ ] NY [ ] yes [ ] PA [ ] Other

Enter PWSID No

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2265542 ASN028|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2265542001	1	MW-15 092817	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2265542002	1	DUP-2 092817	RSK 175	Methane
The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 41.7 and the upper control limit is 20.				
2265542002	2	DUP-2 092817	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

AECOM - Latham, NY
ALS-Middletown
Case Narrative
ASN-028 (2265542)

Sample Management

This report contains the results of the analysis of three (3) ground water samples collected on September 28-29, 2017. 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 September 29, 2017. 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. Three (3) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Continuing Calibration Verification samples were analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits, except as follows:

- In 2621357 LCS, Dibromofluoromethane was recovered below control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Five (5) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank; except as follows:

- Methane was detected at 0.28J µg/L.

Duplicate Samples. A duplicate sample, identified as 2618112, from project sample DUP-2 092817 (2265542002). Target analytes were detected as follows:

- Methane was detected at 0.28J µg/L in the sample and at 0.19J µg/L in the duplicate sample. The %RPD is 38%.

Anions by EPA 300.0

Sample handling. Two (02) aqueous samples were analyzed for chloride, nitrate-N, 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. All calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. No analyte was detected above ½ the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2618106 and SSL were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Total Alkalinity by SM 2320B

Sample handling. Two (02) 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 ½ the reporting limit in the blanks.

Calibration. The standards were recovered within the alkalinity QC limits.

Total Organic Carbon by SM 5310B

Sample handling. Two (02) aqueous samples were analyzed for total organic carbon by Standard Method 5310B. The 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.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above ½ the reporting limit in the blanks.

Form 4B
Inorganic Blank Summary

Analysis Method: S2320B-97
Instrument: AUTOT

SDG No.: ASN028

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2618229	Alkalinity, Total	MB	QC-Water	10/03/2017 03:23	2	J	mg/L
2618241	Alkalinity, Total	MB	QC-Water	10/03/2017 07:45	2	J	mg/L
2618245	Alkalinity, Total	MB	QC-Water	10/03/2017 09:52	0.8	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 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
2618110

Lab Name: ALSI Contract:

Lab Code: PA-010 Case No.: SAS No.: SDG No.: ASN028

Matrix: (soil/water) WATER Lab Sample ID: 2618110

Sample wt/vol: _____ (g/mL) ML Lab File ID: MJ3A003

Level: (low/med) LOW Date Received: 10/02/17

% Moisture: not dec. _____ Date Analyzed: 10/02/17

GC Column: PORAPAK Q ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	0.28	J
74-85-1	ETHENE	0.75	U
74-84-0	ETHANE	0.50	U

FORM I VOA

APPENDIX E: Groundwater Concentration Trend Plots

Figure E-1 MW Pair 28/29

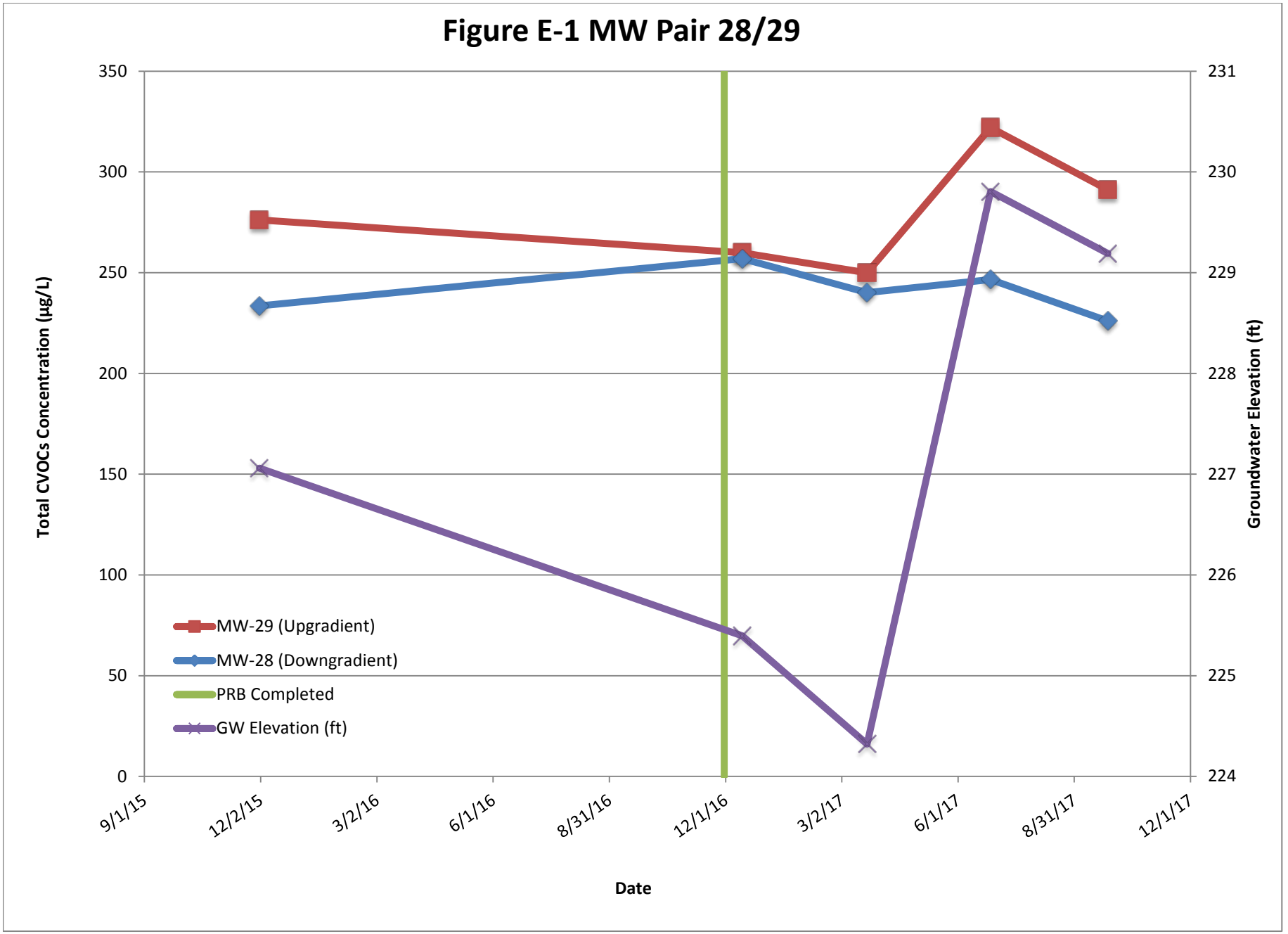

Figure E-2 MW Pair 30/31

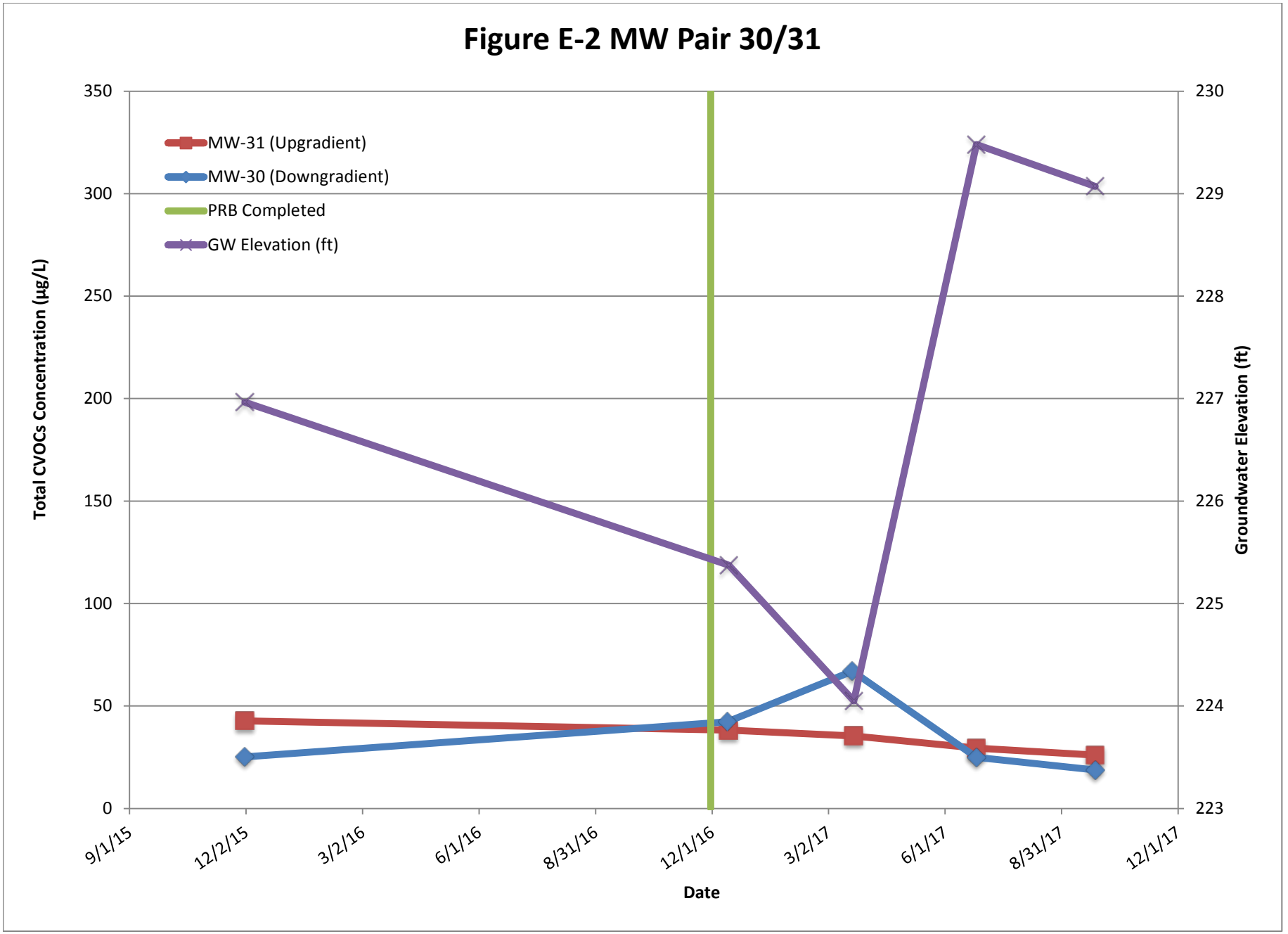

Figure E-3 MW Pair 32/33

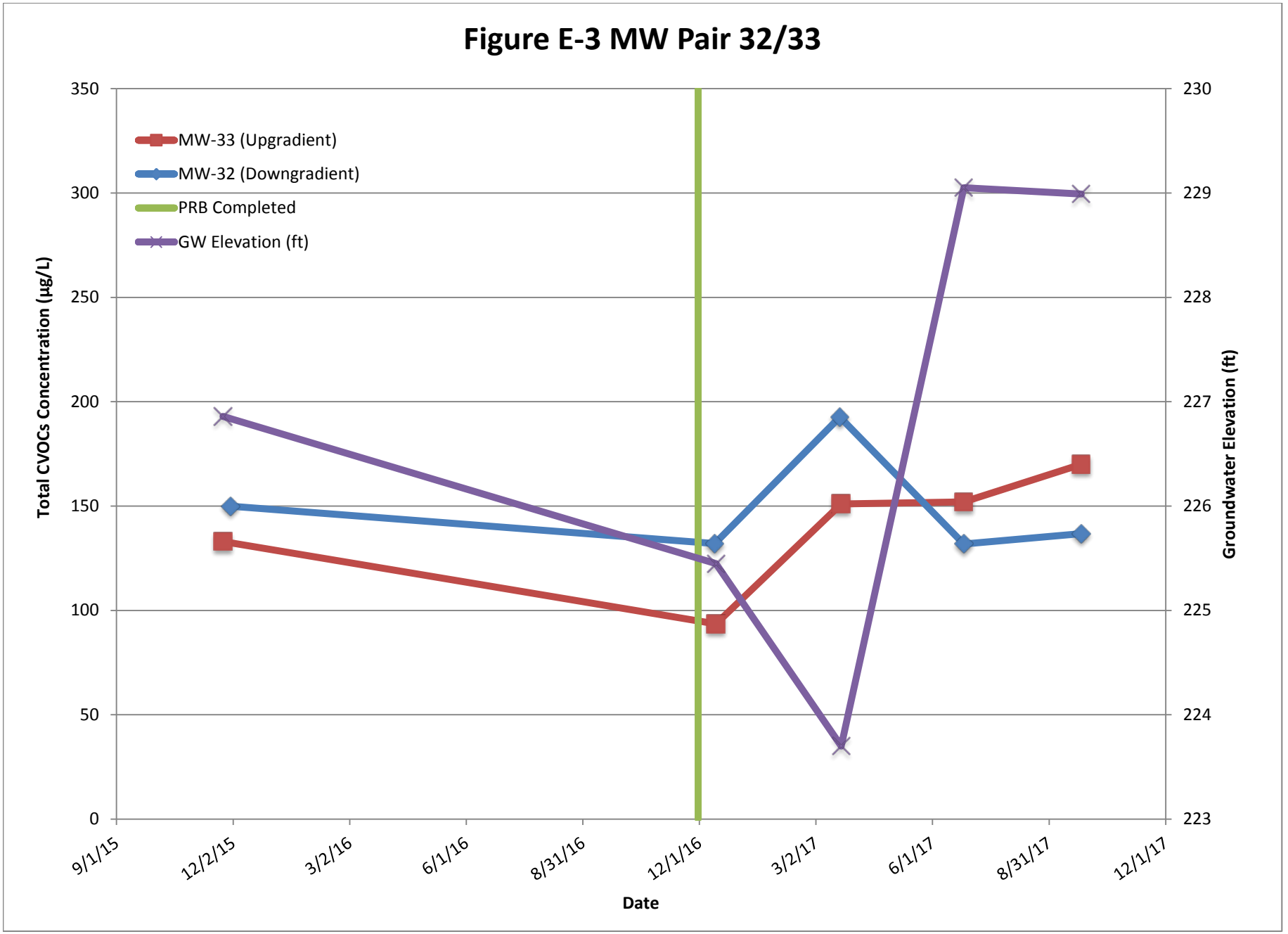

Figure E-4 MW Pair 34/35