



Essex-Hope Site, Jamestown, New York

2019 Annual Periodic Review Report

Revision 1

March 2020; Revised July 2021

Essex Specialty Products, Inc.



Essex-Hope Site, Jamestown, New York

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Document History and Status

Revision	Date	Description	By	Review	Approved
1	7/30/2021	<p>Due to an error in the laboratory's volatile organic compound review process for 1,2,3-Trichloropropane (1,2,3-TCP), a false positive detection for this compound was reported for results from monitoring well groundwater sample MW-265-20191105. The 2019 Annual Periodic Review Report was revised as follows:</p> <ol style="list-style-type: none"> Table 2-1. 2019 Annual Groundwater Sampling Results – result was updated to be “ND”. Table 2-7. Summary of COCs in Shallow Groundwater (Maximum Concentration was previously shown for MW-26S / 22 J – this result was the only exceedance for this compound; so this line in the table for 1,2,3-TCP has been removed). 	AES	LLF	LLF

Executive Summary

On behalf of Essex Specialty Products, Inc. (Essex), Jacobs Engineering Group, Inc. (Jacobs) has prepared this annual Periodic Review Report (PRR) for the ongoing remedial actions for calendar year 2019 at the Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York (site; Figure 1-1) (Site No. 907015). Various constituents of concern (COCs) have been detected in soil and groundwater at the site, including:

- Chlorinated volatile organic compounds (CVOCs)
 - Trichloroethene (TCE)
 - cis-1,2-Dichloroethene (cis-1,2-DCE)
 - trans-1,2-DCE
 - Vinyl chloride
 - 1,1-DCE
- Ketones
 - Acetone
 - 2-Butanone (also known as methyl ethyl ketone)
- Petroleum-related compounds
 - Cumene, benzene, toluene, ethylbenzene, and xylenes (CBTEX)
 - 1,2,4-Trimethylbenzene (1,2,4-TMB)
 - 1,3,5-TMB
- Bis(2-ethylhexyl) phthalate
- Polychlorinated biphenyls

Operation, maintenance, and monitoring activities in 2019 conformed to those prescribed in the *Site Management Plan* (SMP; CH2M HILL Engineers, Inc. [CH2M] 2017a). Metal manufacturing operations by the current site owner involving the use of solvents continue to occur onsite. This PRR summarizes activities undertaken at the site in 2019, the effectiveness of the remedial program, a demonstration of compliance with the major elements of the SMP (CH2M 2017a), and recommendations for changes or future work.

Remedial actions have been undertaken at the site in accordance with the 1994 Record of Decision (ROD). In addition to the actions taken as detailed in the ROD, supplemental investigations and pilot tests have been performed to date. Currently, active engineering controls (ECs) consist of operating two shallow and two deep recovery wells, a groundwater treatment system, asphalt and concrete caps, long-term groundwater monitoring, and a subslab depressurization system at the offsite residence. Institutional controls (ICs) exist in the form of a Declaration of Covenants and Restrictions. Figure 1-2 depicts the areas of remediation and the ICs/ECs at the site.

In 2019, the IC/ECs continued to be operative, except the subslab depressurization system at the offsite residence, which was shut down in mid-March 2018 because the residence is vacant and the property owner had power shut down to it. The residence is being inspected monthly to verify it remains vacant. If the building becomes occupied, outreach will be performed to confirm the system resumes operation.

Surficial cracks were observed over the asphalt and concrete caps at the North Parking Lot Sump (NPLS) Area during the 2018 and April 2019 inspections and were repaired on September 10, 2019. Discharges from the groundwater treatment system were monitored as required and did not exceed the Jamestown Board of Public Utilities discharge permit limits. The IC/ECs certification for 2019 is in Appendix A.

Shallow groundwater continues to be extracted from the NPLS Area where CVOC and CBTEX concentrations have generally declined. In 2019, 0.31 pound of volatile organic compounds (VOCs) was removed from the shallow water-bearing zone (WBZ). CVOCs in the shallow WBZ continue to be present outside the typical capture zones of the groundwater extraction and treatment system; however, the

shallow WBZ CVOCs and petroleum constituent plumes have been substantially delineated, they do not appear to be migrating significantly, and the petroleum constituent plumes do not extend significantly offsite.

In 2019, 178 pounds of VOCs were removed from the deep WBZ, including acetone. VOCs were not detected above remedial action objectives (RAOs) in sentinel wells. TCE; cis-1,2-DCE; vinyl chloride; and acetone remain in the deep WBZ at concentrations above RAOs, although acetone concentrations continue to decrease. CVOC concentrations remain outside the capture zone of the current extraction system, and residual light nonaqueous phase liquid continues to be present under the Plant 5 Building.

Supplemental actions at the site were performed in 2019 and included completing field activities involved with soil and groundwater sampling in accordance with the 2019 *Supplemental Investigation Work Plan* (Jacobs 2019a) and a second round of sampling associated with the offsite vapor intrusion (VI) assessment.

In September 2019, Jacobs completed soil and groundwater sampling activities in the Plant 5 and former underground storage tank (UST) areas to delineate the onsite constituent source areas with sufficient resolution to evaluate potential remedial alternatives. A new monitoring well (MW-124S) also was installed and sampled as part of this investigation. Results from the 2016 and 2017 data gap investigations (CH2M 2017b, 2018a) coupled with findings from the 2019 supplemental investigation (included in Appendix B) indicate that because of persistent sources, alternative or supplemental remedial actions are warranted to reduce COC concentrations below RAOs. These supplemental remedial actions are planned to be implemented as pilot studies in the Plant 5 and former UST areas. The success of previous in-situ chemical oxidation (ISCO) treatment within the central portion of the former UST Area provides evidence and confidence that a similar ISCO application to treat the residual petroleum constituents is appropriate. Further details needed to implement an ISCO treatment will be developed and presented to the New York State Department of Environmental Conservation in an ISCO treatment work plan for the former UST Area, planned for submittal in late 2020. Additionally, a report defining a treatment zone and identifying potential data gaps for the Plant 5 Area will be prepared in support of remedial design and implementation for this area. The Plant 5 Area report is scheduled to be submitted in late 2020, with remedial design for the Plant 5 Area in 2021 followed by a remedial action in 2022. The report summarizing the 2019 investigation, analytical results, and recommendations is included in Appendix B.

The second offsite VI assessment was conducted in November 2019 to obtain additional data to supplement the winter 2018 investigation, and to determine if VI associated with the CVOC groundwater plume from the site impacts downgradient receptors. The assessment was intended to duplicate the 2018 offsite VI sampling event with the addition of indoor air sampling at the H&H Metal Specialty, Inc. building. However, during the building inspections, the H&H Metal Specialty property was vacant and could not be sampled because of health and safety concerns, particularly with the widespread presence of mold inside the building. Because of its condition, the H&H Metal Specialty building will be routinely monitored for changes in occupancy and documented accordingly.

Based on the results from the offsite VI assessment, no further actions are recommended for the Johnson Machine & Fibre Products property. Lastly, although access was denied to the Precision Rollform Technologies (Rollform) property, it is likely the VI concern there is lower or similar to that of the Johnson Machine & Fibre Products property. This can be assumed because the Johnson Machine & Fibre Products property lays between the site and Rollform and shares similar uses and building construction (slab on grade) as Rollform. The summary and results of this VI evaluation are provided in Appendix C.

Contents

Executive Summary	ES-1
Acronyms and Abbreviations	v
1. Site Overview	1-1
1.1 Geology and Hydrogeology	1-2
1.2 Summary of Site Impacts	1-2
1.2.1 Soil	1-3
1.2.2 Shallow WBZ	1-3
1.2.3 Deep WBZ	1-3
1.3 Supplemental Remedial Activities and Investigations	1-4
1.4 Performance Criteria	1-4
1.5 Document Organization	1-4
1.6 Major System Modifications	1-4
2. Remedy Performance, Effectiveness, and Protectiveness	2-1
2.1 Hydraulic Control	2-1
2.1.1 Shallow Groundwater	2-1
2.1.2 Deep Groundwater	2-3
2.1.3 Vertical Gradients	2-4
2.2 Evaluation of Remedial Effectiveness	2-4
2.2.1 Soil	2-4
2.2.2 Shallow Groundwater	2-4
2.2.3 Deep Groundwater	2-7
2.3 Mass Removal by Groundwater Extraction System	2-8
2.3.1 Shallow Groundwater	2-8
2.3.2 Deep Groundwater	2-8
3. Institutional Controls/Engineering Controls Plan Compliance	3-1
3.1 Institutional Controls	3-1
3.2 Engineering Controls	3-1
3.2.1 Groundwater Extraction and Treatment System	3-1
3.2.2 Monitoring Well Network	3-2
3.2.3 Asphalt and Concrete Covers	3-2
3.2.4 Subslab Depressurization System	3-2
4. Monitoring Plan Compliance	4-1
4.1 Components of the Monitoring Plan	4-1
4.2 Summary of Monitoring Completed	4-1
4.2.1 Groundwater Water Levels	4-1
4.2.2 Soil Sampling	4-1
4.3 Comparisons with Remedial Objectives	4-1
4.4 Monitoring Deficiencies	4-2
4.5 Conclusions and Recommendations for Changes	4-2
5. Operations and Maintenance Plan Compliance	5-1
5.1 Components of the Operations and Maintenance Plan	5-1
5.2 Operations, Maintenance, and Monitoring Completed	5-1
5.2.1 Groundwater Extraction and Treatment System Operations and Maintenance	5-2
5.2.2 Groundwater Extraction and Treatment System Monitoring	5-2
5.2.3 Monitoring Well Inspections	5-3

5.2.4	Asphalt and Concrete Cover Inspection	5-3
5.2.5	Subslab Depressurization System	5-3
5.3	Evaluation of the Remedial Systems	5-3
5.4	Operations and Maintenance Deficiencies	5-4
5.5	Conclusions and Recommendations for Improvements	5-4
6.	Periodic Review Conclusions and Recommendations	6-1
6.1	Site Management Plan Compliance.....	6-1
6.2	Performance and Effectiveness of the Remedy	6-1
6.2.1	Shallow WBZ.....	6-1
6.2.2	Deep WBZ.....	6-3
6.2.3	Supplemental Remedial Actions	6-4
6.3	Future Periodic Reviews	6-5
7.	References	7-1

Appendixes

A	IC/EC Certifications
B	2019 Supplemental Investigation Report
C	2019 Offsite Vapor Intrusion Investigation Report
D	Mann-Kendall Trend Analyses
E	Groundwater Extraction Monitoring Data
	E1 Groundwater Extraction System Data
	E2 Recovery Well Performance Data
F	Groundwater Potentiometric Surface Maps
G	Groundwater Extraction System Inspection Logs
H	Asphalt Inspection Logs
I	Backflow Prevention Exemption Certification
J	Semiannual BPU Reports

Tables

1-1	Key Areas and Historically Observed Impacts
1-2	Summary of Site Investigations
1-3	Remedial Action Objective
2-1	2019 Annual Groundwater Sampling Results
2-2	Mann-Kendall Trend Evaluation Results
2-3	Recovery Well Extraction Rates and Operational Percentages
2-4	Monitoring Well Inventory and 2019 Groundwater Elevation Measurements
2-5	2019 Groundwater Vertical Gradients
2-6	Shallow WBZ Analytical Results – Recovery Wells
2-7	Summary of COCs in Shallow Groundwater
2-8	Deep WBZ Analytical Results – Recovery Wells
2-9	Summary of COCs in Deep Groundwater
2-10	Shallow WBZ Recovery Well VOC Mass Extraction Summary
2-11	Deep WBZ Recovery Well VOC Mass Extraction Summary
5-1	Inspection, Maintenance, Monitoring, and Sampling Schedule
5-2	POTW Monthly Monitoring Summary – Detected Parameters in Pre-carbon Influent
5-3	POTW Monthly Monitoring Summary – Detected Parameters in Primary Carbon Effluent
5-4	POTW Monthly Monitoring Summary – Detected Parameters in Post-carbon Effluent

Figures

1-1	Site Location and Layout Map
1-2	Remediation Areas and Institutional and Engineering Control Boundaries
2-1	Monitoring Well Network
2-2	Total CVOC Groundwater Concentration Trends at MW-101S and MW-108S
2-3	Shallow WBZ Total CBTEX and 1,2,4-TMB Concentration Trends, Former UST Area

- 2-4 Shallow WBZ Total CBTEX Concentration Trends, West Building Area
- 2-5 Deep WBZ Total CVOC and Acetone Concentration Trends, Plant 5 Building and Offsite
- 2-6 Total CVOC Groundwater Concentration Trends at RW-1S and RW-2S, NPLS Area
- 2-7 Total CVOC and CBTEX Groundwater Concentration Trends at RW-3S, Former AST/UST Area
- 2-8 Deep WBZ Total CVOCs Concentration Trends, NPLS Area
- 2-9 Shallow WBZ Groundwater Extraction System Mass Removal
- 2-10 Deep WBZ Groundwater Extraction System Mass Removal

Acronyms and Abbreviations

µg/L	microgram(s) per liter
AST	aboveground storage tank
bgs	below ground surface
BPU	Board of Public Utilities
CBTEX	cumene, benzene, toluene, ethylbenzene, and xylenes
CH2M	CH2M HILL Engineers, Inc.
COC	constituent of concern
Covenant	Declaration of Covenants and Restrictions
CPM	Custom Production Manufacturing Inc.
CVOC	chlorinated volatile organic compound
DCE	dichloroethene
EC	engineering control
Essex	Essex Specialty Products, Inc.
GAC	granular-activated carbon
gpm	gallon(s) per minute
IC	institutional control
ISCO	in-situ chemical oxidation
Jacobs	Jacobs Engineering Group Inc.
MW	monitoring well
NPLS	north parking lot sump
NYSDEC	New York State Department of Environmental Conservation
O&M	operations and maintenance
PCB	polychlorinated biphenyl
PMP	Performance Monitoring Plan
POTW	publicly owned treatment works
PRR	Periodic Review Report
RAO	remedial action objective
ROD	Record of Decision
Rollform	Precision Rollform Technologies
RW	recovery well
site	Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York
SMP	<i>Site Management Plan</i>
SSDS	subslab depressurization system
SVE	soil vapor extraction
TCE	trichloroethene

TMB	trimethylbenzene
TTO	total toxic organic
URS	URS Corporation
UST	underground storage tank
VI	vapor intrusion
VOC	volatile organic compound
WBZ	water-bearing zone

1. Site Overview

On behalf of Essex Specialty Products, Inc. (Essex), Jacobs Engineering Group Inc. (Jacobs) has prepared this annual Periodic Review Report (PRR) for the ongoing remedial actions from January 1 through December 31, 2019 at the Essex-Hope State Superfund site (Site No. 907015) located at 125 Blackstone Avenue in Jamestown, New York (site). The 1995 New York State Department of Environmental Conservation (NYSDEC) Order on Consent requires an annual report be prepared for site remedial actions, and these reports have been submitted annually since 1997. Performance monitoring plans (PMPs) were submitted in 2008, 2011, and 2014 (URS Corporation [URS] 2008, 2011, 2014). A comprehensive *Site Management Plan* (SMP) was developed and submitted to NYSDEC in December 2017, in accordance with NYSDEC Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation* (DER-10), dated May 3, 2010 (CH2M 2017a). The SMP addresses the means for implementing operation, maintenance, and monitoring of the institutional controls (ICs) and engineering controls (ECs) at the site. The SMP includes an updated PMP based on the findings from the 2016 and 2017 data gap investigations and was fully implemented in 2018 and followed throughout 2019. This PRR includes an IC/EC Certification Form in Appendix A.

The site comprises approximately 4.7 acres is in a highly industrialized area of the city (Figure 1-1). Custom Production Manufacturing Inc. (CPM) presently owns the site, which consists of two main buildings: the Plant 5 Building on the northern side of the property and the West Building on the western side of the site. The remainder of the site includes paved areas, vegetated areas, a remedial system treatment building, and a Quonset hut. Metal manufacturing operations involving use of trichloroethene (TCE) and other solvents continue to occur onsite.

Various constituents of concern (COCs) are present in site soil and groundwater, including:

- Chlorinated volatile organic compounds (CVOCs)
 - TCE
 - cis-1,2-Dichloroethene (cis-1,2-DCE)
 - trans-1,2-DCE
 - Vinyl chloride
 - 1,1-DCE
- Ketones
 - Acetone
 - 2-Butanone (also known as methyl ethyl ketone)
- Petroleum-related compounds
 - Cumene, benzene, toluene, ethylbenzene, and xylenes (CBTEX)
 - 1,2,4-Trimethylbenzene (1,2,4-TMB)
 - 1,3,5-TMB
- Bis(2-ethylhexyl) phthalate
- Polychlorinated biphenyls (PCBs)

Three separate areas were identified in the early 1990s during remedial investigations and subsequently became the focus of remedial actions (Figure 1-1):

- PCB-contaminated soil and CVOCs in soil and shallow and deep groundwater were identified in the North Parking Lot Sump (NPLS) Area in a parking lot on the southern side of Hopkins Street.
- Bis(2-ethylhexyl) phthalate-contaminated soil and petroleum-related compounds in soil and groundwater were found in the previously closed Underground Storage Tank (UST) Area, located south of the Plant 5 Building.
- Petroleum-related compounds were identified in the former Aboveground Storage Tank (AST)/UST Area soil and groundwater, located northwest of the West Building.

As the result of further delineation during supplemental investigation activities conducted since the March 1994 Record of Decision (ROD; NYSDEC 1994), impacts to groundwater have been observed elsewhere at the site and offsite. Table 1-1 summarizes the historically observed impacts at the site.

The remedial systems at the site were designed and constructed to address impacted groundwater and soil using a combination of soil vapor extraction (SVE), air sparging, and a groundwater extraction and treatment system. Figure 1-2 depicts the areas of remediation and location of IC/ECs at the site. The original remedial action implementation was conducted in 1996 and 1997, based on the March 1994 ROD (NYSDEC 1994) and a 1995 *Basis of Design Report* (Dow Environmental Inc. 1995), and included the following:

- A groundwater extraction well network consisting of five shallow and two deep recovery wells for activated carbon groundwater treatment and discharge to the local publicly owned treatment works (POTW)
- Soil excavation in the NPLS Area to remove TCE- and PCB-impacted soil near a former sump and on the eastern side of the former UST Area to remove bis(2-ethylhexyl) phthalate
- SVE wells in the vadose zone and air sparging wells in the shallow water-bearing zone (WBZ) in the NPLS, former AST/UST, and former UST areas to remediate vadose zone soil and supplement the treatment of impacted groundwater via enhanced biodegradation and volatilization of organic constituents
- Capping with either asphalt or concrete in the NPLS, former AST/UST, and former UST areas to prevent dermal contact and particulate inhalation exposure, minimize leaching of volatile organic compounds (VOCs) and semivolatile organic compounds into groundwater, and improve the efficiency of the SVE system
- Long-term monitoring of a network of monitoring wells across the site

1.1 Geology and Hydrogeology

Updated cross-sections were developed as part of the 2016 and 2017 data gap investigation reports (CH2M 2017b, 2018b) showing the relationships of the four primary stratigraphic units found at the site, consisting of the following materials, in order of depth from the surface:

- Sand and gravel with occasional silt and fine-grained sands, generally classified as a silty sand with gravel extending to 10 to 15 feet below ground surface (bgs); although in the southwestern portion of the site, observed thicknesses in some locations are less than 10 feet, and between 15 and 25 feet north of the site and across the former UST Area, adjacent to Bigelow Street (Figure 1-1).
- A shallow silty clay, generally ranging from 5 to 10 feet thick; however, it is absent or only several inches thick in various locations, including in portions of the NPLS Area.
- A generally 15- to 20-foot-thick silt or silt with sand and in some locations 45 feet thick.
- A 40- to 50-foot-thick deep silty clay.

The depth to water at the site is generally 7 to 11 feet bgs, and impacted groundwater occurs in two hydrostratigraphic zones. The shallow WBZ exists in the shallow sands and gravels under unconfined (water table) conditions. The deep WBZ exists under confined to partially confined conditions in the fine-grained silt with sand and is separated in most areas from the shallow WBZ by the shallow silty clay layer. Groundwater flow in the shallow and deep WBZs under non-pumping conditions is east to northeast. Groundwater levels in the shallow WBZ have been observed to vary 1 to 3 feet between synoptic events.

1.2 Summary of Site Impacts

The following subsections summarize site conditions to provide background on the soil and groundwater impacts present at the site to provide a basis for the 2019 results.

1.2.1 Soil

Soil conditions in the vadose zone (generally 0 to 10 feet bgs) in portions of the site were assessed as part of the 2016 data gap investigation. VOC concentrations greater than RAOs were observed in vadose zone soil in the former AST/UST and NPLS areas in 2016 (CH2M 2017b). Vadose zone soil samples also were collected as part of the 2017 data gap investigation to provide additional delineation of vadose zone soil impacts in the NPLS Area and assess vadose zone conditions in the eastern portion of the former UST Area and on the Hope's Windows property near MW-104S.

As part of the 2016 and 2017 data gap investigations, 21 samples were collected to assess vadose zone soil conditions against RAOs. Six of the 21 samples exceeded the RAOs for one or more site constituents in the southern portion of the NPLS and former AST/UST areas. These areas containing soil exceedances could serve as continuing sources of impact to groundwater, primarily by groundwater table fluctuations and back diffusion of COCs from the impacted media. Vertical leaching by infiltrating precipitation is expected to be minimal because of the low-permeability asphalt and concrete covers in these areas, as described in Section 3.2.3.

During the 2019 supplemental investigation work, 92 saturated soil samples were collected from the Plant 5 and former UST investigation areas (Appendix B) to evaluate the distribution of constituent mass in the saturated zones and in the intervening shallow silty clay. Results indicate that the highest CVOC concentrations are within the upper portions of the fine-grained sand and silt with sand, beneath the shallow silty clay. In portions of the NPLS Area and along Hopkins Avenue near the Plant 5 Building, high concentrations of CVOCs also were found in the shallow silty clay.

1.2.2 Shallow WBZ

As presented in the 2017 *Data Gap Investigation Report* (CH2M 2018b), three distinct plumes in the shallow WBZ are present at and near the site:

- A CVOC plume extending from the NPLS Area to offsite areas to the northeast, roughly parallel to Hopkins Avenue. In October 2017, the highest total CVOC concentration (753.7 micrograms per liter [µg/L]) in this plume was observed at MW-101S on the northern side of the Plant 5 Building, while the total CVOC concentration at MW-108S was 29.5 µg/L in March 2017. Additionally, petroleum-constituents and CVOCs have been detected in the former AST/UST Area that may be contiguous with the CVOC plume in the NPLS area. CBTEX concentrations ranged from 24.9 µg/L in February 2017 to 2.4 µg/L in August 2017. CVOC concentrations ranged from 0.92 µg/L in February 2017 to 94.6 µg/L in August 2017.
- A petroleum-constituent plume in the eastern former UST Area. In-situ chemical oxidation (ISCO) injections were conducted in this area in November 2011, which resulted in an initial decline in COC concentrations, although COC concentrations subsequently rebounded. While CBTEX constituents are present in this plume, the highest concentrations are 1,2,4-TMB and 1,3,5-TMB, with the highest 1,2,4-TMB concentrations observed at MW-26S (3,900 µg/L in October 2017). Only relatively minor concentrations of petroleum-related constituents were present near the eastern and northern property boundaries at VP-6S and MW-27S in 2017, indicating only limited offsite migration has occurred.
- A petroleum-constituent plume is present predominantly underneath the West Building, primarily with CBTEX constituents, although 1,2,4-TMB and 1,3,5-TMB also are present. The highest CBTEX concentrations (9,092 µg/L) in 2017 were observed at MW-30S. Groundwater mounding under the West Building and former UST Area has caused some plume migration to the south and east near MW-117S, south of the West Building, which had a total CBTEX concentration of 188 µg/L in 2017.

1.2.3 Deep WBZ

As described in the 2017 *Data Gap Investigation Report* (CH2M 2018b), the predominant plume in the deep WBZ consists of a CVOC plume extending from the NPLS Area under the Plant 5 Building and offsite to the northeast. Nonaqueous phase liquid containing CVOCs historically has been observed at PZ-4D under the Plant 5 Building, and the highest CVOC concentrations observed in 2017 were observed

at MW-118D (adjacent to PZ-4D), with a reported total CVOC concentration of 243,832 µg/L in October 2017. CVOC impacts are also present offsite to the northeast, with total CVOC concentrations up to 143,430 µg/L at MW-110D in 2017. An area of elevated acetone concentrations has also historically been present near RW-6D (19,000 µg/L in February 2017). MW-109D, MW-120D, and MW-121D were installed northeast of the site to serve as sentinel wells to delineate this deep CVOC plume and monitor for its potential downgradient migration.

1.3 Supplemental Remedial Activities and Investigations

From 2000 through 2019, multiple voluntary supplemental remedial activities have been implemented with NYSDEC's approval, as listed in Table 1-2 (supplemental investigations) and depicted on Figure 1-2 (supplemental remedial actions). In addition to routine performance monitoring in 2019, a supplemental investigation (Appendix B) and an offsite soil vapor investigation (Appendix C) were conducted.

1.4 Performance Criteria

The qualitative remedial action objectives (RAOs) for soil and groundwater at the site as listed in the ROD dated March 11, 1994, are as follows:

- Eliminate the potential for direct human or animal contact with contaminated soil
- Mitigate the impacts of contaminated groundwater to the environment
- Mitigate, to the extent practicable, migration of constituents from onsite areas to groundwater
- Provide for attainment of RAOs for groundwater and soil quality

The quantitative RAOs are the criteria to evaluate remediation effectiveness, which are included in the ROD and listed in Table 1-3. The depth to which soil RAOs are applicable was not specified in the ROD (NYSDEC 1994), but the soil sampling plans in the PMPs produced by URS limited soil sampling to the shallowest 6 feet of soil in the vadose zone. The Declaration of Covenants and Restrictions (Covenant) signed by CPM and NYSDEC in 2014 restricted use of the site to industrial purposes (Essex and CPM 2014).

The groundwater treatment system operates under a Jamestown Board of Public Utilities (BPU) pretreatment permit, first issued in 1996 and renewed in November 2017, for discharge to the city sewer and POTW. Pretreatment effluent limitations are contained in the permit and described in Section 5.2.2.

1.5 Document Organization

This PRR is divided into the following sections in accordance with NYSDEC guidance (NYSDEC 2013):

- Executive Summary
- Section 1, Site Overview
- Section 2, Remedy Performance, Effectiveness, and Protectiveness
- Section 3, Institutional Controls/Engineering Controls Plan Compliance
- Section 4, Monitoring Plan Compliance
- Section 5, Operations and Maintenance Plan Compliance
- Section 6, Periodic Review Conclusions and Recommendations
- Section 7, References

Included as part of this PRR submission are the 2019 *Supplemental Investigation Report* (Appendix B; Jacobs 2020a) and the 2019 *Offsite Vapor Intrusion (VI) Investigation Report* (Appendix C; Jacobs 2020b). Supporting material in the form of tables, figures, and appendixes are at the end of this PRR.

1.6 Major System Modifications

Modifications to the ROD-related remedial systems have been made and communicated to NYSDEC through previous reporting. No system modifications were made in 2019.

2. Remedy Performance, Effectiveness, and Protectiveness

The remedial actions designed and installed in the mid-1990s were focused on remediating the NPLS, former AST/UST, and former UST areas. As summarized in Section 1, additional investigations have identified groundwater impacts in other areas onsite (West Building and Plant 5 Building) and offsite. Remedy performance, effectiveness, and protectiveness were assessed by evaluating historical monitoring data, including 2019 data for the groundwater extraction system and results from the 2016 and 2017 data gap investigations (CH2M 2017b, 2018a) and the 2019 supplemental investigation (Appendix B) in comparison to the project RAOs. Hydraulic control exerted by the recovery wells was assessed by evaluating recovery well extraction rates, groundwater potentiometric surfaces, vertical gradients, and VOC concentration trends at existing and newly installed downgradient sentinel or observation monitoring wells.

This section includes an evaluation of the groundwater extraction and treatment system performance in terms of the hydraulic control exerted by the recovery wells on impacted groundwater, comparison of site groundwater data to RAOs, and evaluation of the effectiveness of the groundwater treatment system at removing constituent mass. Additional investigation activities completed during the reporting period are also discussed herein. Figure 2-1 shows the monitoring well network used to evaluate groundwater levels and concentrations.

2.1 Hydraulic Control

A groundwater extraction and treatment system has been operational at the site since 1998, with the goal of mitigating migration of impacted groundwater from the site. This section summarizes pumping, potentiometric, and COC data to evaluate the hydraulic control exerted by the groundwater extraction system. Table 2-1 includes the results from the 2019 annual groundwater sampling event conducted in November 2019 as per the SMP. Mann-Kendall trend analysis results are included in Table 2-2 for wells with six or more results to statistically evaluate concentration trends. Appendix D contains the Mann-Kendall trend analysis source files.

2.1.1 Shallow Groundwater

2.1.1.1 Recovery Well Extraction Rates

Table 2-3 summarizes groundwater extraction rates and the operational percentages at each recovery well. Appendix E provides a graphical summary of annual extraction volumes and average annualized flow rates at each recovery well. Shallow WBZ recovery wells RW-1S and RW-2S were operational 85% and 87% of the time in 2019, respectively. During periods of operation, average flow rates were 0.14 gallon per minute (gpm) for RW-1S and 1.03 gpm for RW-2S. Groundwater extraction rates in the shallow WBZ are limited by the low saturated thickness, which cause frequent cycling of the pumps as the water level is quickly drawn down during pumping.

2.1.1.2 Groundwater Flow Conditions

Groundwater elevations were measured in March, June, August, and October 2019. A monitoring well inventory, including the 2019 water level measurements, is provided in Table 2-4. Appendix F contains shallow potentiometric surface maps from March, June, August, and October 2019. Shallow groundwater flow under non-pumping conditions is northeast toward the Chadakoin River. Impacted shallow groundwater is captured in portions of the NPLS Area by recovery wells RW-1S and RW-2S. A capture zone was observed encompassing most of the NPLS Area. Groundwater flow at the rest of the site is generally to the northeast, although a persistent area of groundwater mounding is observed south of the Plant 5 Building and under the eastern portion of the West Building, causing localized radial flow. Similar flow patterns were observed in 2018 and preceding years; the frequency of groundwater elevation

measurements will be re-evaluated in the 2020 PRR. Approximate capture zones are shown on the March, June, August, and October 2019 potentiometric maps provided in Appendix F.

2.1.1.3 Concentration Trends Outside Capture Zone

The shallow remedial recovery well system was designed to provide capture of onsite groundwater in the NPLS, former AST/UST, and former UST areas. The former UST Area has been and is being addressed using other remedial actions, and the recovery wells in that area were removed from service in 2002 as part of the UST removal. Select shallow WBZ wells are sampled annually to monitor potential downgradient migration of site-related constituents beyond current plume configurations, and other monitor wells are sampled to monitor concentration trends within the current plume configurations but outside the typical hydraulic capture zones to evaluate how well the system is reducing constituent migration.¹

Shallow CVOC Plume

Monitoring wells MW-101S and MW-108S are sampled annually to monitor potential CVOC plume migration beyond the typical shallow capture zone. MW-101S is approximately 130 feet northeast of RW-2S, and MW-108S is approximately 565 feet northeast of RW-2S and offsite (and down-gradient of a possible non-Essex related plume). Total CVOC groundwater concentration trends from November 2016 through November 2019 at MW-101S and MW-108S are shown on Figure 2-2. Total CVOC concentrations declined at MW-101S from 753.7 µg/L in October 2017 to 101.7 µg/L in November 2018 but increased to 490 µg/L in November 2019. Results from MW-101S indicate a general downward trend, but with considerable variation from sample event to sample event; trends at this well will continue to be evaluated to determine if there is a statistically significant trend. Total CVOC concentrations at MW-108S were 33 µg/L in November 2019 compared to 34.13 µg/L in November 2018 and 29.5 µg/L in March 2017, indicating the plume is stable in this area. Mann-Kendall trend analyses conducted for MW-108S (Table 2-2 and Appendix D) indicate a statistically significant stable trend. Overall, these results indicate the shallow WBZ CVOC plume is relatively stable downgradient of the NPLS Area.

MW-104S, located north of the site on the Hope's Windows property, is also monitored annually. The highest concentration of TCE (250 µg/L) in offsite portions of the shallow CVOC plume was detected in November 2016 at this well, and 80.3 µg/L was detected in November 2019. TCE detected at this well may be related to a separate offsite release based on its position side-gradient of the Site, low-level detections of tetrachloroethene (not detected in 2019 at on-site wells), and higher TCE concentrations than historically observed at closer wells such as MW-103S. Mann-Kendall trend analyses will be conducted for CVOC concentrations at MW-101S and MW-104S in future PRRs once six sampling events have been completed.

Eastern Former UST Area Petroleum Hydrocarbon Plume

MW-27S, MW-26S, and VP-6S are monitored annually to evaluate potential offsite migration of the plume. However, VP-6S could not be sampled in November 2019 because the well manhole was filled with water and sediment. Petroleum constituent concentrations at MW-27S were nondetect and below RAOs in November 2018 and November 2019. MW-18, located downgradient of VP-6S was sampled and did not contain detectable concentrations of petroleum constituents. In September, as part of the PDI, a groundwater grab sample collected from DPT-55, located slightly upgradient of VP-6S, contained no detectable petroleum constituents (Appendix B). Mann-Kendall trend analysis at MW-27S indicates concentrations of CBTEX are statistically decreasing (Table 2-2, Appendix D, and Figure 2-3). Mann-Kendall trend analyses will be conducted for 1,2,4-TMB concentrations at MW-27S and VP-6S in future PRRs once six sampling events have been completed. Monitoring well VP-6S will be repaired in 2020

¹ The petroleum constituent and CVOCs present in the shallow WBZ at the former AST/UST Area is hydraulically upgradient of the NPLS Area and within the typical hydraulic capture zone of RW-1S and RW-2S; therefore, downgradient constituent migration from this area is not discussed in this section.

before the annual groundwater sampling event. Overall, these results indicate the petroleum hydrocarbon plume is not migrating significantly offsite; the 2019 supplemental investigation results support this conclusion. Groundwater samples collected during that investigation (Appendix B) have delineated the extent of the petroleum hydrocarbon contamination in this area and suggest the contamination is limited to the general vicinity of monitoring well MW-26S.

West Building Petroleum Hydrocarbon Plume

MW-20 and MW-23S are sampled annually to monitor potential plume migration to the northeast, and MW-117S is sampled annually to monitor potential localized plume migration to the south. Petroleum-related constituents were not detected at MW-23S or MW-117S, and only 0.82 J µg/L was detected at MW-20 in November 2019. CBTEX concentrations have declined at MW-117S from 3,478 µg/L in 2016 to nondetect in November 2018 and November 2019; at MW-20, from 7,971 µg/L in March 2012 to nondetect in November 2018 and 0.82 J µg/L in November 2019 (Figure 2-4). MW-20 and MW-23S exhibit decreasing trends from 2011 (post-ISCO treatment) to present (Table 2-2, Appendix D, and Figure 2-4). Mann-Kendall trend analyses will be conducted for MW-117S and MW-30S in future PRRs once six sampling events have been completed. In general, results indicate the petroleum plume is not migrating significantly from the West Building area. Also, because CBTEX were not detected at MW-117S during the November 2019 event, plume migration south of this well appears to have ceased.

Groundwater samples collected during the 2019 supplemental investigation provide additional data to delineate the petroleum hydrocarbon contamination in this area. The results suggest that elevated concentrations of total VOCs are present beneath the footprint of the West Building and extend northeast toward the former UST Area. The concentration pattern at MW-30 is potentially indicative of an area of contamination beneath the West Building, which was not remediated by the previous ISCO treatment.

2.1.2 Deep Groundwater

2.1.2.1 Recovery Well Extraction Rates

Table 2-3 summarizes flow rates for the deep recovery wells, and Appendix E provides a graphical summary of annual extraction volumes and average annualized flow rates at each recovery well. The percentage of time that each deep WBZ recovery well was operational was 96% at RW-2D and 91% at RW-6D. Average flow values during periods of operation were 0.69 gpm at RW-6D and 1.65 gpm at RW-2D. Operational percentages, extractions volumes, and pumping rates experienced in 2019 were lower than those in 2018; however, they are comparable to historical trends and averages.

2.1.2.2 Flow Conditions

Groundwater flow in the deep WBZ under non-pumping conditions is to the north and east. Appendix F contains deep potentiometric surface maps from March, June, August, and October 2019. Pumping of the deep recovery wells RW-2D in the NPLS Area and RW-6D northeast of the Plant 5 Building resulted in a capture zone encompassing most of the site and portions of the areas east and north of the site as noted during the March, June, August, and October 2019 water level events. Approximate capture zones are shown on the March, June, August, and October 2019 potentiometric maps (Appendix F).

2.1.2.3 Volatile Organic Compound Trends Outside Capture Zone

The deep WBZ groundwater extraction system originally was designed to provide hydraulic capture and treatment of impacted groundwater in the NPLS Area. In 2007, RW-6D was installed outside the northeastern corner of the Plant 5 Building to capture impacts detected outside the NPLS Area. MW-25D, MW-16D, MW-109D, MW-120D, and MW-121D are monitored annually to evaluate potential downgradient or lateral plume migration to the northeast (Table 2-1). CVOC concentrations in groundwater samples collected in November 2018 and November 2019 from these wells were nondetect and/or did not exceed RAOs (only vinyl chloride was detected in November 2019 at MW-16D at a concentration of 0.43 J µg/L). Therefore, the deep CVOC plume has been delineated to the northeast of the site and remains within the limits of the monitoring well network.

MW-106D, MW-110D, and MW-122D are wells within the CVOC plume but outside the typical hydraulic capture zone. These wells are monitored annually to evaluate whether the hydraulic capture system is effectively mitigating downgradient migration of CVOCs and acetone within the plume (Table 2-1). CVOC concentrations in November 2019 at these wells were slightly lower than concentrations detected in November 2018 (Figure 2-5). MW-122D was installed as a replacement well for PZ-7D in 2017; historical CVOC concentrations at PZ-7D in 2013 and 2014 (1,353 and 1,126 µg/L, respectively) were similar to those observed in 2018 and 2019 at MW-122D (1,087 µg/L in November 2018 and 990 µg/L in November 2019). Acetone was not detected in any of the 2019 samples from these wells, indicating the extraction wells are successfully removing this compound and/or it is naturally degrading. Mann-Kendall trend analyses for CVOC concentrations at MW-106D and MW-110D indicate a probable increasing trend and an increasing trend, respectively, at these two wells. Mann-Kendall trend analyses will be conducted for MW-122D in future PRRs once six sampling events have been completed. The results indicate the plume is slowly migrating outside the capture zone but has not migrated significantly, as sentinel wells have not been affected above RAOs.

2.1.3 Vertical Gradients

Vertical gradients under pumping conditions are generally downward between the shallow and deep WBZs, and as expected, the largest vertical gradients are observed near extraction wells RW-2D and RW-6D (Table 2-5). While a downward vertical gradient indicates the possibility that contamination in the shallow WBZ could migrate downward into the deep WBZ, the presence of the shallow silty clay in most areas of the site, including underneath the Plant 5 Building, likely slows this migration (and CVOC concentrations in the deep WBZ are presently higher than in the shallow WBZ). However, as discussed in the 2017 *Data Gap Investigation Report* (CH2M 2018a), the shallow silty clay appears to be absent or thin in the western portion of the NPLS Area.

2.2 Evaluation of Remedial Effectiveness

2.2.1 Soil

Compliance soil sampling is not required as per the SMP (CH2M 2017a).

As described in Section 1.2.1, several vadose zone soil samples collected as part of the 2016 and 2017 data gap investigations exceeded the RAOs for one or more site constituents in the southern portion of the NPLS, former AST/UST, Plant 5, and former UST investigation areas. These areas containing soil exceedances could serve as continuing sources of impact to groundwater, primarily by groundwater table fluctuations.

2.2.2 Shallow Groundwater

RW-1S and RW-2S recover groundwater from the NPLS Area, while RW-3S recovered groundwater in the former AST/UST Area until August 2017, when it was permanently shut off. Tables 2-6 and 2-1 present the 2019 semiannual shallow recovery well sampling results and the November 2019 annual shallow monitoring well sampling results, respectively. Table 2-7 summarizes the 2019 detected concentrations of COCs in shallow groundwater and the number of wells sampled with concentrations above and below the RAOs for CVOCs and petroleum-related compounds.

2.2.2.1 Shallow CVOC Plume

RW-1S and RW-2S in the NPLS Area are monitored semiannually to evaluate conditions in this area. These wells capture a portion of the shallow CVOC-impacted groundwater (Figure 2-6).² The following observations can be made:

- CVOC concentrations at RW-2S in 2019 were 72 µg/L in February and 27 µg/L in August and continue to be one to three orders of magnitude lower than pre-remediation concentrations (410 to 10,100 µg/L between 1995 and 1997, respectively) .
- The highest concentrations of CVOCs (190 and 390 µg/L in February and August 2019, respectively) within the NPLS Area wells sampled in 2019 are at RW-1S. The higher concentrations observed at RW-1S are consistent with the well's location near the area of elevated soil CVOC detections delineated in 2016 and 2017.
- RW-1S and RW-2S exhibit a long-term (1995-2019) statistically significant decreasing trend indicating that the remedial systems have been effective at reducing contaminant concentrations (Table 2-2 and Appendix D). However, Mann-Kendall trend analysis for the past 10 years indicates that RW-1S exhibits a probably decreasing trend and RW-2S does not exhibit a statistically significant trend, suggesting that the effectiveness of these wells at removing mass has declined. However, these wells continue to provide hydraulic capture in the NPLS as intended.

As discussed in Section 2.2.1.3, total CVOC concentrations declined at MW-101S from 753.7 µg/L in October 2017 to 101.7 µg/L in November 2018 but increased to 490 µg/L in November 2019, while concentrations in the most eastern offsite well (MW-108S) have been stable.

Groundwater extraction at RW-1S and RW-2S continue to provide hydraulic capture and reduce downgradient migration of CVOCs (Figure 2-6). However, CVOC concentrations at MW-101S were higher than those observed at RW-1S and RW-2S in 2019, suggesting there may be considerable variation from sample event to sample event at MW-101S or a localized source at this well. Future results at MW-101S will continue to be evaluated to determine if there is a statistically significant trend. Outside the hydraulic capture zone, the shallow CVOC plume appears to be relatively stable, as shown by the stable concentrations at MW-108S. There may be a separate, non-site-related source of TCE on the Hope's Windows property near MW-104S that is contributing to the offsite CVOC plume.

2.2.2.2 Former UST/AST Area

RW-3S is monitored semiannually to evaluate conditions in the former UST/AST Area. RW-3S is in the former AST/UST Area and was shut off in August 2017 because of low pumping rates, low constituent recovery, and its position hydraulically upgradient of RW-1S and RW-2S. RW-3S concentration trends are depicted on Figure 2-7:

- CVOC concentrations at RW-3S in the former AST/UST Area have fluctuated through time. The fluctuating concentrations are likely related to general variability in water levels and seasonal changes. Mann-Kendall trend analysis indicates there is no significant trend in CVOC concentrations from 2006 to present (Table 2-2 and Appendix D).
- TCE (9.0 and 58 µg/L in February and August 2019, respectively), and cis-1,2-DCE (6.3 and 110 µg/L in February and August 2019, respectively) are the only VOCs that exceeded the RAOs at RW-3S in 2019.

² While concentration trends can be assessed at these extraction wells, the concentrations in these wells can be influenced by fluctuations in the capture zone radius because of pumping rate variations and regional groundwater water level trends and represent the combined effects of the plume concentrations within that capture zone radius. For example, at higher pumping rates a well will draw in water from a wider radius. If that wider radius intercepts an area of elevated concentrations, then the sample concentration should increase; conversely, if the wider radius intercepts mostly lower concentration water, the sample concentration at the extraction well should decrease.

- CBTEX levels at RW-3S have declined and remain under their respective RAOs from August 2017 through the August 2019 semiannual recovery well sampling. Mann-Kendall trend analysis indicates there is a statistically significant decreasing trend in CBTEX concentrations from 1997 to present (Table 2-2 and Appendix D).
- Increased concentrations of TCE (58 µg/L) and cis-1,2-DCE (110 µg/L) were recorded during the August 2019 semiannual sampling event. These August 2019 CVOC concentrations were higher than the May and November 2018 and February 2019 CVOC concentrations. While it is believed that the fluctuations are related to water level fluctuations and seasonal changes, semiannual recovery well sampling results for 2020 will be closely monitored for signs of post-shutdown rebound conditions.

Based on groundwater potentiometric maps, remaining impacts in this area may migrate toward the NPLS Area, where, if not yet attenuated, they would be captured by RW-1S and RW-2S.

Eastern Former UST Area Petroleum Hydrocarbon Plume

MW-26S is monitored annually to evaluate the highest concentrations of the petroleum-constituent plume in the eastern former UST Area (Figure 2-3). The following observations can be made:

- 1,2,4-TMB was detected at a concentration of 3,200 µg/L at MW-26S in 2019, with lower concentrations of cumene, ethylbenzene, and total xylenes observed (total CBTEX of 630 µg/L). CBTEX concentrations in 2019 were lower than pre-ISCO treatment and 2018 concentrations (2,038 µg/L in 2011 and 874 µg/L in 2018). Mann-Kendall trend analysis for CBTEX concentrations at this well indicates there is a statistically probable decreasing trend (Table 2-2 and Appendix D). 1,2,4-TMB concentrations have been relatively steady, with a 2016 concentration of 3,800 µg/L and a 2018 concentration of 3,200 µg/L.
- As discussed in Section 2.2.1.3, monitoring at MW-27S indicates the plume has not migrated significantly offsite, and concentration trends at MW-27S indicate the plume has attenuated in this location. The results of the 2019 supplemental investigation indicate that the plume in this area is generally limited spatially and has been defined. Elevated total VOCs are generally limited to the immediate vicinity of MW-26S and DPT-57.

In conclusion, the plume exists outside the shallow WBZ capture zone, and concentrations at the most impacted well (MW-26S) have been steady to decreasing; however, the plume has been attenuating at its eastern edge (MW-27S; Figure 2-3).

West Building Petroleum Hydrocarbon Plume

Groundwater under the West Building area migrates under natural gradient conditions to the east-northeast, with localized flow to the east and south near an area of groundwater mounding. MW-30S is sampled annually to monitor COC concentrations in the most-impacted portion of this plume. Plume observations include:

- Concentrations of CBTEX at MW-30S decreased from 32,220 µg/L in 2018 to 14,000 µg/L in 2019 (Figure 2-4). The concentration fluctuations may be related to groundwater table fluctuations, which increased by approximately 9 inches in 2019 from 2018 water levels.
- As discussed in Section 2.2.1.3, 2019 concentrations at MW-117S were nondetect and lower than previous reported concentrations in 2016 and 2017, indicating the plume has attenuated in this location, south of the West Building (Figure 2-4). Petroleum constituents in the northeast were detected at MW-20 but at a concentration of only 0.82 J µg/L and nondetect at MW-23S, indicating the plume has not migrated to these locations.

Mann-Kendall trend analyses will be conducted for MW-30S and MW-117S in future PRRs once six sampling events for each well have been completed. In summary, while this plume is outside the shallow WBZ capture zone, the plume concentrations are relatively steady, the plume has attenuated to the south, and has not migrated significantly to the northeast.

2.2.3 Deep Groundwater

Table 2-8 contains the 2019 semiannual deep recovery well sampling results, and Table 2-1 presents the 2019 annual deep monitoring well sampling results. Table 2-9 summarizes the 2019 detected concentrations of COCs in deep groundwater.

Recovery wells RW-2D and RW-6D are monitored semiannually to evaluate concentration trends in the NPLS Area and the area northeast of the Plant 5 Building. Near the NPLS Area, monitoring wells MW-118D and MW-119D are monitored annually to evaluate concentration trends within the typical hydraulic capture zone (Figure 2-8). As discussed previously, MW-122D, MW-110D, and MW-106D are sampled annually to monitor conditions just outside the typical hydraulic capture zone. The following observations can be made:

- RW-2D, which recovers groundwater in the NPLS Area, had total CVOC concentrations of 8,100 J µg/L (February 2019) and 5,300 µg/L (August 2019). As shown on Figure 2-8, these concentrations are similar to past concentrations, which have ranged from 4,719 to 14,539 µg/L since 2008. Total CVOC concentrations exhibit a statistically stable trend, indicating this well continues to steadily extract high concentration CVOCs from the vicinity.
- MW-118D, located under the western portion of the Plant 5 Building and near PZ-4D (which historically has had measurable nonaqueous phase liquid), had total CVOC concentrations of 310,000 µg/L in November 2019, slightly higher than the 2018 concentration of 261,210 µg/L.
- MW-119D, located north of the NPLS Area on the Hope's Windows property, had total CVOC concentrations of 7,000 µg/L in November 2019 consistent with November 2018 results (6,280 µg/L).

These results indicate that while high concentrations are being extracted by RW-2D, significant concentrations remain at the source and near the NPLS Area. Mann-Kendall trend analyses will be conducted in future PRRs for MW-118D and MW-119D once six sampling events have been conducted at these wells.

Near the Plant 5 Building area and to the northeast, the following observations are made:

- RW-6D, which recovers groundwater from under the northeastern corner of the Plant 5 Building and areas offsite to the east and north, had total CVOC concentrations of 43,000 J and 35,000 J µg/L in February and August 2019, similar to previous concentrations since well startup in 2009 (range of 16,688 µg/L to 56,571 µg/L; Figure 2-5). Mann-Kendall trend analysis from 2009 to present indicates a statistically increasing CVOC concentration trend (Table 2-2 and Appendix D).
- Acetone concentrations at RW-6D continued to decline, with nondetect concentrations (1,000 U µg/L) in February and August 2019 (Figure 2-5). These acetone concentrations are significantly lower than the peak concentration of 138,000 µg/L in November 2014 and exhibit a statistically decreasing trend for the 2014 to 2019 period.
- As discussed in Section 2.2.2.3, CVOC concentrations at MW-110D, MW-106D, and MW-122D, which are wells located at or just beyond the typical hydraulic capture zone, decreased slightly in 2019; however, Mann-Kendall trends for 2016 to 2019 indicate concentrations are probably increasing for MW-106D and MW-110D.
- CVOCs have not been detected above RAOs at any of the downgradient sentinel wells, indicating any plume migration near MW-110D, MW-106D, and MW-122D is slow.

While RW-2D and RW-6D have removed significant quantities of VOCs (Section 2.4.2), concentrations remain above RAOs and are present outside the typical capture zone of the current extraction system. CVOCs present in the deep WBZ outside the capture zone are slowly migrating in the direction of groundwater flow to the northeast.

2.3 Mass Removal by Groundwater Extraction System

The groundwater extraction system performance also is evaluated by calculating the estimated mass of VOCs removed by the extraction and treatment system. Mass removal and extraction rates by well are presented in Appendix E and summarized below.

2.3.1 Shallow Groundwater

The total mass removed by the shallow extraction system consisting of recovery wells RW-1S and RW-2S was 0.31 pound in 2019, a decrease from 0.53 pound in 2018. Individual mass removal values are provided in Table 2-10 and Appendix E. In total, the shallow groundwater extraction system has removed approximately 158 pounds of VOCs since 1998, with 69% of that mass removed between 1998 and 2002, mainly by RW-4S. The mass removal has decreased over time because of the decreasing VOC concentrations observed in the shallow WBZ, the removal of RW-4S from the shallow extraction system in 2002 (due to alternative remedial actions put in place that removed the source area RW-4S was capturing), and decreasing groundwater extraction volumes. The removal of RW-5S in 2002 and RW-3S in 2017 from the shallow extraction system had a negligible effect due to their low mass removal. Mass removal by well through time is presented on Figure 2-9.

While the shallow extraction system exerts hydraulic control on the shallow WBZ in the NPLS Area, mass removal continues to be low mainly because of the limited saturated thickness of the shallow WBZ and low concentrations in extracted groundwater from RW-2S.

2.3.2 Deep Groundwater

The total mass removal by the deep groundwater extraction system consisting of recovery wells RW-2D and RW-6D was estimated at 178 pounds in 2019, representing a decrease from the 2018 estimated mass removal of 204 pounds. This decrease in mass removal is primarily related to decreasing acetone concentrations at RW-6D (from 6,900 µg/L in May 2018 to nondetect in February and August 2019) and reduced total volume pumped because of pump shutdown periods and lower pump rates at RW-2D in 2019 to reduce system sedimentation and pressure buildup. Individual mass removal values are provided in Table 2-11 and Appendix E.

As depicted on Figure 2-10, the total mass removed by the two deep recovery wells increased after RW-6D was installed in 2009 declined in 2016 and 2017 (primarily because acetone concentrations were decreasing) but increased in 2018 and 2019 at RW-6D (because of improved pumping rates and uptime). In total, the deep groundwater extraction system has removed 2,755 pounds of VOCs since 1998, and 75% of the mass extraction has occurred since the 2009 addition of RW-6D to the system.

3. Institutional Controls/Engineering Controls Plan Compliance

IC/ECs are built into the project remedial action as part of the operations and maintenance (O&M) plan, SMP, and Deed Restrictions filed by CPM. IC/EC certifications are provided in Appendix A.

3.1 Institutional Controls

ICs in place at the site include the 2017 O&M plan (CH2M 2017c), groundwater and land use restrictions, and building use restrictions included in a Covenant filed at the Chautauqua County Office of Recorder of Deeds, Mayville, New York in 2014 (Essex and CPM 2014).

The 2017 O&M plan describes the procedures to operate and maintain the remedial systems at the site, including the monitoring requirements and schedule of maintenance (CH2M 2017c). Section 5, *Operations and Maintenance Plan Compliance*, presents the annual summary of system O&M activities.

CPM filed Deed Restrictions to establish permanent notifications in the Chautauqua County Office of Recorder of Deeds, Mayville, New York. The Covenant and the latest deed filing from 2014 are contained in Appendix A of the 2014 PRR (AECOM 2015). Restrictions imposed by the Covenant, unless prior written approval is granted by NYSDEC, in part include restrictions on groundwater use without necessary treatment, restrict use of the site to industrial purposes, require that ECs not be disturbed or interfered with, and restrict excavations which threaten the integrity of the ECs or result in an unacceptable human exposure to contaminated soil. These ICs remain in place and in effect.

3.2 Engineering Controls

ECs have been implemented at the site as part of the NYSDEC Order on Consent (NYSDEC and Essex 1995), which outlined the remedial actions pursuant to the 1994 ROD issued by NYSDEC (NYSDEC 1994). The site's IC/EC Certification Form is included in Appendix A. ECs stipulated in the ROD that are still in place and active at the site are the following:

- The groundwater extraction and treatment system, presently consisting of two shallow and two deep recovery wells and activated carbon groundwater treatment with onsite discharge to the local POTW.
- Low-permeability asphalt and concrete covers are in the NPLS, former UST, and former AST/UST areas.
- A network of monitoring wells across the site (as designated in the SMP [CH2M 2017a]) used to measure the effectiveness of the groundwater remedial activities. This monitoring well network was upgraded during the 2016 and 2017 data gap investigations (Figure 2-1).

Voluntary supplemental remedial activities were initiated in 2000, with NYSDEC's approval, to refine the delineation of subsurface constituents and evaluate potential remedial alternatives to enhance remedial effectiveness. A summary of the additional activities performed at the site after the initial remedial actions is contained in Table 1-2 and depicted on Figure 1-2.

In November 2008, a subslab depressurization system (SSDS) was installed at 159 Hopkins Avenue to mitigate VI concerns at a residence. Performance of the SSDS was evaluated in April 2017 and ceased operation in spring 2018 due to unoccupancy, as described in Section 3.2.4. Additionally, dry wells in the former UST Area were removed, and the area was paved with asphalt in 2015. This effort enhances the asphalt cover and reduces infiltration (Figure 2-1).

3.2.1 Groundwater Extraction and Treatment System

The performance of the groundwater extraction and treatment system was evaluated through the end of 2019 in accordance with the SMP and 2017 O&M plan (CH2M 2017a, 2017c). This included monitoring groundwater levels to determine degree of capture, monitoring groundwater COC concentrations,

evaluating extraction well pumping rates and COC concentrations, providing routine maintenance and logging system performance, and conducting monthly sampling of the influent and effluent concentrations from the granular activated carbon (GAC) treatment system.

Semiannual reports are submitted to the Jamestown BPU and NYSDEC. Performance information for the groundwater extraction and treatment system is discussed in Sections 2 and 5. Additionally, the groundwater extraction and treatment system is inspected semiannually in accordance with the O&M plan (CH2M 2017c). Appendix G contains the April and October 2019 groundwater extraction system inspection logs. Recovery wells RW-1S, RW-2S, and RW-2D were redeveloped in September 2019 in accordance with the required annual redevelopment stipulated in the O&M plan and SMP. RW-6D was not redeveloped, as the amount of disturbed silt within this extraction well has caused system issues during previous redevelopments.

Effectiveness of the groundwater extraction system is discussed in Section 2. As discussed in Section 5.2.2, the treatment system has successfully treated COCs to meet BPU permit requirements.

3.2.2 Monitoring Well Network

The monitoring well network for the shallow and deep WBZs has been expanded in recent years as follows:

- Eighteen wells were installed in 2016 to enhance the capability to monitor the offsite CVOC plume and the petroleum constituent plume beneath the West Building.
- Twelve new wells were installed in the deep WBZ (five in 2016 and seven in 2017) to aid in delineating the deep WBZ plume and provide additional locations to measure water levels to assist in capture zone assessment.
- One additional well (MW-124S) was installed in the former UST Area and sampled as part of the 2019 supplemental investigation. Well construction details and results from the sampling of MW-124S are discussed in Appendix B.

Analytical results from the annual November 2019 groundwater sampling events are discussed in Section 2. Table 2-4 contains a complete monitoring well inventory, and Figure 2-1 shows the monitoring well network, including the recent additions.

3.2.3 Asphalt and Concrete Covers

The asphalt and concrete covers in the NPLS, former AST/UST, and former UST areas (Figure 1-2) are monitored semiannually in accordance with the O&M plan (CH2M 2017c). In November 2015, an asphalt cover was placed in the former UST Area following drywell removal activities (Section 5.2.4). Observations from 2018 and the April 2019 inspections included several cracks (24 to 90 feet in length) and a 3-foot-diameter shallow pothole. Crack filling and sealing work was attempted in October 2018 but could not be completed because of cold/wet weather. Subsequently, on September 10, 2019, the cracks in the concrete and asphalt covers in the NPLS, former AST/UST, and former UST areas were filled, and the asphalt in the NPLS and former AST/UST areas was seal coated. Appendix G contains the logs for the cap inspections completed on April 23 and October 9, 2019.

3.2.4 Subslab Depressurization System

An SSDS (VI system) was installed in 2008 at the residential building at 159 Hopkins Avenue, northeast of the site (Figure 1-2). The VI mitigation system was designed to operate 24 hours a day, 365 days a year. Annual inspections of the SSDS are to be conducted during the heating season, in accordance with the O&M plan (CH2M 2017c). However, during a monthly check in April 2018, the SSDS was observed to have been shut down. Upon further investigation, it was determined that the residence had become vacant in mid-March 2018, and the power supply had been shut off by the property owner. The residence is being inspected monthly to verify it remains vacant. If the building becomes occupied, outreach will be performed to confirm the system is operational.

4. Monitoring Plan Compliance

4.1 Components of the Monitoring Plan

In December 21, 2017, an SMP addressing the means for implementing operation, maintenance, and monitoring of the IC/ECs at the site (CH2M 2017a) was submitted to NYSDEC and includes a revised annual groundwater sampling program based on the findings from the 2016 and 2017 data gap investigations (CH2M 2017b, 2018a). Monitoring wells to be sampled annually and recovery wells to be sampled semiannually (in alternating seasons) are listed in Table 2-4 and shown on Figure 1-2. Routine monitoring of groundwater levels, COC concentrations, extraction well pumping rates and COC concentrations, routine maintenance and logging system performance, and monthly sampling of the influent and effluent concentrations from the GAC treatment system remained unchanged and performed at the same frequencies as done historically.

4.2 Summary of Monitoring Completed

4.2.1 Groundwater Water Levels

Groundwater elevations were measured on March 28, June 19, August 15, and October 29, 2019. Water level measurement data collected in 2019 are provided in Table 2-4. Appendix F contains shallow and deep WBZ potentiometric surface maps for the 2019 synoptic water level events. Groundwater monitoring wells included in the SMP for annual sampling were sampled from November 5 through November 7, 2019. Ten shallow-screened and 10 deep-screened monitoring wells were sampled during the annual sampling event in November 2019. VP-6S, a shallow-screened well part of the annual monitoring program could not be sampled in November 2019 because the well manhole was filled with water and sediment. Monitoring well VP-6S will be repaired in 2020 before the annual groundwater sampling event. Monitoring well groundwater sample results are listed in Table 2-1 and discussed in Sections 2.3.2 and 2.3.3. Recovery well sample results are included in Tables 2-6 and 2-8.

4.2.2 Soil Sampling

Compliance soil sampling is not required per the SMP (CH2M 2017a). Saturated soil sampling activities were conducted as part of the 2019 supplemental investigation (Appendix B) to better define COC mass remaining in groundwater and are discussed in Sections 1.2.1 and 2.1.

4.3 Comparisons with Remedial Objectives

Comparisons of monitoring data collected in 2019 against the 1994 ROD RAOs for soil and groundwater at the site are as follows:

- **Eliminate the potential for direct human or animal contact with contaminated soil.** This has been addressed by the asphalt/concrete covers and impacted soil and AST/UST removals, and the 2014 Declaration of Covenants restricting excavation at the site.
- **Mitigate the impacts of contaminated groundwater to the environment.** The active ECs, such as the groundwater extraction and treatment system, have mitigated groundwater impacts and the past remedial actions listed in Table 1-2.
- **Mitigate, to the extent practicable, migration of constituents from onsite areas to groundwater.** Analysis of the capture zones produced by pumping of the recovery wells is provided in Section 2.3 and indicates the groundwater extraction system provides some migration control of onsite groundwater to offsite areas.
- **Provide for attainment of RAOs for groundwater and soil quality.** The numerical criteria used to evaluate remediation effectiveness in soil and groundwater were prescribed by the ROD and are included in Table 1-3. Comparison to site-specific numerical RAOs is presented in Tables 2-1, 2-6, 2-7,

2-8, and 2-9, and discussed in Section 2.3, and indicates that, although active remediation is ongoing, COCs remain in groundwater in the shallow and deep WBZs at concentrations above RAOs.

4.4 Monitoring Deficiencies

With the exception of not being able to sample VP-6S, no other deficiencies in complying with the SMP (CH2M 2017a) were identified in 2019. Monitoring well VP-6S will be repaired prior to the 2020 annual groundwater monitoring event. Adequate data, in the form of samples from nearby well MW-18 and a groundwater grab sample from DPT-55 (as part of the PDI, Appendix B), was collected in 2019 from nearby locations to achieve the objectives of evaluating potential offsite migration of petroleum constituents in groundwater towards the area of VP-6S.

4.5 Conclusions and Recommendations for Changes

Activities required by the SMP were completed in 2019. No changes for the monitoring plan are recommended at this time. Site monitoring activities in 2020 will be performed in compliance with the SMP.

5. Operations and Maintenance Plan Compliance

CH2M updated the O&M plan in March 2017 from its original version (Radian Engineering Inc. 1998) and included it as an attachment in the 2017 annual PRR submission (CH2M 2018b). The updated O&M plan reflects current operational conditions and remedial components, ensures efficient operation of equipment and facilities, and helps maintain equipment in accordance with the latest manufacturers' recommendations, thereby minimizing replacement and repair costs.

The O&M plan will be reviewed annually and updated as needed. For major changes in facilities, responsibilities, tasks, etc., the O&M plan will be reissued with a revised tracking number and included as part of the corresponding annual PRR submission to NYSDEC. Nonsubstantive changes will be tracked and summarized in this section; however, a full report will not be reissued.

5.1 Components of the Operations and Maintenance Plan

The routine maintenance and monitoring activities schedule, as set forth in the updated O&M plan for the remedial treatment system, is presented in Table 5-1. Maintenance activities for the groundwater treatment system are performed as follows (and as necessary):

- Routine maintenance of the groundwater treatment system (biweekly or as needed)
- Semiannual recovery well inspection and maintenance and as needed
- Annual recovery well redevelopment
- Carbon vessels maintenance (backflushing, replacement, and cleaning) as required

Groundwater treatment system monitoring required by the updated O&M plan includes:

- Routine flow readings of all recovery wells and total wastewater treatment system flow
- Monthly influent/effluent sampling and pH monitoring of the waste stream to monitor system performance and compliance with wastewater discharge permit requirements
- Monitoring water levels (quarterly), groundwater sampling of recovery wells (semiannually on alternating seasons), and select monitoring wells (annually)

Maintenance and monitoring activities are documented in the treatment plant operator's logbook and applicable maintenance and monitoring forms contained in the updated O&M plan. A summary report (this report) is prepared annually, and analytical and operational data are provided to the Jamestown BPU and NYSDEC semiannually.

The asphalt and concrete surface areas are to be inspected semiannually for cracks and/or poor drainage, and monitoring wells are to be inspected during well monitoring events for well casing integrity, well cap and lock, and concrete base condition. Surficial cracks observed in 2018 and during the April 23, 2019 inspections were repaired on September 10, 2019. The integrity of these caps continues to be monitored and inspected semiannually.

The SSDS installed in 2008 at a residence at 159 Hopkins Avenue was shut down in mid-March 2018. Since then, monthly checks have been made from the outside the residence to verify it remains vacant. If the residence becomes occupied again, routine O&M activities for the SSDS system will be resumed.

5.2 Operations, Maintenance, and Monitoring Completed

This section summarizes O&M performed at the site in 2019.

5.2.1 Groundwater Extraction and Treatment System Operations and Maintenance

Routine maintenance (biweekly or as needed) consists of the inspection/check of the system piping, pressure gauges, equalization tank including level probes, carbon vessels, and overall operations. Appendix E contains the groundwater extraction performance data.

Recovery well maintenance consists of annual well development, pump/meter disassembly inspection and cleaning, and level probe inspection/cleaning. Well redevelopment was completed in September 25, 2019 at recovery wells RW-1S, RW-2S, and RW-2D. RW-6D was not redeveloped, as siltation and system issues were experienced in 2017 after this extraction well was redeveloped; therefore, future redevelopment of RW-6D will be performed as needed as opposed to annually.

Operational issues observed and maintenance performed in 2019 included:

- The system was off intermittently between March 31 and June 1, 2019, because sediment accumulation caused flow restrictions at the filters, which resulted in high system pressures and system downtime. Sediment in the transfer tank and sump was mechanically removed on June 4, 2019.
- Recovery well RW-6D was down from February 13 through March 13, 2019, because of freezing within the line causing pump and motor failure. The heat trace was repaired on February 20, 2019, and the pump and motor were replaced on March 13, 2019.
- The active recovery wells (RW-1S, RW-2S, RW-2D, and RW-6D) experienced other minor periodic shutdowns for mechanical and electrical repairs, equipment replacement, or maintenance.
- A total of approximately 344 cumulative hours of system downtime were experienced in 2019, including downtime during carbon change outs (below).

Jacobs conducted the following maintenance and improvements to the treatment system in 2019:

- A new vessel with new GAC was put online on February 5, 2019 to replace one of the older vessels that was corroded and leaking.
- GAC within the other two existing vessels was changed out on February 7, 2019, and the system was off for approximately 24 hours for the required carbon hydration time. The old vessel and spent GAC within it were removed from the site on February 7, 2019.

The recovery wells were inspected on April 23 and October 9, 2019. RW-1S, RW-2S, and RW-6D were found to be in good condition with minimal sediment accumulation during the April 2019 inspection and in generally fair condition with minimal to moderate sediment accumulation during the October 2019 inspection. RW-2D was found to be in good condition with minimal sediment accumulation during both inspections. Appendix G contains the groundwater extraction system inspection logs. Table 2-3 provides the percentage of time that the recovery wells were operational in 2019.

In 2012, the Jamestown BPU Water Division conducted a state-required analysis of commercial and industrial water connections to the BPU water system and backflow prevention devices. As part of the analysis, a Backflow Prevention Device Inventory Form was submitted in September 2012. In September 2013, a licensed plumber inspected site operations, and the building was deemed nonhazardous to the public water supply and exempt from a requirement to install a backflow prevention device. A Form for Backflow Prevention Device Exemption is required to be submitted annually to certify that none of the conditions at the building has changed since it was originally inspected. This form was submitted to the BPU Water Division on September 11, 2019, and approval (No. 1273-0919) was received on January 3, 2020 (Appendix I).

5.2.2 Groundwater Extraction and Treatment System Monitoring

Pursuant to the City of Jamestown BPU Industrial Wastewater Discharge Permit Number 26, renewed in November 2017 (Jamestown BPU 2017), the pretreatment system is monitored monthly for pH and total

toxic organic (TTO) VOCs to ensure compliance with the permit requirements. The TTO VOC discharge limit is 2,130 µg/L, and pH is required to be between 5.5 and 10 standard units. Recovery well and totalizer flow meter readings are collected during routine inspections. Average flow rates are calculated from these data. Additionally, influent/effluent sample collection was conducted monthly from January through December 2019.

Analytical results for influent (pre-carbon, before the treatment system), primary carbon effluent (collected after the first carbon vessel), and secondary carbon effluent (post-carbon, after both carbon vessels, representative of effluent discharged to the POTW) are presented in Tables 5-2, 5-3, and 5-4. These results are reported to the Jamestown BPU semiannually. The 2019 semiannual BPU reports are contained in Appendix J.

Acetone is not included in the U.S. Environmental Protection Agency TTO list contained in 40 *Code of Federal Regulations* 401, Part 15, *Toxic Pollutants*. In addition, acetone has been documented as not being a toxic compound for the biological treatment processes used at the Jamestown POTW. Consequently, acetone has not been reported as a TTO in the BPU semiannual reports since 2012; however, its concentrations are reported in the semiannual BPU reports for reference. Acetone concentration in pre-carbon influent have decreased considerably and was only detected in one sample (April 2019) at a concentration of 15 µg/L. Monthly results for post-carbon TTOs were below the permit level of 2,130 µg/L in 2019.

As discussed in Sections 2.2.1.2 and 4.2.1, groundwater levels were measured at site all monitoring wells in March, June, August, and October 2019 (Table 2-4 and Appendix F) to monitor capture and assess if the RAO to “mitigate, to the extent practicable, migration of contaminants from onsite areas to groundwater” is being achieved at the site. Groundwater sampling of recovery wells was conducted in February and August 2019 (Tables 2-6 and 2-8). Annual groundwater sampling was conducted in November 2019. Results of groundwater monitoring activities were compared against the RAOs as described in Sections 2 and 4.

5.2.3 Monitoring Well Inspections

Monitoring wells were inspected during quarterly groundwater elevation measurement events. Well conditions, integrity issues and repairs are included in Table 2-4. Minor repairs to VP-6S, MW-122D, GP-4D, and HW-2 are planned for 2020.

5.2.4 Asphalt and Concrete Cover Inspection

The covers were inspected on April 23 and October 9, 2019. Several transversal and longitudinal cracks were identified over the asphalt and concrete caps at the NPLS Area, and fewer and smaller cracks were observed over the asphalt cap at the former AST/UST Area in 2018 and during the April 2019 inspections. Crack filling and sealing work was attempted in October 2018 but could not be completed because of cold/wet weather. Subsequently, on September 10, 2019, the cracks in the concrete and asphalt covers in the NPLS, former AST/UST, and former UST areas were filled, and the asphalt in the NPLS and former AST/UST areas was seal coated. The concrete cover and asphalt inspection logs are provided in Appendix H.

5.2.5 Subslab Depressurization System

In mid-March 2018, the property at 159 Hopkins Avenue was vacated and electricity was shut off to the building, resulting in shutoff of the SSDS. Additional monthly checks continue to be made to verify the residence remains vacant. If the building becomes occupied, O&M activities for the SSDS will resume, as described in the SMP and O&M plan.

5.3 Evaluation of the Remedial Systems

Sections 2.2 and 2.3 provide an evaluation of the groundwater treatment system. The groundwater extraction and treatment system is generally operating as designed. As discussed in Sections 2.2.1 and

2.3.2, the low saturated thickness of the shallow WBZ limits the flow rates at which the shallow recovery wells can be operated, and the mass removed by the shallow recovery wells has decreased. RW-6D sustained the same mass removal rates in 2019 (134.8 pounds of VOCs removed) as in 2018 (135.7 pounds of VOCs removed) in spite of decreased VOC concentrations in 2019. RW-2D, however, experienced decreased mass removal rates in 2019 because of pump shut off and adjusted lower pump rates to relieve system sedimentation and pressure buildup. Analytical results are evaluated in terms of remedial effectiveness in Sections 2.3.2 (shallow WBZ) and 2.3.3 (deep WBZ).

The SSDS no longer requires operation, although periodic checks continue to be made to verify occupancy (Section 3.2.4), and the asphalt/concrete covers were repaired in September 2019 and are in good condition (Section 3.2.3).

5.4 Operations and Maintenance Deficiencies

No deficiencies or noncompliance with the O&M plan were identified in 2019.

5.5 Conclusions and Recommendations for Improvements

While the shallow extraction system exerts some hydraulic control on the shallow and deep WBZs in the NPLS and former AST/UST areas, mass removal has been generally low, and concentrations of COCs above the RAOs remain in areas within and outside the current capture zones. Extraction rates are limited for the shallow WBZ because of its low saturated thickness, and extraction within the deep WBZ is limited because of the fine-grained soil surrounding RW-6D. Nevertheless, extractions rates, volumes, and mass removal increased in 2018 as compared to 2016 and 2017 and were generally sustained in 2019. Improvements in the system metrics for this reporting period compared to 2016 and 2017 predominately are associated with decreased shutdown time and limited operational issues. Increases in performance are being achieved by weekly pump and flow meter maintenance and as-needed equipment replacement.

Essex completed a supplemental investigation in 2019 (Appendix B) that will support the development of pilot studies to accelerate mass removal, including an ISCO application work plan for the former UST Area, planned for submittal in 2020, and a Plant 5 Area basis of design report supporting the selection of a remedial alternative, or supplement to the existing remedies for the Plant 5 Area in 2020, with remedial design planned for 2021 and remedial action planned for 2022.

6. Periodic Review Conclusions and Recommendations

This section summarizes the PRR conclusions and recommendations derived from an evaluation of SMP compliance and the performance and effectiveness of the ECs. Operation, maintenance, and monitoring activities have not changed since the 2018 annual PRR (Jacobs 2019b), and metal manufacturing operations involving the use of solvents continue to occur onsite, as stated in IC/ECs Certification Form included in Appendix A.

6.1 Site Management Plan Compliance

This PRR demonstrates that the requirements of the current SMP elements have been achieved. Conclusions include:

- The remedial systems for groundwater extraction and treatment have continued to operate through 2019 with limited and intermittent shutdowns for routine maintenance/repairs.
- The groundwater treatment system has met monthly effluent limitations without noncompliant discharges in 2019.
- Performance monitoring was performed as required by the SMP (CH2M 2017a), including annual groundwater sampling of monitoring wells, semiannual sampling of recovery wells, and quarterly measurement of water levels. Routine soil sampling is not required per the SMP.
- The O&M plan was updated in 2017 and reviewed in 2018, and 2019. No additional updates were deemed necessary upon review in 2019. The frequency of water level measurements will be re-evaluated in the 2020 PRR.
- O&M monitoring and inspections were conducted, including quarterly groundwater elevation measurements; routine treatment system inspections, including flow readings of the recovery wells and treatment system totalizers; monthly influent/effluent sampling; maintenance of carbon vessels; and inspections of the monitoring and recovery wells, asphalt/concrete covers, and SSDS (monitoring occupancy at residence).
- The cracks in the asphalt and concrete caps observed in 2018 and during the April 23, 2019 inspections were repaired on September 10, 2019. These caps will continue to be monitored and inspected semiannually for signs of erosion and/or cracking.
- Solvents continue to be used at Plant 5, and industrial operations (metal manufacturing) have not ceased, although the previously identified TCE-containing drums were removed in 2018. As requested by NYSDEC, this report will continue to document TCE use at the facility.
- IC/ECs, including Deed Restrictions and Covenants and the groundwater extraction and treatment system, continue to be in force at the site.

6.2 Performance and Effectiveness of the Remedy

The groundwater extraction and treatment system continues to operate at the site.

6.2.1 Shallow WBZ

The following conclusions were made regarding the performance and effectiveness of this remedy in the shallow WBZ:

- VOC concentrations exceed RAOs in vadose zone soil at the site, but exceedances are limited to two portions of the site: the NPLS Area and former AST/UST Area where concentrations are low but still exceed RAOs. ECs at these locations include low-permeability asphalt caps; however, soil near the water table could serve as a continuing source when water levels fluctuate.
- Saturated soil samples collected during the 2019 supplemental investigation did not exhibit elevated concentrations of VOCs, suggesting that previous and ongoing remedial action appear to have been

successful at reducing VOC concentrations in the shallow WBZ; however, elevated concentrations of VOCs identified in the shallow silty clay may be acting as an ongoing source of VOCs to the shallow WBZ.

- In 2019, 0.31 pound of VOCs was recovered from the shallow groundwater system. The mass removal has decreased over time because of the decreasing VOC concentrations observed in the shallow WBZ, the removal of RW-4S from the shallow extraction system in 2002 (due to alternative remedial actions put in place that removed the source area RW-4S was capturing), and decreasing groundwater extraction volumes. The removal of RW-5S in 2002 and RW-3S in 2017 from the shallow extraction system had a negligible effect due to their low mass removal.
- Concentrations of TCE and its daughter products have declined in shallow groundwater since initiation of remedial activities in the late 1990s in the NPLS Area but remain above RAOs and have decreased slightly in 2019 from 2018 conditions. The maximum concentrations of TCE recorded in 2019 were present at MW-101S, consistent with elevated concentrations observed in 2016 and 2017. Mann-Kendall trend analyses will be conducted for MW-101S in future PRRs once six sampling events have been completed.
- RW-1S and RW-2S provide capture of the shallow WBZ in the NPLS Area. Outside the hydraulic capture zone, the shallow CVOC plume appears to be relatively stable, as shown by the steady concentrations at MW-108S. Maximum concentrations that exceeded RAOs in 2019 at the shallow WBZ recovery wells are as follows:
 - cis-1,2-DCE concentration of 210 µg/L at RW-1S
 - Vinyl chloride concentration of 8.1 µg/L at RW-1S
- Concentrations of CVOCs at RW-3S (inactive since August 2017) have fluctuated over the years, and increased in 2019 from 2018 concentrations, with some CVOCs remaining above RAOs. Mann-Kendall trend analysis indicates there is no significant trend in CVOC concentrations from 2006 to present. Semiannual recovery well sampling results for 2020 will be closely monitored for signs of post-shutdown rebound conditions. Maximum CVOC concentrations that exceeded RAOs in 2019 at RW-3S are as follows:
 - TCE at 58 J µg/L
 - cis-1,2-DCE at 110 µg/L

Several areas of the shallow WBZ are impacted by COCs above RAOs and exist outside the shallow extraction system capture zone. These areas include:

- The petroleum-related compound plume in the shallow WBZ under the eastern portion of the West Building has been delineated. There does not appear to be an offsite contribution, and the plume has not migrated to sentinel wells MW-20 and MW-23S to the northeast. Maximum concentrations were observed at MW-30S, the most impacted well in this area, and include:
 - Ethylbenzene concentration of 3,800 µg/L
 - Total xylenes concentration of 10,000 J µg/L
 - Isopropylbenzene (cumene) concentration of 120 µg/L
 - Naphthalene concentration of 240 µg/L1,2,4-TMB; 1,3,5-TMB; n-propylbenzene; and sec- and tert-butylbenzene also have been detected above RAOs at MW-30S. The results from the 2019 supplemental investigation suggest that the lateral extents of the petroleum constituent plume have been delineated and includes an area beneath the West Building out into the former UST Area. The concentration patterns suggest an area of contamination beneath the West Building, which was not remediated by the previous ISCO application and has migrated northeast (hydraulically downgradient) or a general area of residual contamination along the western edge of the former ISCO treatment area.
- Persistent concentrations of petroleum-related compounds in the eastern side of the former UST Area were delineated during the 2019 supplemental investigation. Monitoring at sentinel well MW-27S, to the east and northeast of the plume, indicates the plume has been attenuating at its eastern edge and

has not migrated significantly offsite. Maximum concentrations were observed at MW-26S, the most impacted well in this area, and include:

- 1,2,4-TMB at 3,200 µg/L
- 1,3,5-TMB at 340 µg/L
- Ethylbenzene at 290 µg/L
- Cumene at 110 µg/L
- Naphthalene at 91 µg/L
- n-Propylbenzene at 460 µg/L
- Total xylenes at 230 µg/L

Elevated VOC concentrations are relatively limited spatially in the eastern area as evidenced by the rapid decline in concentrations away from the locations of MW-26S and DPT-57. Of the 11 groundwater samples collected from the eastern area during the 2019 supplemental investigation, only four locations exhibited total VOC concentrations above 100 µg/L and only two of those four exhibited total VOC concentrations above 1,000 µg/L. The 2019 investigation results have confirmed the lateral extents of petroleum constituent contamination in this area.

- TCE and cis-1,2-DCE exist offsite north and east of the site at concentrations above RAOs. Impacted groundwater in this area migrates to the east-northeast under natural gradient and natural attenuation conditions. Total CVOC concentrations declined at MW-101S in 2018 from 2017 concentrations but increased again in November 2019. Results from MW-101S indicate a general downward trend but with considerable variation from sample event to sample event; trends at this well will continue to be evaluated to determine if there is a statistically significant trend. CVOC concentrations at easternmost well MW-108S continue to be relatively stable.

6.2.2 Deep WBZ

The following conclusions were made regarding the performance and effectiveness of the remedy in the deep WBZ:

- In 2019, 178 pounds of VOCs were removed from the deep WBZ. The mass removal has been relatively steady since 2013, with declines in 2016, 2017, and 2019. The decline in 2019 is attributed to pump shutoff and adjusted lower pumping rates at RW-2D manually induced in 2019 to relieve system sedimentation and pressure buildup.
- Concentrations of COCs in the deep WBZ continue to exist at levels higher than site RAOs. The results of the 2019 supplemental investigation suggest the CVOC source area is located in the eastern NPLS Area and/or the southwestern edge of the Plant 5 Building and is primarily located in the silty clay and silty sand geologic layers. Elevated soil concentrations in these areas are likely the reason for persistent elevated groundwater concentrations in the deep WBZ both onsite and offsite to the northeast.
- Groundwater capture zones in the deep WBZ appear to encompass the entire site and portions of the offsite plume north and east of the site.
- The TCE plume in the deep WBZ extends northeast, and CVOC concentrations exist offsite, outside the capture zone of the current extraction system. However, monitoring at sentinel wells MW-109D, MW-120D, and MW-121D indicate the plume has not migrated to these wells. Maximum concentrations outside the deep WBZ capture zone were observed at MW-110D, and include:
 - TCE at 120,000 µg/L
 - cis-1,2-DCE at 26,000 µg/L
 - Vinyl chloride at 390 µg/L
- Maximum concentrations in the deep WBZ were TCE at 120,000 µg/L (MW-110D); cis-1,2-DCE at 240,000 µg/L (MW-118D); and vinyl chloride at 10,000 µg/L (MW-118D). The highest concentrations exist in the NPLS Area and north and northeast of the Plant 5 Building.
- Acetone concentrations at RW-6D, nondetect in February and August 2019 (1,000 U µg/L), continue to decline, but reporting limits were above the NYSDEC ambient groundwater quality standard of 50 µg/L.

- Acetone was not detected in any of the 2019 samples from wells MW-106D, MW-110D, and MW-122D, indicating the extraction wells are successfully limiting migration of this compound and/or it is naturally degrading.
- The deep CVOC plume has been delineated to the northeast of the site and remains within the limits of the monitoring well network.

Except for the partial extent of capture provided by the groundwater extraction and treatment system and the SSDS shutdown because of inoccupancy, all other remedial actions undertaken at the site, including the active EC/ICs continue to be effective.

6.2.3 Supplemental Remedial Actions

The results of recent site investigations, including the 2019 supplemental investigation, indicate alternative or supplemental remedial actions are warranted to reduce COC concentrations. A single, comprehensive remedy is likely infeasible given the variability in individual COCs, the range of concentrations across the site, and the presence of contamination in multiple geologic units. For example, a remedial application for the residual petroleum constituents in the shallow WBZ in the former UST Area would be substantively different from a remedial application for the CVOCs in the deep WBZ in the former Plant 5 area.

Given such variability, supplemental remedial actions will be implemented as pilot studies in the different areas of the site. These pilot studies will allow for evaluation of the effectiveness of different remedial technologies in support of a comprehensive solution for the site. Information and experience gained from previous and upcoming stages will inform the later stages of remedial action. This will allow for appropriate adjustments or modifications to enable efficient and effective remedy implementation, providing a means to address uncertainties promptly and inform final remedy decisions. The remedial actions and pilot studies will be completed in accordance with NYSDEC guidelines and in accordance with the existing SMP. Necessary updates to site-specific plans (quality assurance project plan, health and safety plan, etc.) will be documented in standalone work plans for actions performed at the site.

The first stage of supplemental remedial actions will be aimed at remediating onsite source areas, which are contributing to the continued presence of elevated COC concentrations in groundwater. Specifically, the first actions will target the residual petroleum constituent contamination in the shallow WBZ in the former UST Area and the West Building. Subsequent actions will target the CVOC contamination in the deep WBZ in the former NPLS and Plant 5 areas. Addressing these source areas will allow for an evaluation of the response of the broader groundwater contamination trends and subsequently inform future remedial decision making.

Investigations completed to date suggest the petroleum constituent contamination in the former UST Area is likely residual contamination from the former USTs. Although previous remedial actions were successful at reducing COC concentrations in this area, the current distribution of COCs suggest areas around the edges of the former treatment zones were either insufficiently treated (that is, inadequate dosing) or outside the previous treatment areas (as appears to be the case in the West Building). The success of former ISCO treatment within the central portion of the former UST Area provides evidence and confidence that a similar ISCO application would be appropriate to treat the residual petroleum constituents currently observed. The oxidant demand testing completed as part of the 2019 supplemental investigation provides a basis for developing an oxidation reagent suitable for the residual petroleum constituent contamination. Further details needed to implement an ISCO treatment will be developed and presented to NYSDEC in an ISCO treatment application work plan. The results of the 2019 supplemental investigation provide sufficient detail to develop the ISCO treatment work plan, which is planned for submittal to NYSDEC by the fourth quarter of 2020. The work plan will provide an implementation schedule that is expected to consist of ISCO application and performance monitoring through 2021 and early 2022.

Investigations completed to date suggest that although previous and ongoing remedial actions have removed significant mass of CVOCs, substantial mass remains, especially in the deep WBZ, in the onsite

areas of the NPLS and Plant 5 Building. While the groundwater extraction and treatment system has consistently removed significant mass, the persistent groundwater concentrations that remain after more than 20 years operation of the groundwater pump and treat system, and the considerable sorbed mass identified as part of the 2016, 2017, and 2019 investigations (Appendix B) indicate residual mass is present that is only slowly being removed by a pump and treat approach. The contamination in this area presents unique challenges, such as the depth of source areas, the shallow silty clay geologic layer separating groundwater zones, the fine-grained geologic formation that limits the efficacy of injection or groundwater extraction, and the presence of the Plant 5 Building. In-situ thermal treatment may be best suited to more quickly treat contamination in these conditions than the current pump and treat remedy, but current uncertainties preclude full-scale design at this time.

Accordingly, the first step in supplemental remedial action for this area will be to consolidate information from previous investigations, define the challenges presented in this area, and provide considerations for future remedial design. This information will be developed in a Plant 5 Area design report. The objective of the report will be to define a treatment zone for this area and identify potential data gaps for the remedial design. Given the magnitude of the COC concentrations compared with the RAOs, the design report likely will include a sensitivity analysis to understand the degree to which concentrations can be reduced to meet the objective of reducing source area contamination contributing to offsite migration. The Plant 5 Area design report is expected to be completed by the fourth quarter of 2020 to set up remedial design in 2021 and remedial action in 2022.

Further remedial actions to meet the RAOs will be evaluated following source area treatment when information on the success of source area treatment and the response of the groundwater conditions both at the source and downgradient of the source becomes available.

6.3 Future Periodic Reviews

Operation, maintenance, and monitoring of the remedial systems will continue in 2019. Site monitoring activities in 2019 will be performed in compliance with the SMP.

Annual PRRs will continue to be submitted until the site achieves RAOs. The 2020 PRR will be submitted at the end of the first quarter of 2020.

7. References

AECOM. 2015. *2014 Annual Periodic Review Report, Essex-Hope Site*. May.

CH2M HILL Engineers, Inc. (CH2M). 2017a. *Site Management Plan, NYSDEC Site Number: 907015, Essex-Hope Site, Jamestown, New York*. December.

CH2M HILL Engineers, Inc. (CH2M). 2017b. *2016 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March.

CH2M HILL Engineers, Inc. (CH2M). 2017c. *Operations and Maintenance Plan, Essex-Hope Site, Jamestown, New York*. March.

CH2M HILL Engineers, Inc. (CH2M). 2018a. *Semiannual Performance Monitoring Report: January through June 2018, Essex/Hope Site, Jamestown, New York*. August 30.

CH2M HILL Engineers, Inc. (CH2M). 2018b. *2017 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March. Prepared concurrently with the 2017 Annual PRR.

City of Jamestown Board of Public Utilities (BPU). 2017. *Industrial Wastewater Discharge Permit Number 26*. November 3.

Dow Environmental Inc. 1995. *Basis of Design Report*. November.

Essex Specialty Products, Inc. (Essex) and Custom Production Manufacturing Inc. (CPM). 2014. *Declaration of Covenants and Restrictions filed at the Chautauqua County Office of Recorder of Deeds, Mayville, New York*. March.

Jacobs Engineering Group Inc. (Jacobs). 2019a. *Supplemental Investigation Work Plan, Essex-Hope Site*. August.

Jacobs Engineering Group Inc. (Jacobs). 2019b. *2018 Annual Periodic Review Report, Essex-Hope Site*. March.

Jacobs Engineering Group Inc. (Jacobs). 2020a. *2019 Supplemental Investigation Report, Essex-Hope Site*. March.

Jacobs Engineering Group Inc. (Jacobs). 2020b. *2019 Offsite Vapor Intrusion Investigation Report*. March.

New York State Department of Environmental Conservation (NYSDEC). 1994. *Record of Decision, Essex-Hope Site, City of Jamestown, Chautauqua County, ID Number 9-07-015*. March.

New York State Department of Environmental Conservation (NYSDEC). 2013. *Letter to Essex Specialty Products, re: Reminder Notice: Site Management Periodic Review Report and IC/EC Certification Submittal, Enclosure 3, Periodic Review Report (PRR) General Guidance*. August.

New York State Department of Environmental Conservation (NYSDEC) and Essex Specialty Products, Inc. (Essex). 1995. *Order on Consent, Site Code # 9-07-015*. July.

Radian Engineering Inc. 1998. *Remedial Action Construction Close-out Report*. March.

URS Corporation (URS). 2008. *Performance Monitoring Plan for the Essex-Hope Site*. February.

URS Corporation (URS). 2011. *Performance Monitoring Plan for the Essex-Hope Site*. February.

URS Corporation (URS). 2014. *Performance Monitoring Plan for the Essex-Hope Site*. March.

Tables

Table 1-1. Key Areas and Historically Observed Impacts*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Area	Soil	Shallow Water-bearing Zone	Deep Water-bearing Zone
North Parking Lot Sump Area ^a	CVOCs CBTEX PCBs	CVOCs	CVOCs
Former Underground Storage Tank Area	CBTEX Bis(2-ethylhexyl)phthalate	CBTEX/TMB	None
Former Aboveground Storage Tank/ Underground Storage Tank Area ^a	CBTEX	CBTEX CVOCs	None
West Building ^a	None	CBTEX	CBTEX (minor)
Plant 5 Building	Not assessed	CVOCs (northern) CBTEX (southern)	CVOCs Acetone
Offsite North and East	Not assessed	CVOCs	CVOCs Acetone

^a Observed impacts updated based on 2016 and 2017 data gap investigation findings (CH2M 2017, 2018).

CBTEX = cumene, benzene, toluene, ethylbenzene, and xylenes

CVOC = chlorinated volatile organic compound

PCB = polychlorinated biphenyl

TMB = 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene

CH2M HILL Engineers, Inc. 2017. *2016 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March.CH2M HILL Engineers, Inc. 2018. *2017 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March.
Prepared concurrently with the 2017 Annual PRR.

Table 1-2. Summary of Site Investigations*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Year	Investigation Name	Description	Consultant
1993	Phase I Remedial Investigation	• Further characterization of distribution of VOCs in groundwater to evaluate potential remedial options	O'Brien & Gere Engineers
1994	Phase II Remedial Investigation/ Feasibility Study	• Presentation of remedial investigation results and evaluation of potential remedial actions that may be implemented to satisfy the remedial action objectives for the site	O'Brien & Gere Engineers
1995	Basis of Design	• Presentation of the physical, chemical, and regulatory basis for the design of remedial actions	Dow Environmental
1998	Remedial Action Closeout Report	• Description of the implementation of the various remedial systems at the site	Radian Engineering
2000	Supplemental Investigations for SMAART Evaluations	• Assessment of remedial alternatives, including natural attenuation, in the former Aboveground Storage Tank/UST Area, and a zero-valent iron permeable reactive wall in the North Parking Lot Sump Area	Radian International
2001	Plant 5 East Area and UST Area Investigations Report	• Investigation of the former UST Area to determine if additional source existed • Investigation of the source and extent of vinyl chloride on the east side of the Plant 5 Building	URS Corporation
2004	UST Area and Groundwater Vinyl Chloride Investigations	• Investigation of VOCs contamination extent in the former UST Area and vinyl chloride in the area east of the Plant 5 Building	URS Corporation
2006	UST Area and Offsite Groundwater Investigations	• Delineation of the southern VOC contamination extent in the former UST Area • Determination of VOC contamination extent in groundwater north and east of the site	URS Corporation
2008	Soil Vapor Sampling at 159 Hopkins Avenue	• Investigation of soil vapor conditions near a residence underlain by a TCE plume identified by the 2006 offsite groundwater investigation	URS Corporation
2014	Draft West Area Site Investigation Supplemental Offsite Investigation	• Delineation of CBTEX plume west of the former UST Area under the West Building • Evaluation and confirmation of the extent of offsite VOC contamination north and east of the site • Completion of the western delineation of CBTEX contamination underneath the West Building	URS Corporation AECOM
2015	Soil Vapor Intrusion Investigation at the Plant 5 Building and West Building	• Assessment of presence of CBTEX contamination under the West Building and TCE and daughter products beneath the Plant 5 Building	URS
2016	Vapor Intrusion Investigation (HAPSITE)	• Assessment of potential for vapor intrusion against potential indoor sources in the Plant 5 Building	CH2M HILL Engineers, Inc.
	Data Gap Investigation	• Refinement of conceptual site model • Assessment of current remedial system performance • Planning for potential future remedial activities	CH2M HILL Engineers, Inc.
2017	159 Hopkins Avenue Mitigation System – Effectiveness Evaluation	• Collect additional data and observations to confirm the effectiveness of the subslab depressurization system at the residence	CH2M HILL Engineers, Inc.
	Data Gap Investigation	• Further refinement of conceptual site model • Additional planning for potential future remedial activities	CH2M HILL Engineers, Inc.
2018	Offsite Vapor Intrusion Investigation	• Collect external soil vapor and subslab vapor samples within the vicinity of the VOC plume to determine if vapor intrusion pathways with the potential of impacting downgradient receptors are present	Jacobs Engineering Group Inc.
2019	Supplemental Investigation	• Collect additional soil and groundwater data for developing and evaluating additional remedial actions to supplement the current remedial operations. This investigation was focused on two areas of onsite contamination: • Plant 5 Building/North Parking Lot Areas • Former UST/West Building Areas	Jacobs Engineering Group Inc.
2019	Offsite Vapor Intrusion Investigation	• Obtain additional data to supplement the winter 2018 investigation to determine if vapor intrusion associated with the chlorinated VOC groundwater plume from the site impacts downgradient receptors	Jacobs Engineering Group Inc.

CBTEX = cumene (isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes

HAPSITE = Hazardous Air Pollutants on Site (field portable gas chromatograph mass spectrometer)

SMAART = Systematic Application of Advanced Remedial Technologies

TCE = trichloroethene

UST = underground storage tank

VOC = volatile organic compound

Table 1-3. Remedial Action Objectives*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Media	Parameter	Remedial Action Objective from 1994 Record of Decision
Soil	Total VOCs	10 ppm
	Each individual VOC	1 ppm
	Total SVOCs	500 ppm
	Each individual SVOC	50 ppm
	Polychlorinated biphenyls	10 ppm
Groundwater	trans-1,2-Dichloroethene	5 ppb
	Trichloroethene	5 ppb
	Vinyl chloride	5 ppb
	Ethylbenzene	5 ppb
	Toluene	5 ppb
	Xylene	5 ppb
	Polychlorinated biphenyls	0.1 ppb
	Other compounds	NYSDEC Ambient Groundwater Quality Standard ^a

^a Current NYSDEC Ambient Groundwater Quality Standards for other compounds commonly found at the site include the following:

- Acetone = 50 µg/L
- Benzene = 1 µg/L
- cis-1,2-Dichloroethene = 5 µg/L
- 2-butanone (methyl ethyl ketone) = 50 µg/L
- 1,1-Dichloroethene = 5 µg/L
- Isopropylbenzene (cumene) = 5 µg/L
- 1,2,4-Trimethylbenzene = 5 µg/L
- 1,3,5-Trimethylbenzene = 5 µg/L

µg/L = micrograms per liter

NYSDEC = New York State Department of Environmental Conservation

ppb = part(s) per billion

ppm = part(s) per million

SVOC = semivolatile organic compound

VOC = volatile organic compound

Table 2-1. 2019 Annual Groundwater Sampling Results
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Volatile Organic Compounds (Method 8260C) – µg/L	NYSDEC GWQS (µg/L)	MW-13	MW-16D	MW-18	MW-20	MW-23S		MW-25D	MW-26S	MW-27S	MW-30S	MW-101S		MW-104S	MW-106D	MW-108S	MW-109D	MW-110D	MW-117S	MW-118D	MW-119D	MW-120D		MW-121D	MW-122D
		11/5/2019	11/7/2019	11/6/2019	11/6/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/6/2019	11/6/2019	11/7/2019	11/5/2019	11/5/2019	11/6/2019	11/5/2019
1,1,1,2-Tetrachloroethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,1,1-Trichloroethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,1,2,2-Tetrachloroethane	5	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 UJ	12 UJ	0.50 UJ	25 U	1.0 U	1.0 U	0.50 U	25 UJ	0.50 UJ	0.50 UJ	500 UJ	0.50 U	1,000 UJ	20 U	0.50 UJ	0.50 UJ	0.50 U	5.0 UJ
1,1,2-Trichloroethane	1	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	38 U	1.5 U	75 U	3.0 U	3.0 U	1.5 U	75 U	1.5 U	1.5 U	1,500 U	1.5 U	3,000 U	60 U	1.5 U	1.5 U	1.5 U	15 U
1,1-Dichloroethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,1-Dichloroethene	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	0.88 J	0.71 J	0.50 U	38	0.50 U	0.50 U	500 U	0.50 U	420 J	17 J	0.50 U	0.50 U	0.50 U	5.0 U
1,1-Dichloropropene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2,3-Trichlorobenzene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2,3-Trichloropropane	0.04	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 UJ	5.0 UJ	5.0 UJ	2.5 UJ	120 U	2.5 U	2.5 U	2,500 U	2.5 UJ	5,000 U	100 UJ	2.5 U	2.5 U	2.5 UJ	25 U
1,2,4-Trichlorobenzene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2,4-Trimethylbenzene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	3,200	2.5 U	410	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2-Dibromo-3-Chloropropane	0.04	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50 U	2.0 U	100 U	4.0 U	4.0 U	2.0 U	100 U	2.0 U	2.0 U	2,000 U	2.0 U	4,000 U	80 U	2.0 U	2.0 U	2.0 U	20 U
1,2-Dichlorobenzene	3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,2-Dichloroethane	0.6	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
1,2-Dichloropropane	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	25 U	1.0 U	50 U	2.0 U	2.0 U	1.0 U	50 U	1.0 U	1.0 U	1,000 U	1.0 U	2,000 U	40 U	1.0 U	1.0 U	1.0 U	10 U
1,3,5-Trimethylbenzene (Mesitylene)	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	340	2.5 U	84 J	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,3-Dichlorobenzene	3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,3-Dichloropropane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,3-Dichloropropene, Total	0.4	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
1,4-Dichlorobenzene	3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
1,4-Dioxane (p-Dioxane)	NS	250 U	250 U	250 U	250 U	250 U	250 U	250 U	6,200 U	250 U	12,000 U	500 U	500 U	250 U	12,000 U	250 U	250 U	250,000 U	250 U	500,000 U	10,000 U	250 U	250 U	250 U	2,500 U
2,2-Dichloropropane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
2-Butanone (Methyl Ethyl Ketone)	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	120 U	5.0 U	250 U	10 U	10 U	5.0 U	250 U	5.0 U	5.0 U	5,000 U	5.0 U	10,000 U	200 U	5.0 U	5.0 U	5.0 U	50 U
2-Chlorotoluene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
2-Hexanone	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	120 U	5.0 U	250 U	10 U	10 U	5.0 U	250 U	5.0 U	5.0 U	5,000 U	5.0 U	10,000 U	200 U	5.0 U	5.0 U	5.0 U	50 U
4-Chlorotoluene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
4-Methyl-2-Pentanone	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	120 U	5.0 U	250 U	10 U	10 U	5.0 U	250 U	5.0 U	5.0 U	5,000 U	5.0 U	10,000 U	200 U	5.0 U	5.0 U	5.0 U	50 U
Acetone	50	5.0 U	2.5 J	2.6 J	2.2 J	5.0 U	5.0 U	35	120 U	5.0 U	250 U	3.4 J	2.9 J	2.5 J	250 U	5.0 U	5.0 U	5,000 U	2.8 J	10,000 U	200 U	5.0 U	5.0 U	3.0 J	50 U
Benzene	1	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	11 J	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
Bromobenzene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
Bromochloromethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
Bromodichloromethane	50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
Bromoform	50	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50 U	2.0 U	100 U	4.0 U	4.0 U	2.0 U	100 U	2.0 U	2.0 U	2,000 U	2.0 U	4,000 U	80 U	2.0 U	2.0 U	2.0 U	20 U
Bromomethane	5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	62 UJ	2.5 UJ	120 UJ	5.0 UJ	5.0 UJ	2.5 UJ	120 UJ	2.5 UJ	2.5 UJ	2,500 UJ	2.5 UJ	5,000 UJ	100 UJ	2.5 UJ	2.5 UJ	2.5 UJ	25 UJ
Carbon Disulfide	60	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	120 U	5.0 U	250 U	10 U	10 U	5.0 U	250 U	5.0 U	5.0 U	5,000 U	5.0 U	10,000 U	200 U	5.0 U	5.0 U	5.0 U	50 U
Carbon Tetrachloride	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
Chlorobenzene	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
Chlorodibromomethane	50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
Chloroethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
Chloroform	7	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U	100 U	2.5 U	2.5 U	2.5 U	25 U
Chloromethane	5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	62 UJ	2.5 UJ	120 UJ	5.0 UJ	5.0 UJ	2.5 UJ	120 UJ	2.5 UJ	2.5 UJ	2,500 UJ	2.5 UJ	5,000 UJ	100 UJ	2.5 UJ	2.5 UJ	2.5 UJ	25 UJ
cis-1,2-Dichloroethene	5 ^a	2.5 U	2.5 U	18	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	180	160	2.5 U	7,100	9.5	2.5 U	26,000	2.5 U	240,000	6,000	2.5 U	2.5 U	2.5 U	110
cis-1,3-Dichloropropene	0.4	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	12 U	0.50 U	25 U	1.0 U	1.0 U	0.50 U	25 U	0.50 U	0.50 U	500 U	0.50 U	1,000 U	20 U	0.50 U	0.50 U	0.50 U	5.0 U
Dibromomethane (Methylene Bromide)	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	120 U	5.0 U	250 U	10 U	10 U	5.0 U	250 U	5.0 U	5.0 U	5,000 U	5.0 U	10,000 U	200 U	5.0 U	5.0 U	5.0 U	50 U
Dichlorodifluoromethane	5	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	120 UJ	5.0 UJ	250 UJ	10 UJ	10 UJ	5.0 UJ	250 UJ	5.0 UJ	5.0 UJ	5,000 UJ	5.0 UJ	10,000 UJ	200 UJ	5.0 UJ	5.0 UJ	5.0 UJ	50 UJ
Dichloromethane	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	62 U	2.5 U	120 U	5.0 U	5.0 U	2.5 U	120 U	2.5 U	2.5 U	2,500 U	2.5 U	5,000 U					

Table 2-2. Mann-Kendall Trend Evaluation Results

2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Aquifer/Plume	Parameter	Well	Well Type	Period	Total Samples	Last Result (µg/L)	Min Value (µg/L)	Max Value (µg/L)	CoV	S-value	Confidence Factor	Trend Analysis Result
Shallow CVOC	Total CVOCs	MW-101S	Plume	2016 to present (all data)	4	492	101	870	0.78	-2	--	--
		MW-104S	Plume	2016 to present (all data)	5	80.3	80.3	250	0.53	-6	--	--
		MW-108S	Plume	2016 to present (all data)	6	32.9	27.1	48.0	0.22	-3	64.0%	Stable
		RW-1S	Plume	1995 to present (all data)	24	290	125	10,650	0.97	-166	> 99.9%	Decreasing
				2009 to present (last 10 years)	22	391	65	3,088	1.04	-59	94.9%	Prob. decreasing
		RW-2S	Plume	1995 to present (all data)	24	49.9	8.4	10,100	2.60	-65	98.9%	Decreasing
				2009 to present (last 10 years)	22	27.3	6.0	420	1.54	7	58.9%	No trend
Shallow Petroleum (West Building)	CBTEX	MW-117S	Plume	2016 to present (all data)	5	ND	ND	3,479	1.47	-9	--	--
		MW-20	Sentinel	1993 to present (all data)	19	0.82	ND	84,203	2.08	-108	> 99.9%	Decreasing
				9/11 to present (post-ISCO)	12	0.82	ND	7,971	2.24	-37	99.5%	Decreasing
		MW-23S	Sentinel	6/11 to present (all data)	12	ND	ND	258	1.64	-46	100.0%	Decreasing
				12/11 to present (post-ISCO)	11	ND	ND	258	1.90	-37	99.8%	Decreasing
		MW-30S	Plume	2014 to present (all data)	5	13,920	9,237	33,877	0.53	-2	--	--
Shallow Petroleum (Eastern Former UST Area)	CBTEX	MW-26S	Plume	2011 to present (all data)	12	630	319	2,039	0.58	-22	92.4%	Prob. decreasing
		MW-27S	Sentinel	2011 to present (all data)	12	ND	ND	923	1.11	-11	97.2%	Decreasing
		VP-6S	Sentinel	2017 to present (all data)	2	ND	ND	ND	0.00	0	--	--
	1,2,4-Trimethylbenzene	MW-26S	Plume	2016 to present (all data)	5	3,200	2,800	4,500	0.18	0	--	--
		MW-27S	Sentinel	2016 to present (all data)	4	ND	ND	25	--	--	--	--
		VP-6S	Sentinel	2017 to present (all data)	2	ND	ND	ND	0.00	0	--	--
Shallow Petroleum/CVOC (Former AST/UST Area)	CBTEX	RW-3S	Plume	1997 to present (all data)	23	0.85	0.35	22,007	1.16	-131	> 99.9%	Decreasing
				2017 to present (post-shutoff)	5	ND	ND	2.4	1.04	-6	--	--
	CVOCs	RW-3S	Plume	2006 to present (all data)	14	95.10	ND	2,502	2.78	18	82.1%	No trend
				2017 to present (post-shutoff)	5	174	16.4	174.0	1.10	-2	--	--
Deep CVOC	Total CVOCs	MW-106D	Plume	2016 to present (all data)	6	7,998	3,908	13,746	0.45	9	93.2%	Prob. increasing
		MW-109D	Sentinel	2017 to present (all data)	4	ND	ND	1.54	0.42	-3	--	--
		MW-110D	Plume	2016 to present (all data)	6	146,390	92,000	166,610	0.21	11	97.2%	Increasing
		MW-118D	Plume	2017 to present (all data)	4	313,420	233,200	261,210	0.14	4	--	--
		MW-119D	Sentinel	2017 to present (all data)	4	7,007	4,685	6,280	0.16	6	--	--
		MW-120D	Sentinel	2017 to present (all data)	6	ND	ND	1.60	0.96	-5	89.6%	Stable
		MW-121D	Sentinel	2017 to present (all data)	4	ND	ND	0.30	0.67	-3	--	--
		MW-122D	Plume	2017 to present (all data)	4	991	418	1,191	0.37	0	--	--
		RW-2D	Plume	1995 to present (all data)	24	6,702	2,901	18,587	0.40	-29	75.4%	Stable
				2009 to present (last 10 years)	22	5,292	4,719	14,539	0.24	-31	87.0%	Stable
	Acetone	RW-6D	Plume	2009 to present (all data)	24	34,576	16,688	51,182	0.27	94	99.0%	Increasing
				2009 to present (all data)	24	ND	ND	138,000	1.04	-38	81.9%	No trend
				2014 to present (since peak)	11	ND	ND	138,000	1.29	-52	> 99.9%	Decreasing

Notes:

Confidence Factor = confidence (in percent) that concentration is increasing (S>0) or decreasing (S<0)

While trends can be calculated with as little as four independent sampling events per well, only confidence factors and trends with six or more independent events are presented in this table

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

-- = Not calculated due to lack of enough data points; six data points are required as a minimum to calculate confidence factors and trends.

µg/L = microgram(s) per liter

AST = aboveground storage tank

CBTEX = cumene, benzene, toluene, ethylbenzene, and xylene

CoV = coefficient of variation

CVOC = chlorinated volatile organic compound

ND = nondetect

S-value = Mann-Kendall statistic

UST = underground storage tank

Table 2-3. Recovery Well Extraction Rates and Operational Percentages*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Well	Extraction Rates (gpm)			Percent Operational
	Minimum	Maximum	Average	
Shallow WBZ				
RW-1S	0.01	0.38	0.14	85%
RW-2S	0.01	1.98	1.03	87%
Deep WBZ				
RW-2D	0.02	2.35	1.65	96%
RW-6D	0.13	1.61	0.69	91%

Notes:

RW-3S was shut down in August 8, 2017, because of its historically low pumping rates and its hydraulic location (upgradient from RW-1S and RW-2S). This was proposed by CH2M in the 2016 Annual PRR (CH2M, 2017), and approved by NYSDEC via letter dated May 1, 2017.

All values based on weekly to biweekly totalizer flowmeter readings.

Average extraction rate is calculated only using data during periods of operation for each well (that is, calculations do not include periods of downtime).

Percent operational represents the percentage of the time that the well was operational (versus down for maintenance) in 2017. Hours of lost productivity due to intermittent system shutdowns are also included in the calculation.

gpm = gallon(s) per minute

WBZ = water-bearing zone

CH2M HILL Engineers, Inc. (a wholly owned subsidiary of Jacobs Engineering Group Inc.). 2017. *2016 Annual Periodic Review Report, Essex-Hope Site*. March.

Table 2-4. Monitoring Well Inventory and 2019 Groundwater Elevation Measurements
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Monitoring Well ID	Northing	Easting	Top of Casing Elevation (feet AMSL)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Screened Zone	Groundwater Elevation (feet AMSL)				Monitoring Well Condition
							28-Mar-19	19-Jun-19	15-Aug-19	29-Oct-19	
GP-1S	769418.53	977328.64	1,278.34	8	12.8	Shallow	1,268.31	--	1,268.14	1,268.79	Good
GP-2D	769380.34	977348.27	1,278.03	30	34.8	Deep	1,265.46	1,266.55	1,265.23	1,266.21	Sediment above top of screen
GP-2S	769379.13	977344.67	1,277.97	2.6	12.6	Shallow	1,269.25	1,269.84	1,269.07	1,269.82	Good
GP-3D	769435.18	977388.08	1,278.15	34	38.8	Deep	1,264.41	1,265.86	1,278.15	1,265.35	Good
GP-3S	769439.01	977385.71	1,278.25	4	14	Shallow	1,267.49	1,267.78	1,278.25	1,267.91	Good
GP-4D	769400.36	977281.12	1,277.48	39	43.8	Deep	1,263.59	1,264.93	1,263.78	--	3 feet of sediment in well; no plug
GP-4S	769402.76	977283.85	1,277.43	10.8	15.8	Shallow	1,268.23	1,269.07	1,268.23	1,268.43	Good
GP-5D	769467.40	977309.00	1,276.30	36	40.8	Deep	--	--	1,276.30	--	Repaired in 2017; sediment above top of screen; no plug; PVC flooded up to TOC
GP-5S	769466.37	977307.37	1,276.79	7	11.8	Shallow	--	--	1,267.29	--	Damaged
GP-7	769539.53	977376.36	1,276.17	9	14.8	Shallow	--	--	--	--	Could not locate
HW-1	769310.73	977237.35	1,278.46	--	--	--	--	--	--	--	PVC casing broken; could not locate in October 2017 to repair
HW-2	769407.31	977201.19	1,280.57	--	--	Shallow	1,268.34	--	--	--	Broken/rusted cap, no lock
HW-3	769259.85	977127.74	1,282.60	--	--	--	--	--	--	--	Good
HW-6	769321.82	977304.10	1,280.98	6	16	Shallow	1,270.09	--	--	--	Good
HW-6A	769317.15	977304.53	1,279.85	--	--	--	1,267.62	--	--	--	Good
HW-8	769356.63	977469.24	1,277.18	6	16	Shallow	1,269.89	1,270.77	1,269.92	1,270.35	Good
HW-9	769334.70	977479.33	1,280.35	6	16	Shallow	1,269.73	1,270.63	1,269.99	1,270.16	Good
HW-10	769233.13	977139.27	1,279.43	7	17	Shallow	--	1,270.64	1,270.54	1,270.64	Good
MW-1	769311.21	977562.85	1,280.10	15	20	Shallow	--	--	--	--	PVC casing pinched at 3 feet; could not repair
MW-10	769402.92	977316.21	1,277.28	8.5	18.5	Shallow	1,268.38	1,269.33	1,268.59	1,269.03	Good
MW-11	769378.08	977235.76	1,277.13	5	15	Shallow	1,267.22	1,269.48	1,267.18	1,268.88	Repaired
MW-11D	769381.99	977233.72	1,277.17	35	45	Deep	1,264.14	1,265.31	1,264.32	1,264.97	Good
MW-12	769328.16	977258.42	1,277.51	4	14	Shallow	1,268.69	1,269.55	1,268.36	1,269.28	Good
MW-13	769254.15	977431.38	1,277.65	8	18	Shallow	1,267.24	1,268.17	1,267.32	1,267.96	Repaired and re-developed in 2017
MW-14D	769491.93	977221.65	1,279.40	40	50	Deep	1,264.50	1,265.50	1,264.51	1,265.30	Good
MW-14S	769493.34	977227.86	1,279.64	10	20	Shallow	1,266.49	1,267.64	1,266.34	1,266.89	Good
MW-15D	769533.32	977340.57	1,278.90	34	44	Deep	1,264.33	1,265.10	1,264.05	1,264.90	Good
MW-15S	769538.87	977337.64	1,279.00	10	20	Shallow	1,265.80	1,266.80	1,265.20	1,266.45	Good
MW-16D	769618.24	977288.15	1,278.47	36	46	Deep	1,264.82	1,265.56	1,264.42	1,265.32	Good
MW-16S	769621.11	977287.09	1,278.74	7	17	Shallow	1,266.10	1,266.67	1,265.64	--	Good
MW-17	769386.50	977119.12	1,278.01	25	30	Deep	1,267.79	--	1,267.81	--	Sediment above top of screen
MW-18	769558.19	977549.59	1,275.05	5	15	Shallow	1,265.07	1,265.61	1,264.93	1,265.52	Good
MW-19D	769481.56	977468.50	1,275.64	34	44	Deep	1,263.81	1,264.39	1,263.25	1,264.27	Repaired
MW-19S	769486.62	977468.82	1,275.95	9	19	Shallow	1,265.63	1,266.18	1,265.34	1,266.61	Good
MW-2	769235.80	977145.80	1,279.09	6	16	Shallow	--	--	--	--	Abandoned
MW-20	769381.21	977365.24	1,278.10	6.5	11.5	Shallow	1,269.40	1,269.95	1,268.55	1,269.80	Good
MW-21D	769507.36	977414.36	1,275.61	31.5	41	Deep	1,265.55	--	--	--	Good
MW-22D	769584.11	977467.04	1,275.53	32.5	42	Deep	1,265.18	1,265.81	1,264.79	1,265.68	Good
MW-23D	769324.69	977431.09	1,277.36	28	37.5	Deep	1,265.86	1,266.52	1,266.27	1,266.13	Good
MW-23S	769330.65	977429.42	1,277.30	5	14.5	Shallow	1,270.01	1,270.81	1,270.04	1,270.45	Good
MW-24S	769295.26	977357.27	1,278.25	5	14.5	Shallow	1,269.66	1,270.71	1,270.01	1,269.98	Good
MW-25D	769596.57	977648.45	1,274.50	31	41	Deep	1,264.27	1,264.70	1,263.31	1,264.45	Good
MW-25S	769599.31	977655.01	1,274.30	7	17	Shallow	1,263.95	1,264.61	1,263.98	1,264.43	Good
MW-26S	769402.60	977514.59	1,277.09	5	15	Shallow	1,267.90	--	1,267.84	1,268.10	Good
MW-27S	769420.49	977594.25	1,276.46	10	20	Shallow	1,266.26	1,267.82	1,266.96	1,267.64	Good
MW-28S	769383.88	977607.30	1,276.87	7	17	Shallow	1,266.64	1,267.62	1,267.27	1,267.49	Good
MW-29S	769267.33	977370.58	1,278.35	4	14	Shallow	1,269.51	1,270.47	1,269.74	1,269.98	Good
MW-30S	769261.22	977342.56	1,278.47	10	16	Shallow	1,269.15	1,269.84	1,268.85	1,268.62	Good
MW-31S	769248.04	977369.79	1,278.29	10	15	Shallow	1,269.47	1,270.42	1,269.10	1,269.81	Good
MW-101S	769495.85	977385.68	1,275.68	8	18	Shallow	1,265.57	1,265.23	1,265.26	1,264.97	Good
MW-102S	769527.50	977462.33	1,275.43	9	14	Shallow	1,265.40	1,265.81	1,265.19	1,264.90	Good
MW-103S	769581.66	977463.10	1,275.32	8	18	Shallow	1,265.41	1,266.04	1,265.16	1,265.92	Good
MW-104S	769708.58	977409.23	1,279.22	9	14	Shallow	1,266.81	1,266.98	1,266.81	1,266.97	Good
MW-105S	769762.88	977561.18	1,278.79	8	18	Shallow	1,264.48	1,264.99	1,263.91	1,264.89	Good
MW-106S	769641.05	977554.52	1,275.29	10	15	Shallow	1,264.74	1,265.79	1,263.60	1,265.21	Good
MW-106D	769644.34	977553.22	1,275.19	24	34	Deep	1,264.11	1,264.68	1,263.19	1,264.38	Good
MW-107S	769669.94	977845.78	1,272.98	9	19	Shallow	1,263.28	1,263.78	1,262.43	1,263.35	Good
MW-108S	769725.67	977754.10	1,274.30	7	17	Shallow	1,263.38	1,263.89	1,262.40	1,263.44	Good
MW-109S	769813.86	977747.51	1,275.19	7	12	Shallow	DRY	--	--	1,263.89	Good
MW-109D	769810.78	977743.91	1,275.04	28	38	Deep	1,263.24	1,263.74	1,261.91	1,262.91	Good
MW-110D	769637.03	977446.46	1,275.75	28	38	Deep	1,264.45	1,265.05	1,263.65	1,264.75	Good
MW-111D	769320.09	977274.77	1,277.59	32	42	Deep	1,264.00	1,265.24	1,264.94	1,265.12	Good
MW-112S	769273.84	977338.29	1,278.59	6	16	Shallow	1,269.29	1,270.17	1,269.05	1,269.77	Good
MW-113D	769254.29	977349.06	1,278.47	29	39	Deep	1,266.28	1,267.33	1,266.08	1,267.09	Good
MW-114S	769203.86	977244.48	1,279.15	8	13	Shallow	1,269.20	1,269.45	1,269.00	1,269.39	Good
MW-115D	769212.79	977155.02	1,279.03	35	40	Deep	1,269.83	1,269.70	1,269.08	1,269.93	Good
MW-116S	769162.39	977173.32	1,278.91	8	13	Shallow	1,269.36	1,269.80	1,269.70	1,269.91	Good
MW-117S	769220.98	769220.98	1,278.14	6	16	Shallow	1,269.07	1,269.76	1,269.86	1,269.56	Good
MW-118D	769419.08	977325.34	1,278.15	24	34	Deep	1,265.58	1,266.57	1,265.34	1,266.36	Good
MW-119D	769496.13	977235.78	1,276.37	22	32	Deep	1,265.74	1,266.31	1,265.32	1,266.06	Good
MW-120D	769783.18	977493.70	1,277.60	28	38	Deep	1,264.10	1,264.61	1,262.93	1,264.25	Good
MW-121D	769891.60	977620.85	1,272.09	28	38	Deep	--	1,263.54	1,261.69	1,262.89	Good
MW-122D	769550.68	977553.25	1,275.07	22	32	Deep	1,264.40	1,264.97	1,263.77	1,264.78	Broken cover
MW-123D	769431.82	977294.35	1,276.86	25	35	Deep	1,264.97	1,265.96	1,264.95	1,265.81	Good
MW-124S	769354.37	977526.71	1,278.81	5	15	Shallow	--	--	--	--	Installed in September 2019

Table 2-4. Monitoring Well Inventory and 2019 Groundwater Elevation Measurements
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Monitoring Well ID	Northing	Easting	Top of Casing Elevation (feet AMSL)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Screened Zone	Groundwater Elevation (feet AMSL)				Monitoring Well Condition
							28-Mar-19	19-Jun-19	15-Aug-19	29-Oct-19	
MW-4	769170.13	977100.42	1,280.70	13	18	Shallow	1,270.59	1,271.28	1,271.01	--	Good
MW-6	769420.79	977237.79	1,277.28	9.9	19.9	Shallow	1,267.07	1,269.83	1,266.75	1,268.73	Repaired in 2017
MW-7D	769437.24	977291.46	1,277.12	35	45	Deep	--	--	--	--	Abandoned
MW-7DD	769435.52	977293.59	1,277.09	90	100	Glacial Till	1,275.89	1,276.59	1,275.84	1,275.79	Good
MW-7S	769440.65	977291.06	1,277.04	10	20	Shallow	1,269.43	1,268.99	1,268.12	1,268.69	Repaired in 2017
MW-8	769407.61	977252.34	1,277.30	39.6	49.6	Deep	--	--	--	--	Abandoned
PZ-11D	769432.94	977590.25	1,276.14	21.3	41.3	Deep	--	--	--	--	Abandoned
PZ-1D	769442.95	977285.37	1,277.23	25	45	Deep	1,265.99	--	1,265.83	1,259.58	5 feet of sediment in well; no plug
PZ-1S	769443.57	977282.97	1,277.25	7	17	Shallow	1,268.66	--	1,268.14	1,267.65	6 feet of sediment in well; no plug
PZ-2D	769442.57	977286.80	1,277.14	25	45	Deep	1,261.04	--	1,272.34	--	Kink in casing; no plug
PZ-3D	769416.94	977325.13	1,278.35	20	40	Deep	1,266.09	1,266.98	1,265.80	--	8.5 feet of sediment in well; obstruction at well head
PZ-4D	769419.63	977320.19	1,278.24	25	45	Deep	--	--	--	1,266.97	6 feet of sediment in well; LNAPL present*
PZ-5D	769418.77	977464.00	1,275.88	21.5	41.5	Deep	1,265.20	1,265.83	1,265.38	1,265.83	Good
PZ-5S	769422.15	977463.92	1,275.92	5.5	12	Shallow	1,267.02	--	1,266.63	1,267.22	Good
PZ-6D	769456.59	977464.40	1,275.91	25.5	45.5	Deep	1,264.27	1,265.36	1,264.72	1,264.76	Good
PZ-6S	769459.23	977464.52	1,276.09	8.5	13.5	Shallow	1,266.47	1,266.84	1,265.68	1,266.71	Good
PZ-7D	769559.50	977553.39	1,275.19	22	42	Deep	--	--	--	--	Abandoned in 2017
RW-1D	769375.07	977258.14	1,275.87	32	57	Deep	1,263.67	1,264.97	1,263.97	--	Good
RW-1S	769386.12	977269.36	1,275.36	10.5	16	Shallow	1,266.00	1,265.94	1,266.26	1,265.46	Redeveloped
RW-2D	769444.16	977280.70	1,275.92	27	42	Deep	1,245.60	1,251.82	1,246.73	1,250.22	Repaired and redeveloped
RW-2S	769438.98	977265.94	1,275.89	10	15.5	Shallow	1,266.08	1,268.69	1,266.73	1,268.04	Repaired and redeveloped
RW-3S	769245.55	977167.43	1,277.72	9	13.5	Shallow	1,269.83	1,270.11	1,269.87	1,270.12	Redeveloped
RW-5S	769390.30	977475.71	1,276.83	7	10	Shallow	1,269.02	1,269.00	1,268.93	--	Good
RW-6D	769525.89	977464.22	1,274.95	--	--	Deep	1,249.45	1,257.50	1,250.33	1,254.30	Redeveloped
VP-1S	769423.04	977327.44	1,278.26	--	--	Shallow	--	--	1,277.35	--	Casing clogged
VP-2S	769410.90	977332.10	1,278.32	--	--	Shallow	--	--	--	--	Obstruction at 1 feet
VP-3S	769320.40	977328.50	--	--	--	Shallow	--	--	--	--	Obstruction at 1.3 feet
VP-4S	769357.39	977390.18	1,278.25	--	--	Shallow	--	--	--	--	Could not locate
VP-5D	769366.31	977241.12	1,277.53	12.5	34.3	Deep	--	--	--	--	Abandoned
VP-6D	769487.64	977538.82	1,276.11	29.5	39.5	Deep	1,265.06	1,265.51	1,264.31	--	Repaired and redeveloped in 2017
VP-6S	769483.33	977539.59	1,276.08	18.3	24	Shallow	1,273.93	--	--	1,276.08	Damaged; Well manhole filled with water/sediment
VP-7D	769294.32	977519.73	1,278.22	20.4	39.3	Deep	1,267.03	1,266.30	1,267.25	1,266.25	Good
VP-8D	769465.51	977305.11	1,276.69	20	39	Deep	1,265.64	1,267.01	1,265.74	1,266.33	Good

* LNAPL was detected in PZ-4D in all four water level gauging events in 2019. Reported depth for October 2019 was adjusted for product thickness.

Notes:
All wells were located on the north edge of the steel casing.
Horizontal Datum: NY West State Plane Coordinate System, NAD83(2011), Epoch: 2010.00
Vertical Datum: NAVD88, Geoid12B, derived using OPUS Post processing and RTK GNSS to local NGS Benchmark U-88
To convert an NGVD29 elevation to and NAVD88 elevation, subtract 0.51 feet.
Blue shading indicates monitoring wells (total of 21) part of the Annual Performance Monitoring Well Program proposed in the 2017 Site Management Plan (CH2M, 2017a)
Green shading indicates monitoring wells that were identified as candidates for redevelopment or abandonment
Red shading indicates wells that were identified as candidates for abandonment
-- = data unavailable or unknown, or water level not measured (innaccessible or unable to locate during gauging activities)
AMSL = above mean sea level
VP = vapor probe
PVC = polyvinyl chloride
PZ = piezometer
MW = monitoring well
HW = monitoring well (Hope Well)
GP = geoprobe piezometer
RW = recovery well
LNAPL = light nonaqueous phase liquid

Table 2-5. 2019 Groundwater Vertical Gradients
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Water-bearing Zone	Well	Mid-Screen Depth (feet bgs)	Groundwater Elevation (feet AMSL)			
			28-Mar-19	19-Jun-19	15-Aug-19	29-Oct-19
Shallow	MW-7S	15.0	1,269.43	1,268.99	1,268.12	1,268.69
Deep	MW-7DD	40.0	1,275.89	1,276.59	1,275.84	1,275.79
Vertical Gradient (ft/ft)			0.26	0.30	0.31	0.28
Shallow	MW-11	10.0	1,267.22	1,269.48	1,267.18	1,268.88
Deep	MW-11D	40.0	1,264.14	1,265.31	1,264.32	1,264.97
Vertical Gradient (ft/ft)			0.10	0.14	0.10	0.13
Shallow	MW-14S	15.0	1,266.49	1,267.64	1,266.34	1,266.89
Deep	MW-14D	45.0	1,264.50	1,265.50	1,264.51	1,265.30
Vertical Gradient (ft/ft)			0.07	0.07	0.06	0.05
Shallow	MW-15S	15.0	1,265.80	1,266.80	1,265.20	1,266.45
Deep	MW-15D	39.0	1,264.33	1,265.10	1,264.05	1,264.90
Vertical Gradient (ft/ft)			0.06	0.07	0.05	0.06
Shallow	MW-16S	12.0	1,266.10	1,266.67	1,265.64	--
Deep	MW-16D	41.0	1,264.82	1,265.56	1,264.42	1,265.32
Vertical Gradient (ft/ft)			0.04	0.04	0.04	--
Shallow	MW-18	10.0	1,265.07	1,265.61	1,264.93	1,265.52
Deep	MW-122D	27.0	1,264.40	1,264.97	1,263.77	1,264.78
Vertical Gradient (ft/ft)			0.04	0.04	0.07	0.04
Shallow	MW-19S	14.0	1,265.63	1,266.18	1,265.34	1,266.61
Deep	MW-19D	39.0	1,263.81	1,264.39	1,263.25	1,264.27
Vertical Gradient (ft/ft)			0.07	0.07	0.08	0.09
Shallow	MW-23S	10.0	1,270.01	1,270.81	1,270.04	1,270.45
Deep	MW-23D	33.0	1,265.86	1,266.52	1,266.27	1,266.13
Vertical Gradient (ft/ft)			0.18	0.19	0.16	0.19
Shallow	MW-25S	12.0	1,263.95	1,264.61	1,263.98	1,264.43
Deep	MW-25D	36.0	1,264.27	1,264.70	1,263.31	1,264.45
Vertical Gradient (ft/ft)			-0.01	0.00	0.03	0.00

Notes:
Mid-screen depths are depth below ground surface in feet (at middle of the screen).
Positive gradient indicates downward gradient; negative gradient indicates upward gradient.

-- = not measured or not calculated
amsl = above mean sea level
bgs = below ground surface
ft/ft = feet per foot

Water-bearing Zone	Well	Mid-Screen Depth (feet bgs)	Groundwater Elevation (feet AMSL)			
			28-Mar-19	19-Jun-19	15-Aug-19	29-Oct-19
Shallow	GP-2S	7.6	1,269.25	1,269.84	1,269.07	1,269.82
Deep	GP-2D	32.5	1,265.46	1,266.55	1,265.23	1,266.21
Vertical Gradient (ft/ft)			0.15	0.13	0.15	0.14
Shallow	GP-3S	9.0	1,267.49	1,267.78	1,278.25	1,267.91
Deep	GP-3D	36.5	1,264.41	1,265.86	1,278.15	1,265.35
Vertical Gradient (ft/ft)			0.11	0.07	0.00	0.09
Shallow	GP-4S	13.3	1,268.23	1,269.07	1,268.23	1,268.43
Deep	GP-4D	41.5	1,263.59	1,264.93	1,263.78	--
Vertical Gradient (ft/ft)			0.16	0.15	0.16	--
Shallow	PZ-5S	8.8	1,267.02	--	1,266.63	1,267.22
Deep	PZ-5D	31.5	1,265.20	1,265.83	1,265.38	1,265.83
Vertical Gradient (ft/ft)			0.08	--	0.06	0.06
Shallow	PZ-6S	11.0	1,266.47	1,266.84	1,265.68	1,266.71
Deep	PZ-6D	35.5	1,264.27	1,265.36	1,264.72	1,264.76
Vertical Gradient (ft/ft)			0.09	0.06	0.04	0.08
Shallow	VP-6S	21.2	1,273.93	--	--	1,276.08
Deep	VP-6D	34.5	1,265.06	1,265.51	1,264.31	--
Vertical Gradient (ft/ft)			0.66	--	--	--
Shallow	MW-106S	12.5	1,264.74	1,265.79	1,263.60	1,265.21
Deep	MW-106D	29.0	1,264.11	1,264.68	1,263.19	1,264.38
Vertical Gradient (ft/ft)			0.04	0.07	0.02	0.05
Shallow	MW-103S	13.0	1,265.41	1,265.87	1,265.12	1,265.39
Deep	MW-22D	37.0	1,265.18	1,265.81	1,264.79	1,265.68
Vertical Gradient (ft/ft)			0.010	0.00	0.01	-0.01
Shallow	MW-30S	13.0	1,269.15	1,269.84	1,268.85	1,268.62
Deep	MW-113D	34.0	1,266.28	1,267.33	1,266.08	1,267.09
Vertical Gradient (ft/ft)			0.14	0.12	0.13	0.07

Table 2-6. Shallow WBZ Analytical Results – Recovery Wells
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Volatile Organic Compounds (Method 8260C) – µg/L	NYSDEC GWQS (µg/L)	RW-1S		RW-2S		RW-3S	
		2/5/2019	8/8/2019	2/5/2019	8/8/2019	2/5/2019	8/8/2019
1,1,1,2-Tetrachloroethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,1-Trichloroethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	5	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	1	1.5 U	3.0 U	1.5 U	1.5 U	1.5 U	1.5 U
1,1-Dichloroethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1-Dichloroethene	5	0.45 J	0.46 J	0.50 U	0.50 U	0.50 U	0.55
1,1-Dichloropropene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichloropropane	0.04	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4-Trichlorobenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4-Trimethylbenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromo-3-Chloropropane	0.04	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	3	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethane	0.6	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	1	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene (Mesitylene)	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene	3	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichloropropane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichloropropene, Total	0.4	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	3	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dioxane (p-Dioxane)	NS	250 U	500 U	250 U	250 U	250 U	250 U
2,2-Dichloropropane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Butanone (Methyl Ethyl Ketone)	50	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorotoluene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Hexanone	50	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chlorotoluene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Methyl-2-Pentanone	NS	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	50	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U
Benzene	1	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromobenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromochloromethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromodichloromethane	50	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	50	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Bromomethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Carbon Disulfide	60	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	5	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Chlorodibromomethane	50	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroform	7	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloromethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
cis-1,2-Dichloroethene	5*	100	210	32	5.3	6.3	110
cis-1,3-Dichloropropene	0.4	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromomethane (Methylene Bromide)	5	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	5	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichloromethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene	5*	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Hexachlorobutadiene	0.5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Isopropylbenzene (Cumene)	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Naphthalene	10	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
n-Butylbenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
n-Propylbenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
p-Isopropyltoluene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
sec-Butylbenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Styrene	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
tert-Butylbenzene	5	2.5 U	5.0 U	2.5 U	2.5 U	1.7 J	2.5 U
tert-Butyl Methyl Ether	10	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethene	5	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	5*	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,2-Dichloroethene	5*	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	3.0
trans-1,3-Dichloropropene	0.4	0.50 U	1.0 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	5*	79	180	39	22	9.0	58
Trichlorofluoromethane	5	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Vinyl Acetate	NS	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	5*	8.1	0.85 J	1.4	1.0 U	0.80 J	2.7
Xylene, o	5*	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Xylenes, m & p	5*	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Xylenes, Total	5 ^a	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U
Total Volatile Organic Compounds	NS	190 J	390 J	72	27	18 J	170
Total Chlorinated Volatile Organic Compounds	NS	190 J	390 J	72	27	16 J	170
Total Cumene, Benzene, Toluene, Ethylbenzene, and Xylenes	NS	2.5 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U

* Site groundwater RAOs set forth in the March 1994 Record of Decision.
Notes:
Exceedances of NYSDEC GWQS and RAOs in bold (result greater than level).
Nondetects are reported to the adjusted reporting limit.
µg/L = microgram(s) per liter
J = estimated detection
NS = no standard or guidance value established (TOGS 1.1.1)

NYSDEC GWQS = New York State Department of Environmental Conservation Ambient Groundwater Quality Standards and Guidance Values (TOGS 1.1.1)
RAO = remedial action objective
TOGS = Technical and Operational Guidance Series
U = analyte not detected
WBZ = water-bearing zone

Table 2-7. Summary of COCs in Shallow Groundwater*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Constituent of Concern	RAO (µg/L)	Maximum Concentration (µg/L)	Number of Wells > RAO	Number of Wells < RAO ^a
Chlorinated VOCs				
Trichloroethene	5	310 (MW-101S)	7	7
cis-1,2-Dichloroethene	5	210 (RW-1S)	6	8
Vinyl Chloride	5	8.1 (RW-1S)	1	13
Petroleum-related Compounds				
Isopropylbenzene (Cumene)	5	120 (MW-30S)	2	12
Ethylbenzene	5	3,800 (MW-30S)	2	12
Naphthalene	10	240 (MW-30S)	2	12
n-Propylbenzene	5	460 (MW-26S)	2	12
1,2,4-Trimethylbenzene	5	3,200 (MW-26S)	2	12
1,3,5-Trimethylbenzene (Mesitylene)	5	340 (MW-26S)	2	12
Xylenes, Total	5	10,000 J (MW-30S)	2	12

^a Well counts in this column include all non-detects, even those with reporting limits above the respective RAO.

Note:

A total of 14 monitoring/recovery wells (existing and newly installed) screened in the Shallow WBZ were sampled in 2019.

µg/L = microgram(s) per liter

VOC = volatile organic compound

RAO = remedial action objective

WBZ = water-bearing zone

Table 2-8. Deep WBZ Analytical Results – Recovery Wells*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Volatile Organic Compounds (Method 8260C) – µg/L	NYSDEC GWQS (µg/L)	RW-2D		RW-6D	
		2/5/2019	8/8/2019	2/5/2019	8/8/2019
1,1,1,2-Tetrachloroethane	5	50 U	120 U	500 U	500 U
1,1,1-Trichloroethane	5	50 U	120 U	500 U	500 U
1,1,2,2-Tetrachloroethane	5	10 U	25 U	100 U	100 U
1,1,2-Trichloroethane	1	30 U	75 U	300 U	300 U
1,1-Dichloroethane	5	50 U	120 U	500 U	500 U
1,1-Dichloroethene	5	24	13 J	62 J	76 J
1,1-Dichloropropene	5	50 U	120 U	500 U	500 U
1,2,3-Trichlorobenzene	5	50 U	120 U	500 U	500 U
1,2,3-Trichloropropane	0.04	50 U	120 U	500 U	500 U
1,2,4-Trichlorobenzene	5	50 U	120 U	500 U	500 U
1,2,4-Trimethylbenzene	5	50 U	120 U	500 U	500 U
1,2-Dibromo-3-Chloropropane	0.04	50 U	120 U	500 U	500 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	40 U	100 U	400 U	400 U
1,2-Dichlorobenzene	3	50 U	120 U	500 U	500 U
1,2-Dichloroethane	0.6	10 U	25 U	100 U	100 U
1,2-Dichloropropane	1	20 U	50 U	200 U	200 U
1,3,5-Trimethylbenzene (Mesitylene)	5	50 U	120 U	500 U	500 U
1,3-Dichlorobenzene	3	50 U	120 U	500 U	500 U
1,3-Dichloropropane	5	50 U	120 U	500 U	500 U
1,3-Dichloropropene, Total	0.4	10 U	25 U	100 U	100 U
1,4-Dichlorobenzene	3	50 U	120 U	500 U	500 U
1,4-Dioxane (p-Dioxane)	NS	5,000 U	12,000 U	50,000 U	50,000 U
2,2-Dichloropropane	5	50 U	120 U	500 U	500 U
2-Butanone (Methyl Ethyl Ketone)	50	100 U	250 U	1,000 U	1,000 U
2-Chlorotoluene	5	50 U	120 U	500 U	500 U
2-Hexanone	50	100 U	250 U	1,000 U	1,000 U
4-Chlorotoluene	5	50 U	120 U	500 U	500 U
4-Methyl-2-Pentanone	NS	100 U	250 U	1,000 U	1,000 U
Acetone	50	100 U	250 U	1,000 U	1,000 U
Benzene	1	8.3 J	25 U	57 J	41 J
Bromobenzene	5	50 U	120 U	500 U	500 U
Bromochloromethane	5	50 U	120 U	500 U	500 U
Bromodichloromethane	50	10 U	25 U	100 U	100 U
Bromoform	50	40 U	100 U	400 U	400 U
Bromomethane	5	50 U	120 U	500 U	500 U
Carbon Disulfide	60	100 U	250 U	1,000 U	1,000 U
Carbon Tetrachloride	5	10 U	25 U	100 U	100 U
Chlorobenzene	5	50 U	120 U	500 U	500 U
Chlorodibromomethane	50	10 U	25 U	100 U	100 U
Chloroethane	5	50 U	120 U	500 U	500 U
Chloroform	7	50 U	120 U	500 U	500 U
Chloromethane	5	50 U	120 U	500 U	500 U
cis-1,2-Dichloroethene	5 ^a	4,100	4,700	15,000	28,000
cis-1,3-Dichloropropene	0.4	10 U	25 U	100 U	100 U
Dibromomethane (Methylene Bromide)	5	100 U	250 U	1,000 U	1,000 U
Dichlorodifluoromethane	5	100 U	250 U	1,000 U	1,000 U
Dichloromethane	5	50 U	120 U	500 U	500 U
Ethylbenzene	5 ^a	50 U	120 U	500 U	500 U
Hexachlorobutadiene	0.5	50 U	120 U	500 U	500 U
Isopropylbenzene (Cumene)	5	50 U	120 U	500 U	500 U
Naphthalene	10	50 U	120 U	500 U	500 U
n-Butylbenzene	5	50 U	120 U	500 U	500 U
n-Propylbenzene	5	50 U	120 U	500 U	500 U
p-Isopropyltoluene	5	50 U	120 U	500 U	500 U
sec-Butylbenzene	5	50 U	120 U	500 U	500 U
Styrene	5	50 U	120 U	500 U	500 U
tert-Butylbenzene	5	50 U	120 U	500 U	500 U

Table 2-8. Deep WBZ Analytical Results – Recovery Wells*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Volatile Organic Compounds (Method 8260C) – µg/L	NYSDEC GWQS (µg/L)	RW-2D		RW-6D	
		2/5/2019	8/8/2019	2/5/2019	8/8/2019
tert-Butyl Methyl Ether	10	50 U	120 U	500 U	500 U
Tetrachloroethene	5	10 U	25 U	100 U	100 U
Toluene	5 ^a	50 U	120 U	500 U	500 U
trans-1,2-Dichloroethene	5 ^a	28 J	120 U	500 U	500 U
trans-1,3-Dichloropropene	0.4	10 U	25 U	100 U	100 U
Trichloroethene	5 ^a	3,300	19 J	26,000	4,500
Trichlorofluoromethane	5	50 U	120 U	500 U	500 U
Vinyl Acetate	NS	100 U	250 U	1,000 U	1,000 U
Vinyl Chloride	5 ^a	660	560	2,400	2,000
Xylene, o	5 ^a	50 U	120 U	500 U	500 U
Xylenes, m & p	5 ^a	50 U	120 U	500 U	500 U
Xylenes, Total	5 ^a	50 U	120 U	500 U	500 U
Total Volatile Organic Compounds	NS	8,100 J	5,300 J	44,000 J	35,000 J
Total Chlorinated Volatile Organic Compounds	NS	8,100 J	5,300 J	43,000 J	35,000 J
Total Cumene, Benzene, Toluene, Ethylbenzene, and Xylenes	NS	8.3 J	120 U	57 J	41 J

^a Site groundwater RAOs set forth in the March 1994 Record of Decision.

Notes:

Exceedances of NYSDEC GWQS and RAOs in bold (result greater than level).

Non-detects are reported to the adjusted reporting limit.

µg/L = microgram(s) per liter

J = estimated detection

NS = No standard or guidance value established (TOGS 1.1.1)

NYSDEC GWQS = New York State Department of Environmental Conservation Ambient Groundwater Quality Standards and Guidance Values (TOGS 1.1.1)

RAO = remedial action objective

TOGS = Technical and Operational Guidance Series

U = analyte not detected

WBZ = water-bearing zone

Table 2-9. Summary of COCs in Deep Groundwater*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Constituent of Concern	RAO (µg/L)	Maximum Concentration (µg/L)	Number of Wells > RAO	Number of Wells < RAO ^a
Chlorinated VOCs				
Trichloroethene	5	120,000 (MW-110D)	7	5
1,1-Dichloroethene	5	420 J (MW-118D)	5	7
cis-1,2-Dichloroethene	5	240,000 (MW-118D)	7	5
trans-1,2-Dichloroethene	5	130 (MW-119D)	2	10
Vinyl Chloride	5	10,000 (MW-118D)	6	6
Petroleum-related Compounds				
Benzene	1	57 J (RW-6D)	3	9

^a Well counts in this column include all non-detects, even those with reporting limits above the respective RAO.

Note:

A total of 12 monitoring/recovery wells (existing and newly installed) screened in the Deep WBZ were sampled in 2019.

µg/L = microgram(s) per liter

VOC = volatile organic compound

RAO = remedial action objective

WBZ = water-bearing zone

Table 2-10. Shallow WBZ Recovery Well VOC Mass Extraction Summary*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Well	Date	Volume Extracted (gallons)	Average Total VOC Concentrations (µg/L)	Mass Removed (pounds)	Total Mass Removed All-time (pounds)
RW-1S	2019 1st Half	35,339	188	0.06	21.73
	2019 2nd Half	17,976	391	0.06	
	Total	53,315	289	0.11	
RW-2S	2019 1st Half	238,329	72	0.14	23.29
	2019 2nd Half	226,304	27	0.05	
	Total	464,633	50	0.20	
Shallow WBZ Totals		517,947	N/A	0.31	158

Notes:

RW-4S and RW-5S removed approximately 107.94 and 0.65 pounds, respectively, from 1998–2002.

Totals may be slightly off individual values due to rounding.

RW-3S was shut down on August 8, 2017 because of its historically low pumping rates and its hydraulic location (upgradient from RW-1S and RW-2S). This was proposed by CH2M in the 2016 Annual PRR (CH2M, 2017), and approved by NYSDEC via letter dated May 1, 2017. RW-3S removed approximately 4.42 pounds from 1998-2017.

µg/L = microgram(s) per liter

VOC = volatile organic compound

WBZ = water-bearing zone

CH2M HILL Engineers, Inc. (a wholly owned subsidiary of Jacobs Engineering Group Inc.). 2017. *2016 Annual Periodic Review Report, Essex-Hope Site*. March.

Table 2-11. Deep WBZ Recovery Well Mass Extraction Summary*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Well	Date	Volume Extracted (gallons)	Average Total VOC Concentrations (µg/L)	Mass Removed (pounds)	Total Mass Removed All-time (pounds)
RW-2D	2019 1st Half	369,153	8,120	25	1,331
	2019 2nd Half	418,393	5,292	18	
	Total	787,546	6,706	43	
RW-6D	2019 1st Half	136,127	43,519	49	1,422
	2019 2nd Half	295,532	34,617	85	
	Total	431,659	39,068	135	
Deep WBZ Totals		1,219,205	N/A	178	2,755

Notes:

1.56 pounds were removed by RW-1D in 1998 and 1999.

Totals may be slightly off individual values due to rounding.

Mass removal calculations include acetone, which is removed but not treated.

µg/L = microgram(s) per liter

VOC = volatile organic compound

WBZ = water-bearing zone

Table 5-1. Inspection, Maintenance, Monitoring, and Sampling Schedule
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

System	Routine (Biweekly or As Needed)	Monthly	Quarterly	Semiannual	Annual	As Required
GWE&T System Treatment Plant Building	<ul style="list-style-type: none"> • Cartridge filter inspection/replacement (Section 2.4) • Inspect Carbon vessels (Section 2.4) • Check transfer pump-flow rate (Section 2.4) • Inspect piping/valves (Section 2.4) • Inspect storage tank (Section 2.4) • Record recovery well/system flow-rates (Section 5.1) • Record System pressure readings (Section 5.1) 	<ul style="list-style-type: none"> • Obtain monthly samples and pH readings per Wastewater Discharge Permit (Section 5.1) 				<ul style="list-style-type: none"> • Replace GAC (Section 2.4, Table 5.0) • Clean flow meters (Section 2.4) • Clean out storage tank (Section 2.4) • Backflush carbon vessels (Section 2.4)
GWE&T System Recovery Wells	<ul style="list-style-type: none"> • Confirm recovery wells are operating properly (Section 2.4) 			<ul style="list-style-type: none"> • Inspection/maintenance (Section 2.4) • Obtain analytical samples per SMP (Section 5.1) 	<ul style="list-style-type: none"> • Well redevelopment (Section 2.4) 	<ul style="list-style-type: none"> • Flush piping system (Section 2.4) • Clean pumps/level controls (Section 2.4)
SSD/VIM System Residence at 159 Hopkington Avenue		<ul style="list-style-type: none"> • Monitor building occupancy and system operation (Section 4.3) 			<ul style="list-style-type: none"> • Inspection/maintenance (Section 4.3) 	<ul style="list-style-type: none"> • Maintenance (Section 4.3)
Asphalt & Concrete Caps				<ul style="list-style-type: none"> • Inspection (Section 3.2) 		<ul style="list-style-type: none"> • Maintenance (Section 3.2)
Monitoring Well System			<ul style="list-style-type: none"> • Measure water levels (Section 5.2) • Inspect well integrity (Section 5.2) 		<ul style="list-style-type: none"> • Obtain analytical samples in accordance with SMP (Section 5.2) 	

Notes:

Sections and appendices referenced in this table pertain to the latest O&M Plan and/or SMP for the Site.

GAC = granular activated carbon

GWE&T = groundwater extraction and treatment

O&M = operations and maintenance

SMP = site management plan

SSD/VIM = subslab depressurization/vapor intrusion mitigation

Table 5-2. POTW Monthly Monitoring Summary – Detected Parameters in Pre-carbon Influent*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Parameter	Sample Date / Results (µg/L)											
	January 11	February 5	March 7	April 4	May 2	June 3	July 10	August 8	September 6	October 9	November 4	December 6
1,1-Dichloroethene	18	24	11 J	17	22 J	23 J	29	24 J	22 J	13 J	13 J	13 J
Acetone	ND	ND	ND	15 J	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	13	18 J	ND	13	18 J	18 J	21 J	18 J	14 J	9.7 J	9.0 J	11 J
cis-1,2-Dichloroethene	4,500	5,400	2,100	3,400	5,600	6,400	7,100	5,900	5,300	3,400	3,100	3,300
trans-1,2-Dichloroethene	23 J	ND	ND	20	ND	ND	36 J	ND	ND	ND	ND	ND
Trichloroethene	4,300	7,000	1,500	4,100	6,700	6,700	9,400	7,400	7,400	4,800	3,900	5,200
Vinyl chloride	790	680	310	660	1,200	890	970	860	760	410	400	820
Pre-carbon total VOCs	9,644	13,122	3,921	8,225	13,540	14,031	17,556	14,202	13,496	8,633	7,422	9,344

Notes:

µg/L = microgram(s) per liter

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

ND = Not detected/detected below minimum laboratory reporting limit

VOC = volatile organic compound

Table 5-3. POTW Monthly Monitoring Summary – Detected Parameters in Primary Carbon Effluent*2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*

Parameter	Sample Date / Results (µg/L)											
	January 11	February 5	March 7	April 4	May 2	June 3	July 10	August 8	September 6	October 9	November 4	December 6
1,1-Dichloroethene	ND	1.9 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	3.7 J	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	11 J	ND	ND
cis-1,2-Dichloroethene	15	620	19	21	23	21	28	24 J	45	ND	ND	ND
Trichloroethene	2.80	120	2.2	2.2	2.4	2.5	3.3 J	5.7	3.4 J	ND	ND	ND
Vinyl chloride	750	970	0.61 J	11	74	250	1,400	1,600	1,600	750	1,400	2,000
Primary carbon total VOCs	768	1,712	22	34	99	277	1,431	1,630	1,648	761	1,400	2,000

Notes:

Primary carbon results represent effluent from the primary carbon vessel in the two carbon vessel system.

µg/L = microgram(s) per liter

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

ND = Not detected/detected below minimum laboratory reporting limit

VOC = volatile organic compound

Table 5-4. POTW Monthly Monitoring Summary – Detected Parameters in Post-carbon Effluent
2019 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York

Parameter	Sample Date / Results (µg/L)											
	January 11	February 5	March 7	April 4	May 2	June 3	July 10	August 8	September 6	October 9	November 4	December 6
1,1-Dichloroethene	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	1.6 J	3.3 J	ND	2 J	ND	1.6 J	1.9 J	2.3 J
Benzene	ND	0.18 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	0.19 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	3.2	ND	ND	1.8 J
cis-1,2-Dichloroethene	31	25	ND	0.26 J	ND	ND	1.4 J	ND	ND	ND	ND	ND
Tetrachloroethene	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	2.5	3	1.8	ND	0.37 J	0.78	1.5	0.61	0.27 J	ND	0.37 J	0.34 J
Vinyl chloride	0.72 J	0.6 J	ND	ND	0.1 J	ND	ND	0.08 J	11	0.42 J	ND	12
Post-carbon total VOCs	34.22	29.5	2	0.26	2.07	4.08	2.9	2.69	14.47	2.02	2.27	16.44
Post-carbon TTOs	34.22	29.1	2	0.26	0.47	0.78	2.9	0.69	14.47	0.42	0.37	14.14

Notes:

Post-carbon results represent system effluent from the secondary carbon vessel to the POTW.

Post-carbon sample is a laboratory-prepared composite of four grab samples taken at 30-minute intervals.

POTW Discharge Limit = 2,130 µg/L TTOs

µg/L = microgram(s) per liter

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

ND = Not detected/detected below minimum laboratory reporting limit

TTOs = total toxic organics

VOC = volatile organic compound

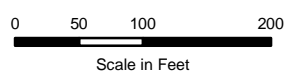
Figures



- Site Boundary
- Chautauqua County Tax Parcels
- Chadakoin River



BASE MAP SOURCE:
Imagery: Statewide Digital Orthoimagery 2012 of
Chautauqua County, New York Stat Gov 2012;
Tax Parcel Source: Chautauqua County
Department of Information Services. Last updated
July 7th, 2017.



Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
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FIGURE 1-1
Site Location and Layout Map
2019 Annual Periodic Review Report

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Chautauqua County Tax Parcels

Chadakoin River

Institutional Controls

Site Boundary (Declaration of Deeds and Covenants)

Engineering Controls

Monitoring Well

Recovery Well - Inactive

Recovery Well - Active

Asphalt and Concrete Caps

Groundwater Treatment and Extraction System

Subslab Depressurization System

Soil Vapor Extraction/Air Sparging System (1993-2007)

Sparge Injection Well

Vapor Extraction Well

Remedial Actions

In situ chemical oxidation (ISCO) injections (2012)

Pilot Testing ZVI PRB Injections (2000)

Sump Removal and Excavation Area (1996)

Biochemical oxidation (2001)
Soil Excavation and UST (T1-T5) removal (2002-2003)
Removal of three drywells and re-paving (2015)

N

BASE MAP SOURCE:
Imagery: Statewide Digital Orthoimagery 2012 of Chautauqua County, New York Stat Gov 2012;
Chautauqua County Department of Information Services. Last updated July 7th, 2017.

0

50

100

200

Scale in Feet

Essex Specialty Products, Inc

Essex/Hope Site, Jamestown, New York

CREATED BY: LA

REVIEWED BY: MV

JACOBS

FIGURE 1-2
Remediation Areas and Institutional and Engineering Control Boundaries
2019 Annual Periodic Review Report



Monitoring Well - Annual Sampling Program

Recovery Well - Semiannual Sampling (Alternating Seasons)

Monitoring Well

Monitoring Well Installed in 2019

Site Boundary

Chautauqua County Tax Parcels

Chadakoin River

N

BASE MAP SOURCE:
Imagery: Statewide Digital Orthoimagery 2012 of Chautauqua County, New York Stat Gov 2012;
Tax Parcel Source: Chautauqua County Department of Information Services. Last updated July 7th, 2017.

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Scale in Feet

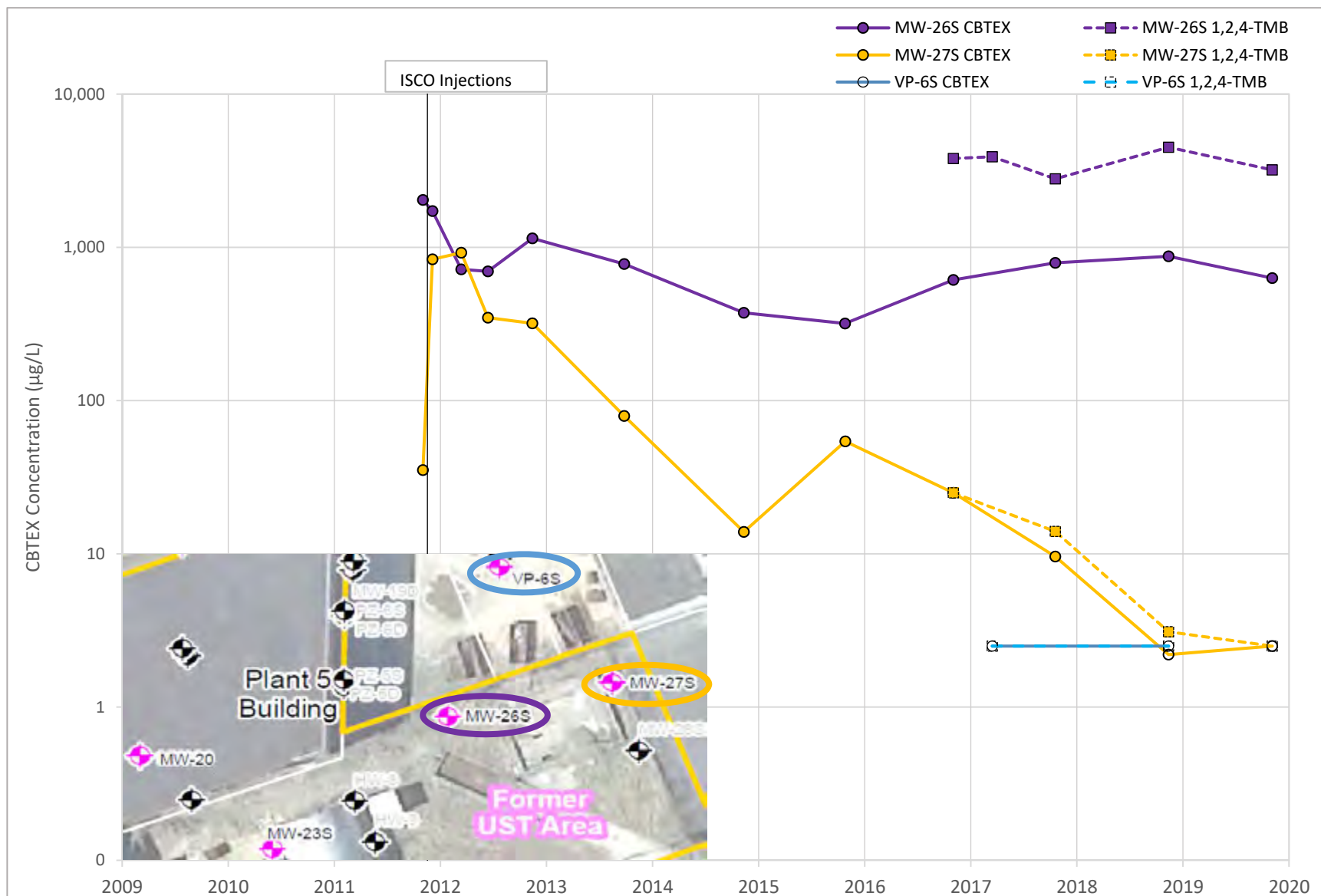
Essex Specialty Products, Inc

Essex/Hope Site, Jamestown, New York

FIGURE 2-1
Monitoring Well Network
2019 Annual Periodic Review Report

CREATED BY: LA
REVIEWED BY: MV

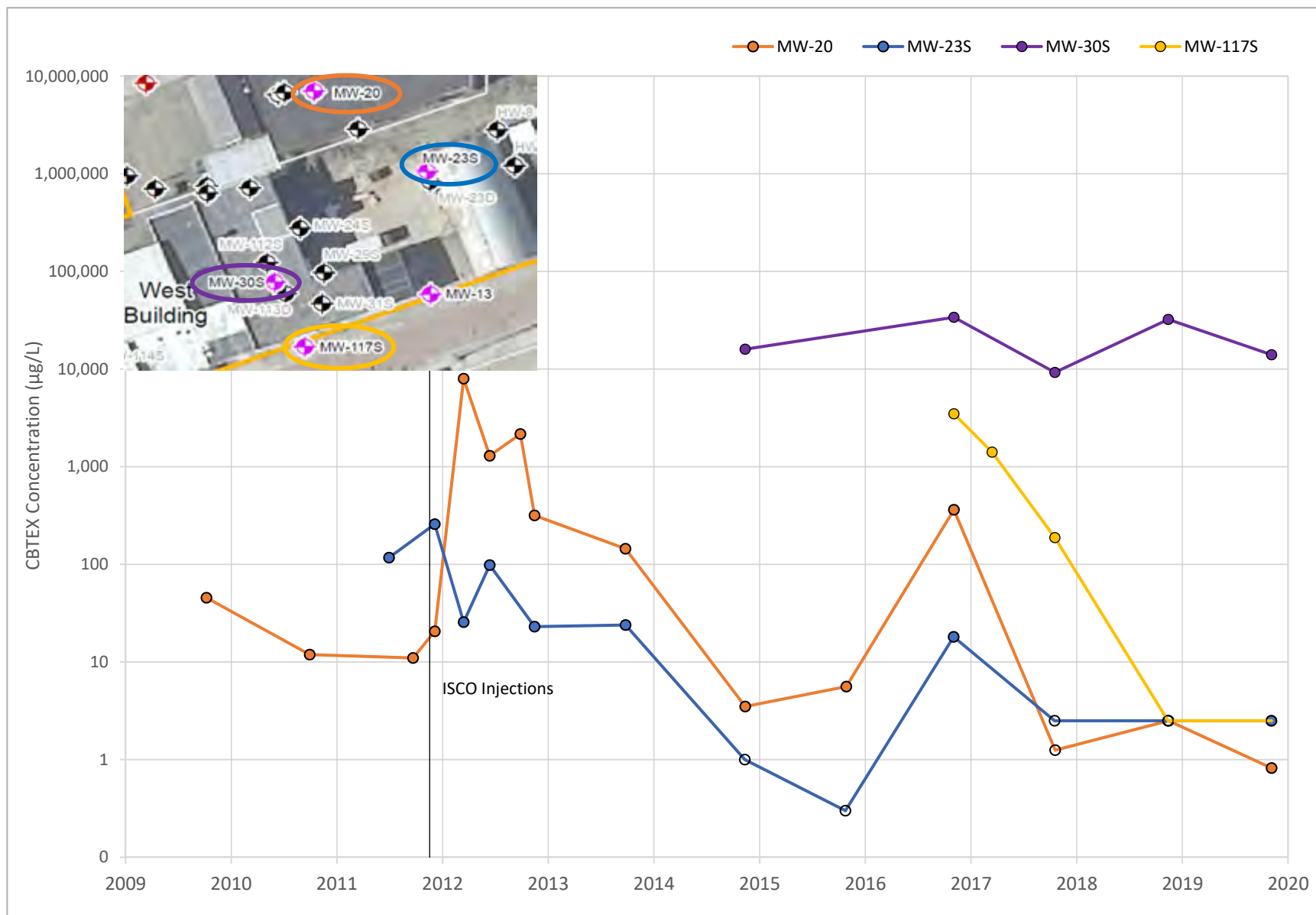
JACOBS



Empty markers indicate non-detect results

Shallow WBZ Total CBTEX and 1,2,4-TMB Concentration Trends, Former UST Area

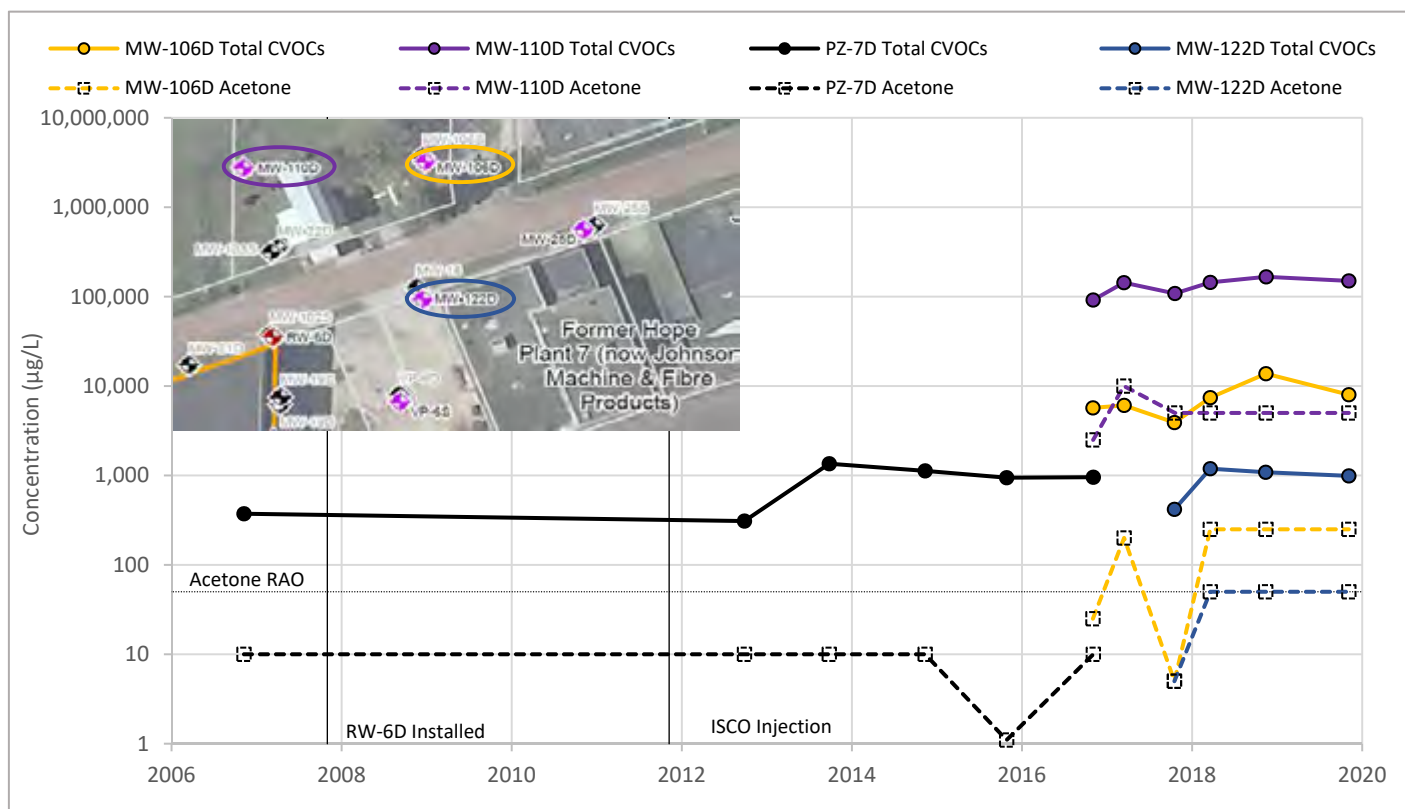
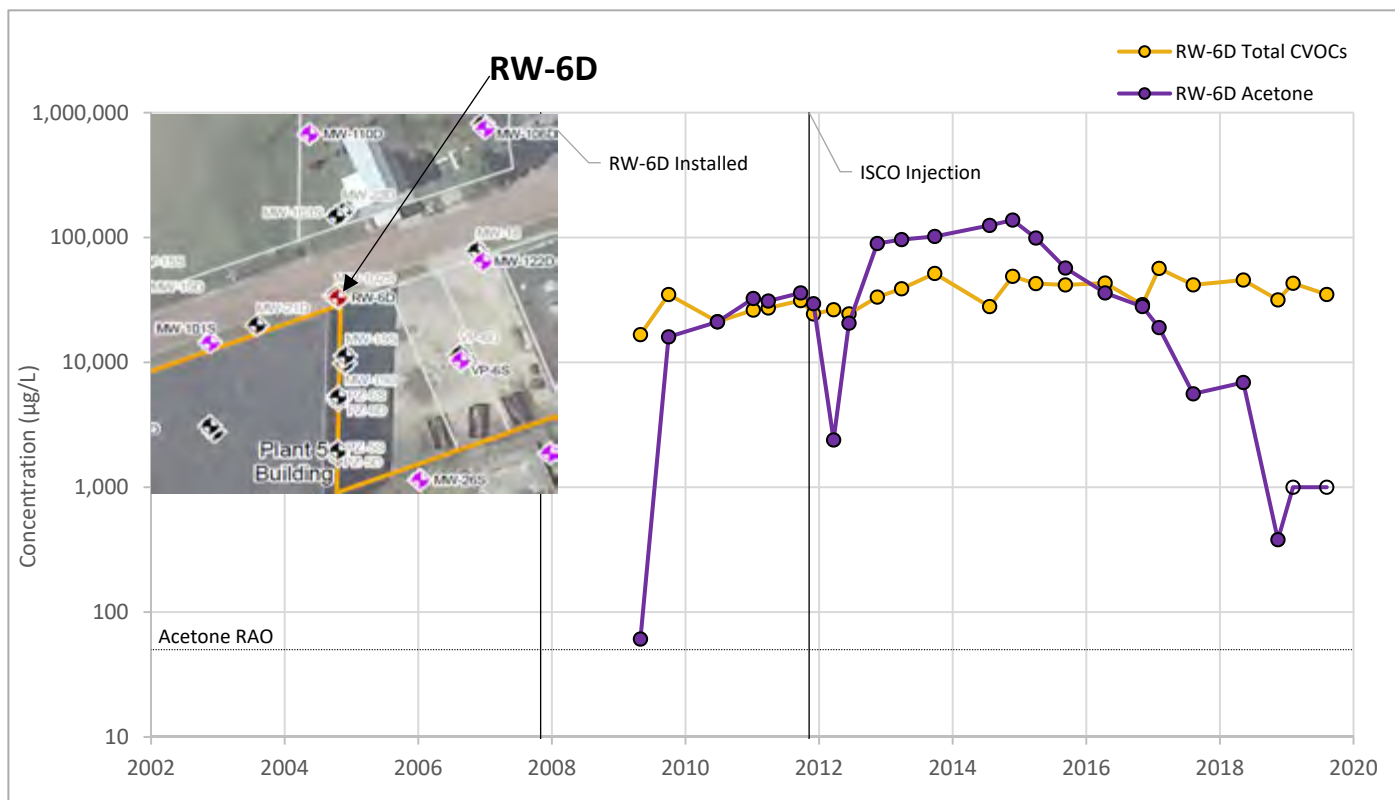
2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York



Empty circles indicate non-detect results

Shallow WBZ Total CBTEX Concentration Trends, West Building Area

2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York

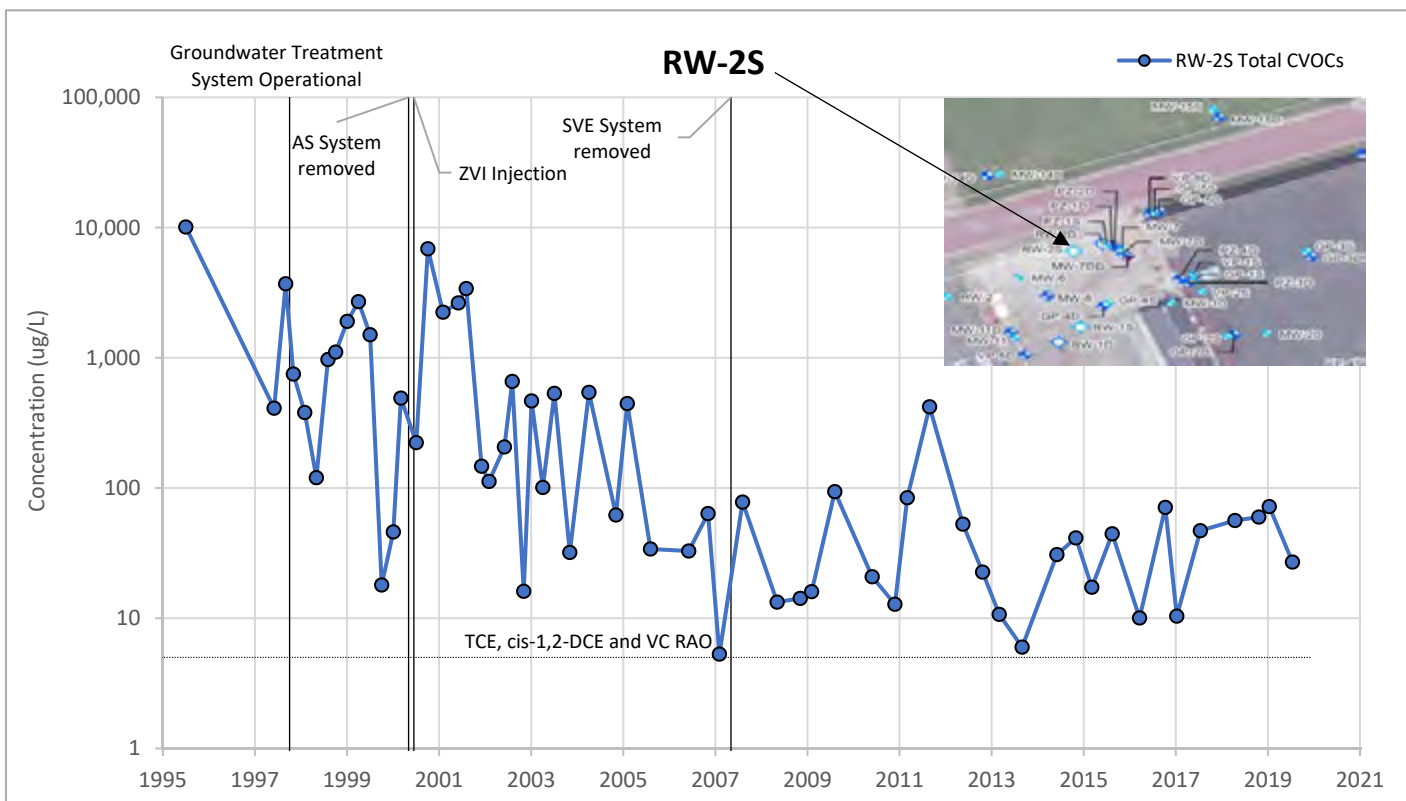
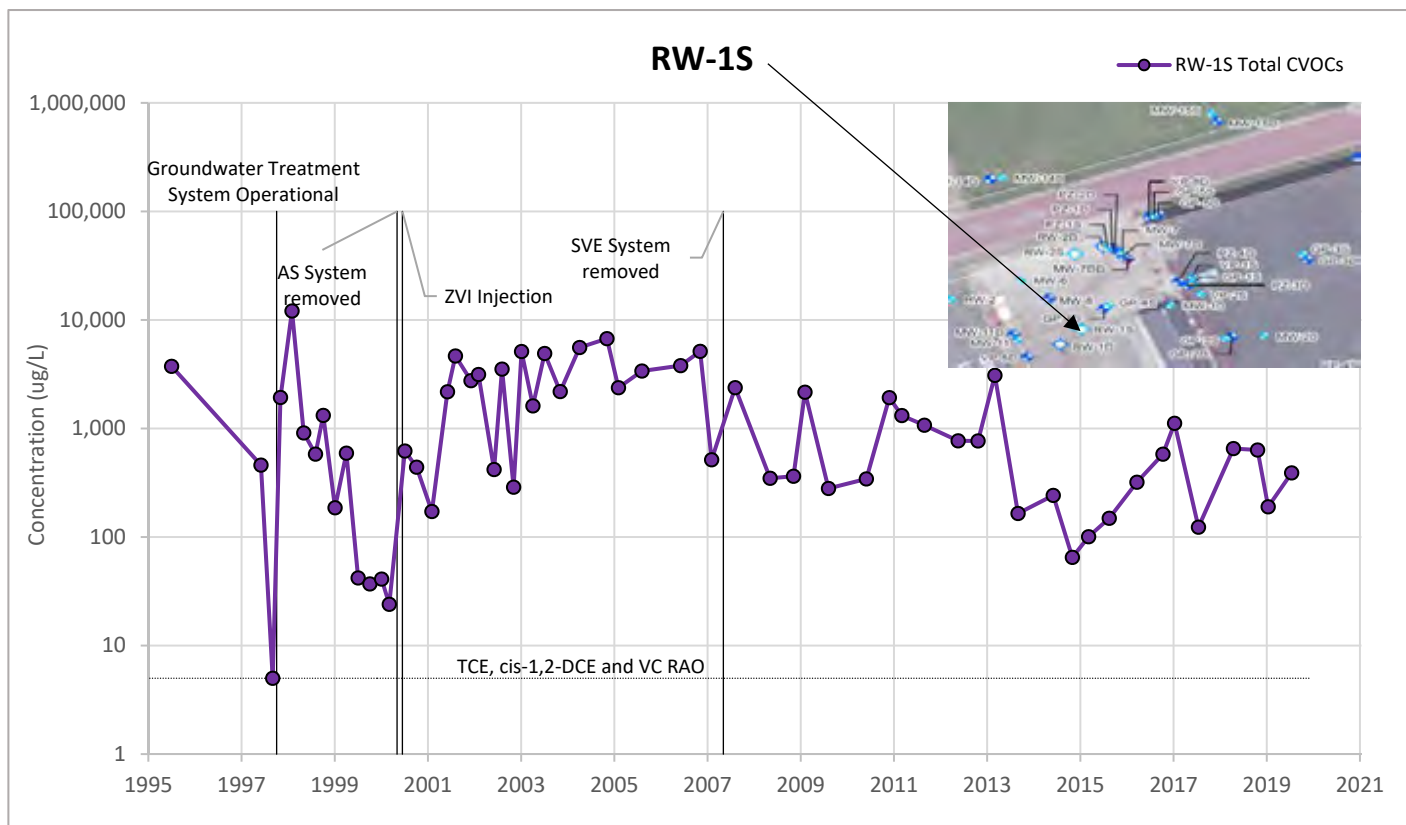


Empty markers indicate non-detect results

FIGURE 2-5

Deep WBZ Total CVOC and Acetone Concentration Trends, Plant 5 Building and Offsite

2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York

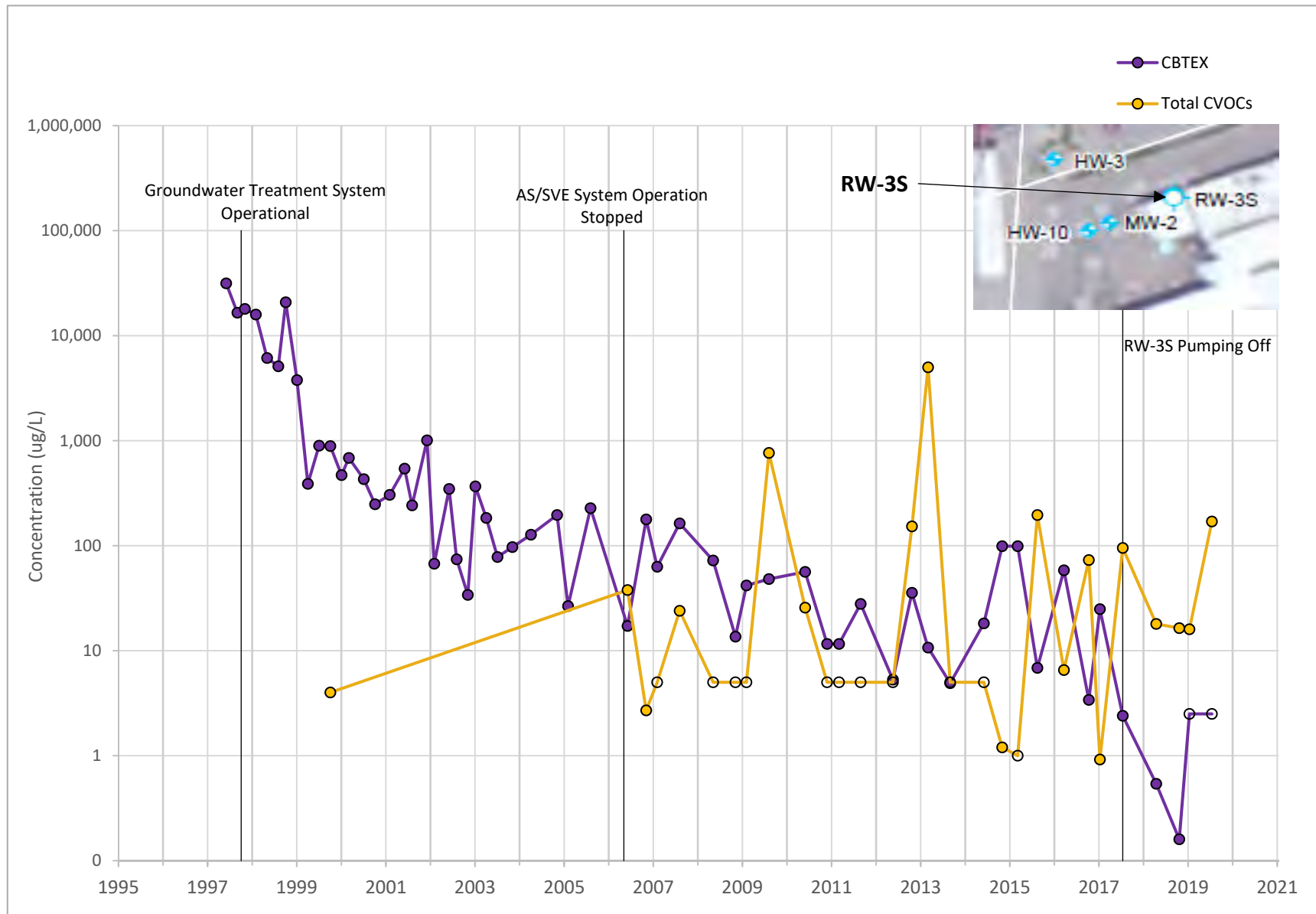


Empty circles indicate non-detect results

FIGURE 2-6

Total CVOC Groundwater Concentration Trends at RW-1S and RW-2S, NPLS Area

2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York



Empty circles indicate non-detect result

FIGURE 2-7
Total CVOC and CBTEX Groundwater Concentration Trends at RW-3S, Former AST/UST Area

2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York

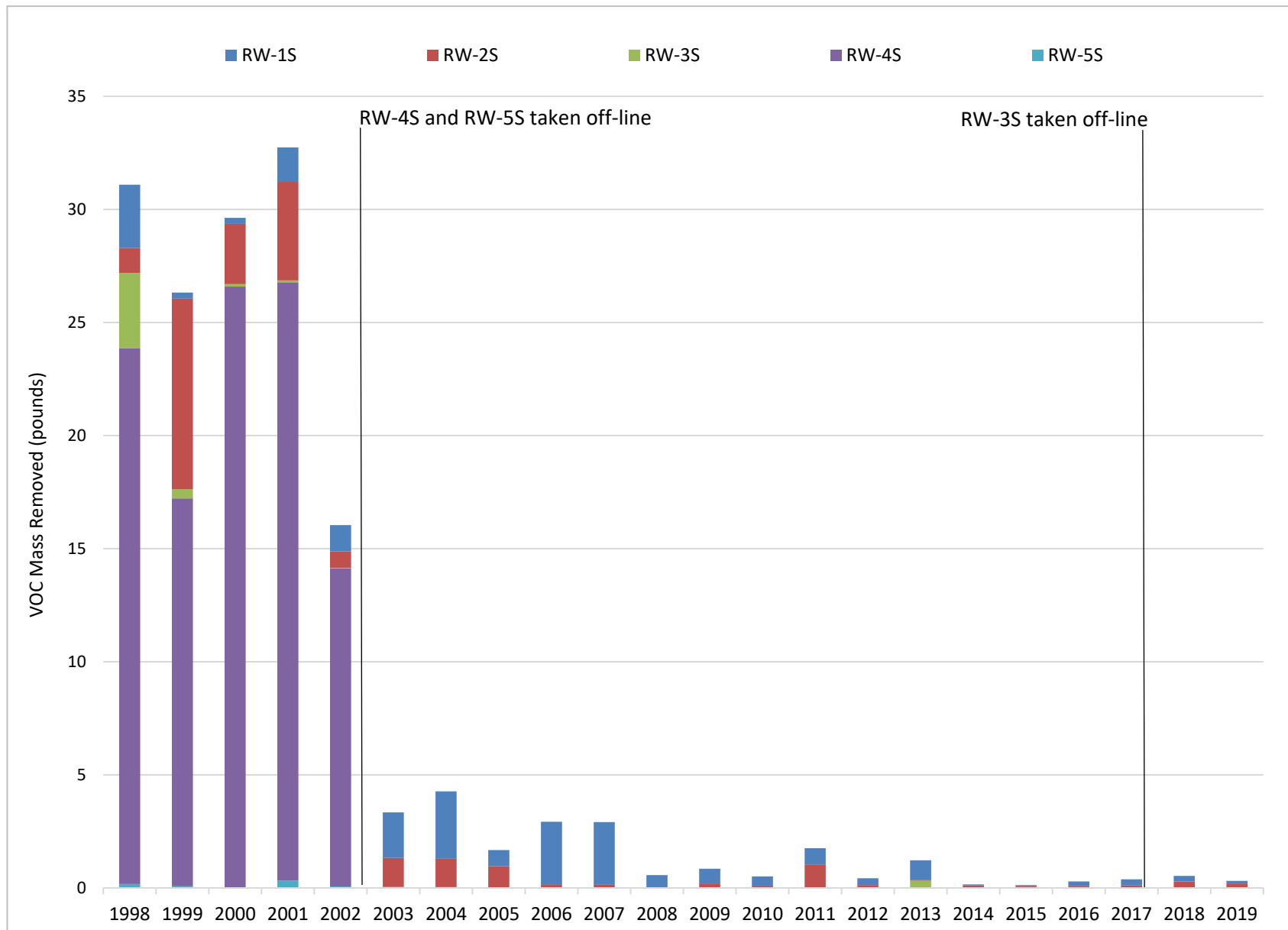


FIGURE 2-9

Note:

RW-3S was shut down in August 8, 2017 because of its historically low pumping rates and its hydraulic location (upgradient from RW-1S and RW-2S). This was proposed by CH2M in the 2016 Annual Periodic Review Report (CH2M, 2017), and approved by NYSDEC via letter dated May 1, 2017.

Shallow WBZ Groundwater Extraction System Mass Removal

*2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York*



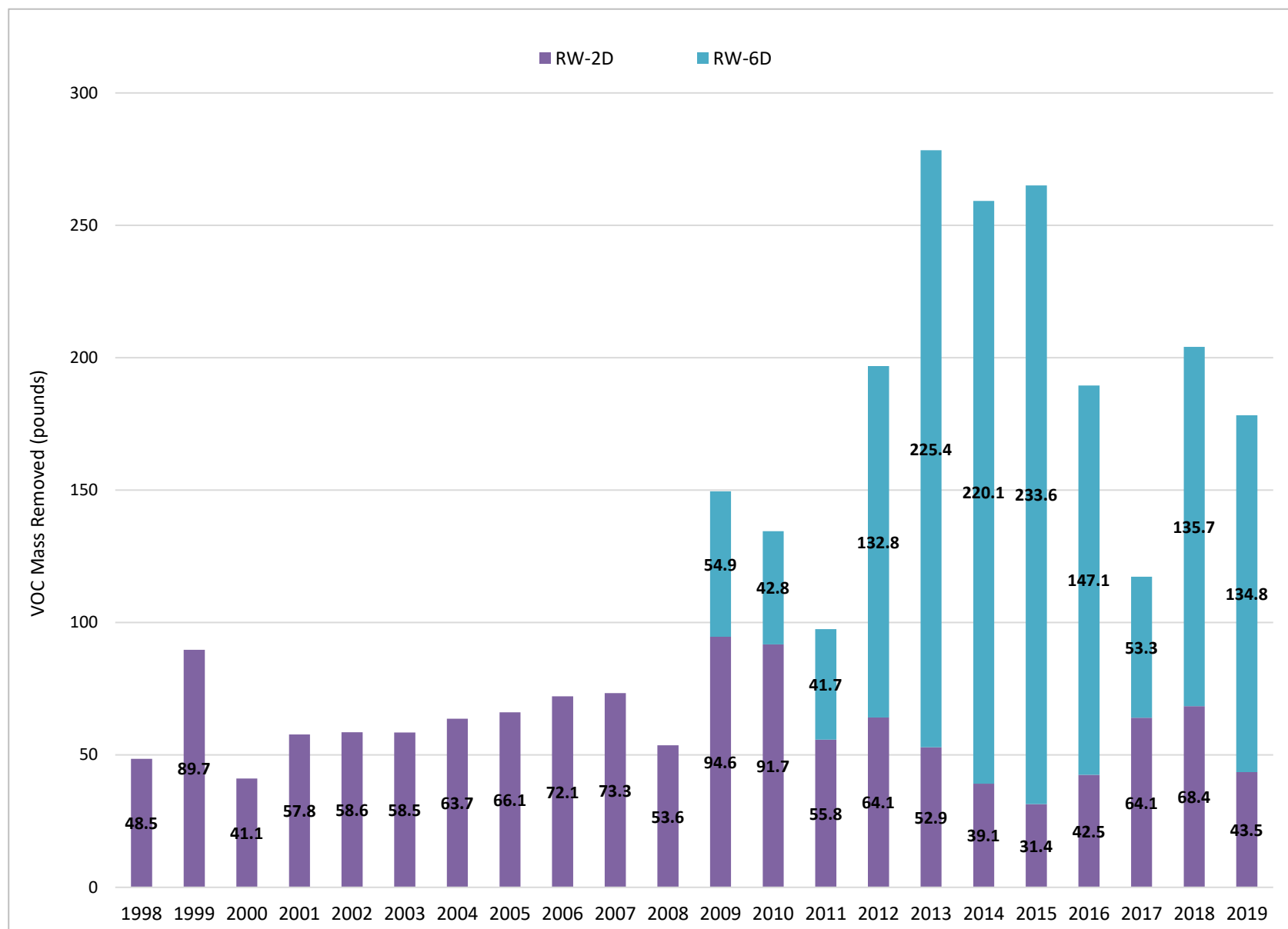


FIGURE 2-10

Deep WBZ Groundwater Extraction System Mass Removal

Notes:

Mass removed by RW-1D in 1998 and 1999 not available.

Mass removal calculations include Acetone, which is removed but not treated.

*2019 Annual Periodic Review Report
Essex-Hope Site, Jamestown, New York*

Appendix A

IC/EC Certifications

Enclosure 1

Certification Instructions

I. Verification of Site Details (Box 1 and Box 2):

Answer the three questions in the Verification of Site Details Section. The Owner and/or Qualified Environmental Professional (QEP) may include handwritten changes and/or other supporting documentation, as necessary.

II. Certification of Institutional Controls/ Engineering Controls (IC/ECs)(Boxes 3, 4, and 5)

1.1.1. Review the listed IC/ECs, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party should petition the Department separately to request approval to remove the control.

2. In Box 5, complete certifications for all Plan components, as applicable, by checking the corresponding checkbox.

3. If you cannot certify "YES" for each Control listed in Box 3 & Box 4, sign and date the form in Box 5. Attach supporting documentation that explains why the **Certification** cannot be rendered, as well as a plan of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is completed.

If the Department concurs with the explanation, the proposed corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Department's Project Manager. Once the corrective measures are complete, a new Periodic Review Report (with IC/EC Certification) must be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 6 and Box 7):

If you certified "YES" for each Control, please complete and sign the IC/EC Certifications page as follows:

- For the Institutional Controls on the use of the property, the certification statement in Box 6 shall be completed and may be made by the property owner or designated representative.
- For the Engineering Controls, the certification statement in Box 7 must be completed by a Professional Engineer or Qualified Environmental Professional, as noted on the form.



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



Site Details

Box 1

Site No. **907015**

Site Name **Essex; Hope Site**

Site Address: 125 Blackstone Avenue Zip Code: 14701
City/Town: Jamestown
County: Chautauqua
Site Acreage: 4.700

Reporting Period: January 01, 2019 to December 31, 2020

YES NO

1. Is the information above correct? ☒ ☐

If NO, include handwritten above or on a separate sheet.

2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period? ☐ ☒

3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))? ☐ ☒

4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period? ☐ ☒

If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.

5. Is the site currently undergoing development? ☐ ☒

Box 2

YES NO

6. Is the current site use consistent with the use(s) listed below? ☒ ☐
Industrial

7. Are all ICs/ECs in place and functioning as designed? ☒ ☐

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

Description of Institutional ControlsParcelOwnerInstitutional Control**303-8-2**

Custom Production Mfg. Inc.

O&M Plan

Ground Water Use Restriction
Landuse Restriction
Building Use Restriction

Site in operation and maintenance (O&M) phase of remediation.

Declaration of Covenants and Restrictions filed with Chautauqua County on March 14, 2014

Prohibition of groundwater use

Industrial use restriction

Adhere to O&M Plan

Description of Engineering ControlsParcelEngineering Control**303-8-2**Groundwater Treatment System
Vapor Intrusion Mitigation System
Groundwater Containment
Asphalt and Concrete Caps

Groundwater containment by recovery wells Activated carbon Treatment

Discharge to POTW

One residential sub-slab mitigation system.

One residential sub-slab mitigation system (temporarily off due residence being vacant and without power supply)

Periodic Review Report (PRR) Certification Statements

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

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

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

YES NO

☒ ☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

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

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

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

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

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

YES NO

☒ ☐

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 907015

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

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

Dow Chemical Canada ULC

Bag 16, Hwy 15

Fort Saskatchewan AB

I **Audrey Sidebottom** at **T8L2P4, Canada**,
print name print business address

am certifying as **Remedial Party (Essex Specialty)** (Owner or Remedial Party)

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


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

March 17, 2020
Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

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

Joseph J. Corrado, P.E. 083642 at 299 Madison Ave
print name print business address
Morristown, NJ 07960

am certifying as a Professional Engineer for the Remedial Party (Essex Specialty)
(Owner or Remedial Party)



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



2/26/2020
Date

Appendix B

2019 Supplemental Investigation Report



Essex-Hope Site, Jamestown, New York

Supplemental Investigation Report

Draft

March 2020

Essex Specialty Products, Inc.



Essex-Hope Site, Jamestown, New York

Project No: JMS005DW
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Document No.: PPS0306201251NJO
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Date: March 2020
Client Name: Essex Specialty Products, Inc.
Prepared By: Jacobs Engineering Group Inc.

Jacobs Engineering Group Inc.

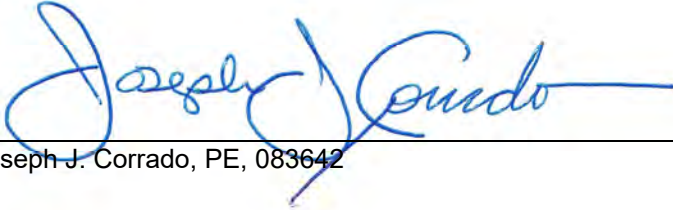
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Professional Engineer Certification

I, Joseph J. Corrado, certify that I am currently a New York State-registered professional engineer as defined in 6 *New York Codes, Rules, and Regulations* Part 375, and that this *Supplemental Investigation Report* was prepared in accordance with all applicable statutes and regulations, and in substantial conformance with New York State Department of Environmental Conservation *DER-10: Technical Guidance for Site Investigation and Remediation*.



Joseph J. Corrado, PE, 083642



March 27, 2020
Date

Contents

Professional Engineer Certification	i
Acronyms and Abbreviations	v
1. Introduction	1-1
2. Background	2-1
2.1 Site Setting	2-1
2.2 Geology and Hydrogeology	2-1
2.3 Remedial Background	2-1
2.4 Supplemental Investigation Objectives	2-2
3. Site Investigation Methods	3-1
3.1 Utility Locate	3-1
3.2 Plant 5 Building Area	3-1
3.3 Former Underground Storage Tank Area	3-2
3.3.1 Soil Boring and Groundwater Grab Sampling	3-2
3.3.2 Monitoring Well Installation and Development	3-2
3.3.3 Groundwater Sampling	3-2
3.4 Survey	3-3
3.5 Waste Disposal	3-3
3.6 Deviations from the Work Plan	3-3
4. Site Investigation Results	4-1
4.1 Update to Geology	4-1
4.1.1 Shallow Sand and Gravel	4-1
4.1.2 Shallow Silty Clay	4-1
4.1.3 Deep Silty Sand	4-1
4.1.4 Deep Silty Clay	4-1
4.2 Plant 5 Building Area Results	4-1
4.3 Former Underground Storage Tank Area Results	4-2
4.3.1 Western Plume Area	4-3
4.3.2 Eastern Plume Area	4-3
4.3.3 Oxidant Demand Testing	4-3
4.4 Quality Assurance and Quality Control	4-4
5. Discussion	5-1
5.1 Geology	5-1
5.2 Hydrogeology	5-1
5.3 Plant 5 Building Area	5-1
5.4 Former Underground Storage Tank Area	5-2
6. References	6-1

Appendixes

A	Soil Boring Logs and Well Completion Diagram
B	Waste Manifest
C	Alpha Analytical Laboratory Reports
D	Total Oxidant Demand Laboratory Report
E	Data Quality Review

Tables

- 1 Soil Analytical Results
- 2 Soil Geotechnical Results
- 3 Former UST Investigation Area Western Plume Groundwater Analytical Results
- 4 Former UST Investigation Area Eastern Plume Groundwater Analytical Results

Figures

- 1 Site Overview
- 2 Site Features
- 3 Plant 5 Investigation Area Locations
- 4 Former UST Area Investigation Locations
- 5 Cross Section Site Plan
- 6 Cross Section 1
- 7 Cross Section 2
- 8 Plant 5 Investigation Area Soil Results
- 9 Former UST Investigation Area Groundwater Results

Acronyms and Abbreviations

µg/L	micrograms per liter
bgs	below grade surface
CAMP	community air monitoring plan
CH2M	CH2M HILL Engineers, Inc.
COC	constituent of concern
CVOC	chlorinated volatile organic compound
DCE	dichloroethene
DPT	direct-push technology
EPA	U.S. Environmental Protection Agency
FD	field duplicate
ISCO	in-situ chemical oxidation
Jacobs	Jacobs Engineering Group Inc.
mg/kg	milligram per kilogram
mg/L	milligram per liter
mgCaCO ₃ /L	milligrams of calcium carbonate per liter
MS	matrix spike
MSD	matrix spike duplicate
NAPL	nonaqueous phase liquid
NPLS	north parking lot sump
NYSDEC	New York State Department of Environmental Conservation
PCB	polychlorinated biphenyl
PID	photoionization detector
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAO	remedial action objective
ROD	Record of Decision
site	Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York
TCE	trichloroethene
TMB	trimethylbenzene
TOC	total organic carbon
TOD	total oxidant demand
TOV	total organic vapor
Ursus	Ursus Remediation Testing and Technologies, LLC

UST	underground storage tank
VOC	volatile organic compound
WBZ	water-bearing zone

1. Introduction

On behalf of Essex Specialty Products, Inc., Jacobs Engineering Group Inc. (Jacobs) has prepared this report to present activities completed in 2019 at the Essex-Hope State Superfund site (Site No. 907015) located at 125 Blackstone Avenue in Jamestown, New York (site) to facilitate the evaluation of potential alternative remedial actions for soil and groundwater impacts at the site (Figure 1). The site comprises approximately 4.7 acres in a highly industrialized area of the city. Custom Production Manufacturing Inc. presently owns the site, which the New York State Department of Environmental Conservation (NYSDEC) manages. A Record of Decision (ROD) was issued in 1994 prescribing the implementation of remedial actions at the site (NYSDEC 1994).

In developing potential remedial alternatives to supplement the current remedial operations following completion of the 2017 data gap investigation (CH2M HILL Engineers, Inc. [CH2M] 2018), Jacobs determined that supplemental soil and groundwater data were necessary to refine potentially applicable remedial alternatives. The scope of work to meet this objective was detailed in a supplemental investigation work plan (Jacobs 2019).

This report summarizes the field efforts and provides the analytical results of the activities outlined in the supplemental investigation work plan. These results will support development of remedial actions to meet the remedial action objectives (RAOs) defined in the ROD (NYSDEC 1994). This report has been developed in accordance with the NYSDEC Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation* (DER-10; NYSDEC 2010).

2. Background

2.1 Site Setting

Previous site activities have resulted in impacts to soil and groundwater. Historically, the site supported two distinct operations. The southern portion of the site (along Blackstone Avenue) historically was occupied by Jamestown Finishes, which produced coatings and finishes. The northern portion of the site (along Hopkins Avenue) historically was occupied by Hope's Windows and was used to manufacture steel and aluminum windows.

The historical use of the southern portion of the site has resulted in contamination associated with petroleum constituents and, to a lesser extent, chlorinated volatile organic compounds (CVOCs). The southern portion of the site has been previously divided into the following subareas to describe historical use and associated constituents of concern (COCs):

- West Building
- Former Aboveground Storage Tank and Underground Storage Tank (UST) Area
- Former UST Area

The historical use of the northern portion of the site has resulted in contamination primarily associated with polychlorinated biphenyls (PCBs) and CVOCs. The northern portion of the site has been previously divided into the following subareas to describe historical use and associated COCs:

- Former North Parking Lot Sump (NPLS) Area
- Plant 5 Building

Figure 2 shows the locations of these subareas. A commercial tenant occupies the Plant 5 Building on a part-time, irregular basis; other areas of the site, including the West Building, are vacant.

2.2 Geology and Hydrogeology

The subsurface geological and hydrogeological features have been characterized into four units, described in descending order from grade:

- A shallow sand and gravel layer that generally ranges from 10 to 15 feet thick. A water table aquifer, herein referred to as the shallow water-bearing zone (WBZ), is present in this unit with saturated thicknesses generally 5 to 10 feet thick.
- A shallow silty clay layer is generally encountered around 15 feet below grade surface (bgs). The shallow silty clay deposits are generally 5 to 10 feet thick but can vary considerably. Where present, the shallow silty clay serves as an aquitard separating the shallow and deep WBZs.
- A deep silty sand is generally encountered around 20 feet bgs and ranges from 13 to at least 31.5 feet thick. A confined to semiconfined aquifer (deep WBZ) is present in this unit.
- A deep silty clay has been determined to represent the lower confining layer. The deep silty clay typically is encountered between 37 and 47 feet bgs.

Groundwater flow direction for both the shallow and deep WBZs is to the east-northeast, toward the Chadakoin River, although a groundwater extraction system in both WBZs captures water under much of the site.

2.3 Remedial Background

Numerous remedial actions have been conducted at the site in response to the 1994 ROD. Ongoing remedial actions include the continued operation of a groundwater pump and treat system that extracts from the shallow and deep WBZs and the maintenance of an asphalt cap that restricts exposure to contamination in soil and limits leaching to groundwater. Previous remedial actions have included air

sparging and soil vapor extraction, excavation and removal of USTs, excavation and offsite disposal of contaminated soil, pilot tests of zero-valent iron injections, and in-situ chemical oxidation (ISCO). Recent supplemental investigation reports (CH2M 2017a, 2018) have characterized the nature and extent of soil and groundwater contamination at the site and provided a conceptual site model.

2.4 Supplemental Investigation Objectives

Although previous remedial activities at the site have resulted in the removal of constituent mass and the reduction of COC concentrations, elevated concentrations of COCs persist in soil and groundwater at the site. The objective of the investigation activities described herein was to characterize the onsite constituent source areas with sufficient resolution to evaluate potential remedial alternatives in these areas. This investigation focused on two areas of onsite contamination that are considered source areas for the groundwater constituent plumes.

One portion of this investigation focused on generating data to further characterize CVOC contamination in the shallow and deep WBZs in the northern portion of the site. For this report, the Plant 5 Building area was used to describe activities completed in the northern portion of the site to characterize CVOCs. Groundwater samples previously collected in the Plant 5 Building area exhibited total CVOC concentrations that exceed 1,000 micrograms per liter ($\mu\text{g/L}$) and 100,000 $\mu\text{g/L}$ in the shallow and deep WBZs, respectively. Soil samples previously collected in the Plant 5 Building area exhibited total CVOC concentrations that exceeded 1 milligram per kilogram (mg/kg) in vadose zone soil and 1,000 mg/kg in saturated soil. Although the lateral extents of the groundwater contamination are well defined, there is relatively little data from within the Plant 5 Building footprint. The Plant 5 Building area activities were intended to improve the understanding of contamination within this area.

The second portion of this investigation focused on further characterizing the petroleum constituent contamination in the shallow WBZ in the southern portion of the site. For this report, the former UST Area was used to describe activities completed in the southern portion of the site to characterize petroleum constituent contamination. Groundwater samples previously collected in the former UST Area exhibited concentrations of petroleum constituents exceeding 1,000 $\mu\text{g/L}$ in two distinct areas. These two areas generally align with the edges of the former UST Area and are likely the result of residual contamination that was not previously fully remediated. The former UST Area activities were intended to more accurately define the extent of these petroleum constituent plumes to support remedial alternative development and evaluation.

3. Site Investigation Methods

The following subsections describe the actions and procedures that Jacobs completed to implement the scope of work of the supplemental investigation work plan (Jacobs 2019). Jacobs completed the field activities in September 2019. Sampling activities, including collecting quality assurance (QA)/quality control (QC) samples, were completed in accordance with the supplemental quality assurance project plan (QAPP), which was included with the supplemental investigation work plan (Jacobs 2019). Section 3.6 contains a discussion of field activity deviations from the scope of work in the supplemental investigation work plan.

Drilling activities were completed in accordance with the community air monitoring plan (CAMP), which was included with the supplemental investigation work plan (Jacobs 2019). As part of the CAMP, Jacobs monitored total organic vapors (TOVs) and particulate concentrations at the perimeter of the work area. During drilling activities, no TOV or particulate concentrations exceeded the action levels included in the CAMP. TOV and particulate concentration logs were provided previously to NYSDEC as part of weekly field progress reports.

3.1 Utility Locate

At each drilling location, a third-party utility survey was completed. An approximately 5-square-foot area around each boring location was evaluated using non-intrusive geophysical utility locator technologies (e.g., magnetic, ground-penetrating radar, or similar) to identify, mark out, and locate underground utilities and other subsurface obstructions within the survey area. Utilities were flagged and marked for review by the field team. In addition to the private utility survey/mark out, Dig Safe System, Inc. was contacted 3 working days before initial mobilization of drilling equipment to the site.

3.2 Plant 5 Building Area

Twenty-three soil borings (DPT-28 through DPT-50) were advanced in the Plant 5 Building area. The soil borings were advanced using direct-push technology (DPT) and were completed to depths ranging from approximately 20 to 32 feet bgs to collect representative soil samples and characterize subsurface geological conditions. Parratt Wolff of East Syracuse, New York, completed the drilling activities under subcontract and with oversight from Jacobs. Figure 3 shows the Plant 5 Building area soil boring locations, and Appendix A contains the soil boring logs. Additional details regarding soil boring activities are summarized below.

- DPT soil cores were collected continuously using a dual-tube (DT22) system with polyvinyl chloride (PVC) liners with an integrated core catcher.
- Soil samples were logged according to the Unified Soil Classification System and screened at 2-foot intervals using a photoionization detector (PID) equipped with a 10.6-electron volt bulb. Soil samples that exhibited indications of potential nonaqueous phase liquid (NAPL) such as staining, sheens, a strong odor, or elevated PID readings were evaluated for NAPL presence using Sudan IV dye tests.
- Three saturated soil samples from each boring location were collected and submitted for laboratory analysis. Soil samples were collected from the first three stratified geologic layers (shallow sand and gravel, shallow silty clay, and deep silty sand). In six locations, an additional deeper sample was collected from the deep silty sand to characterize conditions in the lower portions of the deep WBZ.
- A total of 91 soil samples were collected using EnCore samplers and submitted to Alpha Analytical for laboratory analysis of volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260C.
- Eighteen soil samples were collected in 8-ounce plastic jars and submitted to Alpha Analytical for laboratory analysis of total organic carbon (TOC) by the Lloyd Kahn method.
- Eighteen soil samples were collected in 8-ounce glass jars and submitted to Alpha Analytical for grain size analysis by ASTM International Method D422.

3.3 Former Underground Storage Tank Area

3.3.1 Soil Boring and Groundwater Grab Sampling

Fourteen soil borings (DPT-51 through DPT-65) were advanced in the former UST Area using DPT methods to depths of up to 16 feet bgs. The soil borings were advanced into the shallow WBZ to collect groundwater grab samples from each location. Parratt Wolff completed the drilling with oversight by Jacobs. Figure 4 shows the boring locations in the former UST Area, and Appendix A contains the soil boring logs. Additional details regarding the DPT drilling activities are summarized below.

- DPT soil cores were collected continuously using a dual-tube system with PVC liners with an integrated core catcher.
- Soil samples were logged according to the Unified Soil Classification System and screened at 2-foot intervals using a PID equipped with a 10.6-electron volt bulb. Select soil samples were screened for the presence of NAPL using Sudan IV dye tests.
- Groundwater grab samples were collected at 14 DPT locations using a peristaltic pump and dedicated polyethylene tubing. A flow-through cell was used at each sampling point to record groundwater monitoring parameters, including pH, temperature, oxidation-reduction potential, dissolved oxygen, and specific conductance. The groundwater samples were submitted to Alpha Analytical for laboratory analysis of VOCs by EPA Method 8260C.
- Two saturated soil samples collected from DPT-51 and MW-124S and two groundwater samples collected from MW-124S and MW-31S were submitted to Ursus Remediation Testing and Technologies, LLC (Ursus) for total oxidant demand (TOD) testing.

3.3.2 Monitoring Well Installation and Development

One new permanent groundwater monitoring well (MW-124S) was installed in the eastern portion of the former UST Area (Figure 4). The monitoring well was installed using hollow-stem auger drilling techniques within the shallow WBZ at a depth of 15 feet bgs. Soil samples were collected continuously during installation, and soil samples were logged and screened in the field with a PID and for the presence of NAPL via Sudan IV dye tests. Appendix A contains the soil boring log and well construction diagram for MW-124S. One saturated soil sample was collected from MW-124S and submitted to Alpha Analytical for laboratory analysis of VOCs, grain size, and TOC.

The monitoring well was constructed with 2-inch-diameter, Schedule 40 PVC with a 10-foot, 0.010-inch slotted screen. The well screen was sand packed using 20/40 sieve size sand pack from 3 to 15 feet bgs. A 3-foot bentonite seal also was placed on top of the sand pack in the annulus of the borehole. The well was completed with a steel, flush-mount road box cover rated for vehicle traffic and placed in a 2-foot by 2-foot concrete pad.

Development of the newly installed monitoring well occurred approximately 72 hours after installation. The well was developed by alternating between surging with a surge block and over-pumping with a submersible pump. Development water was contained in 55-gallon drums and transported back to the groundwater treatment plant and passed through the system for treatment and discharge.

3.3.3 Groundwater Sampling

Between September 16 and September 19, 2019, groundwater samples were collected from newly installed well MW-124S and nine other wells throughout the former UST Area. The groundwater samples were collected via low-flow sampling techniques (EPA 1996) and submitted to Alpha Analytical for laboratory analysis of VOCs by EPA Method 8260C.

In addition to VOC analyses, groundwater samples from six monitoring wells (MW-117S, MW-124S, MW-26S, MW-27S, MW-30S, and MW-31S) were submitted for laboratory analysis for the following geochemical parameters:

- Alkalinity by SM-2320B
- Chloride by EPA 300 or SW846-9056
- Total iron and manganese by SW846-6020A

3.4 Survey

Upon completion of the drilling activities, the investigation locations were surveyed by Daniel L. Barry Land Surveyor, a New York-licensed surveyor, under oversight and subcontract by Jacobs. The horizontal (New York West State Plane Coordinate System, North American Datum of 1983) and vertical (North American Vertical Datum of 1988) locations for each soil boring and at the new monitoring well ground surface, steel flush-mount lid, and top of PVC well riser were surveyed. The survey information was incorporated into the existing project geospatial database.

3.5 Waste Disposal

The waste streams generated during this project were soil cuttings, well development and purge water, decontamination water, and personal protective equipment. The wastes were managed as listed hazardous waste in accordance with the waste management plan and in accordance with the substantive requirements of 6 *New York Codes, Rules, and Regulations* 373 and 40 *Code of Federal Regulations* Part 262. Well development, purge, and decontamination water were disposed of using the existing, onsite groundwater treatment system. Other wastes were shipped offsite for disposal at a hazardous waste disposal facility. Appendix B contains a copy of the waste manifest.

3.6 Deviations from the Work Plan

There was only one substantive deviation from the supplemental investigation work plan during implementation of field activities. A groundwater grab sample could not be collected from DPT-56 in the former UST Area because groundwater was not present in the boring hole after it was completed, and the temporary screen was exposed. Jacobs field staff made three attempts to collect a groundwater grab sample at this location with the temporary screen set at three separate intervals (9 to 11, 10 to 12, and 11 to 13 feet bgs) within the shallow WBZ, and a groundwater sample could not be collected from any of the intervals.

4. Site Investigation Results

This section presents the site investigation results. Discussion of the results are focused on changes observed since the previous investigation in 2017. Observations from the 2019 supplemental investigation generally were consistent with observations from previous investigations and align with the conceptual site model.

4.1 Update to Geology

Thirty-eight soil borings and one groundwater monitoring well were installed during this investigation. Observations from this investigation were consistent with the understanding of site geology described in previous reports. Updated cross-sections were developed showing the relationships of the four primary stratigraphic units found at the site. Figure 5 shows the cross-section locations, and Figures 6 and 7 depict the cross-sections. The following subsections provide observations regarding specific geologic units at the site.

4.1.1 Shallow Sand and Gravel

Consistent with previous investigation results, the shallow sand and gravel materials extended from the ground surface to depths of 10 to 15 feet bgs. Groundwater in the shallow WBZ was encountered between 8 and 10 feet bgs in the soil borings advanced as part of the 2019 supplemental investigation.

4.1.2 Shallow Silty Clay

The depth to the top of the shallow silty clay ranged from 9 feet bgs (DPT-49) to 24 feet bgs (DPT-33) but generally was encountered around 15 feet bgs. Consistent with previous investigation results, the shallow silty clay deposits are generally 5 to 10 feet thick, but the thickness varies, and the clay is only several inches thick in some locations. New borings (DPT-40 and DPT-44) in the southern portion of the NPLS Area confirm that the silty clay layer in this area is thin, generally less than 2 feet thick. Soil borings along Hopkins Avenue indicate the shallow silty clay is present and contiguous in this area, although the observed thickness ranged from 2 feet at DPT-32 through DPT-37 to 11 feet at DPT-38. The thickness of the shallow silty clay layer in the new borings completed in the footprint of the Plant 5 Building ranged from 4 feet at DPT-41 and DPT-46 to 10 feet at DPT-49. As shown on Figures 6 and 7, the elevation of the top of the shallow silty clay can vary by 5 feet or more, and a depression or low spot appears in the top of the silty clay near borings DPT-036 and DPT-037.

4.1.3 Deep Silty Sand

Consistent with past investigations, the top of the deep silty sand was encountered between 13 and 33 feet bgs and is generally encountered around 20 feet bgs. None of the soil borings for this investigation were advanced completely through the deep silty sand layer into the deep silty clay layer. Previous investigations have indicated that the thickness of the deep silty sand layer ranges from 13 feet in borings completed north of the site to at least 31.5 feet in the northern NPLS Area.

4.1.4 Deep Silty Clay

The deep silty clay layer was not encountered in any of the borings completed in September 2019; however, observations from previous site investigations indicated that the top of the deep silty clay ranged between 37 and 47 feet bgs.

4.2 Plant 5 Building Area Results

The objective of the Plant 5 Building area activities was to collect soil samples to support lateral and vertical delineation of the CVOC source areas. Each of the 23 soil borings completed in this area were advanced to a depth between 20 feet bgs (DPT-28) and 32 feet bgs (DPT-48). Samples were collected at each boring location from the first three geologic zones present (shallow sand and gravel, shallow silty

clay, and deep silty sand). The soil borings generally were approximately 40 feet apart but were adjusted based on access restrictions (utilities and tenant equipment in building). Analytical results of soil samples are provided in Appendix C and summarized in Table 1. Soil results listed in Table 1 were compared to the RAOs of 1 mg/kg for individual VOCs and 10 mg/kg for total VOCs for comparison purposes; however, because all soil samples were collected from the saturated zones, the groundwater RAOs likely will be applicable for remedial actions. Figure 8 summarizes the soil sample results.

In the shallow sand and gravel, relatively low concentrations of VOCs were detected in all soil samples from DPT-28 through DPT-50 in and surrounding the Plant 5 Building. Total VOC concentrations in the soil samples collected from the shallow sand and gravel ranged from 0.043 mg/kg in DPT-40 (10 to 12 feet bgs) to 1.5 mg/kg in DPT-32 (11 to 13 feet bgs).

Significantly higher VOC concentrations were detected in samples from the deep silty sand and the shallow silty clay. Total VOC concentrations in the soil samples collected from the shallow silty clay layer ranged from 0.039 mg/kg in DPT-34 (14 to 16 feet bgs) to 1,330 mg/kg in DPT-48 (18 to 20 feet bgs). Trichloroethene (TCE; 1,300 mg/kg), cis-1,2-dichloroethene (cis-1,2-DCE; 26 mg/kg), and 1,2,4-trimethylbenzene (1,2,4-TMB; 3.7 mg/kg) were the predominant VOCs detected in the sample collected from DPT-48 from 18 to 20 feet bgs. The shallow silty clay was identified from 15 to 16 feet bgs and 18 to 20 feet bgs at DPT-48, however, PID screening indicated that the interval from 15 to 16 feet bgs (5.3 parts per million) was less impacted with VOCs than the interval from 18 to 20 feet bgs (1,095 parts per million). The presence of TCE at elevated concentrations exceeding the RAOs in the shallow silty clay is consistent with past observations in this area and indicate significant constituent mass is present in the silty clay. Elevated VOC concentrations (greater than 10 mg/kg) in the silty clay also were detected at DPT-32, DPT-33, DPT-35, DPT-36, and DPT-37 along Hopkins Avenue, with a total VOC concentration of 360 mg/kg at DPT-36 (20 to 22 feet bgs).

In the deep silty sand, total VOC concentrations ranged from 0.15 mg/kg in the sample collected from DPT-35 (13 to 15 feet bgs) to 630 mg/kg in the sample collected from DPT-45 (27 to 28 feet bgs). Total VOC concentrations greater than 250 mg/kg were detected in a southwest-northeast trending swath, including DPT-31, DPT-32, DPT-33, DPT-36, DPT-37, DPT-41, DPT-42, and DPT-45. TCE was the predominant VOC detected in the sample collected from DPT-45 from 27 to 28 feet bgs. 1,2,4-TMB and cis-1,2-DCE also were detected at concentrations above 1 mg/kg in this sample but at significantly less concentrations than TCE. The highest concentration of cis-1,2-DCE in the deep silty sand was identified at DPT-31 (21 to 23 feet bgs, 45 mg/kg). Total VOC concentrations greater than 250 mg/kg were detected in a southwest-northeast trending swath, including DPT-31, DPT-32, DPT-33, DPT-36, DPT-37, DPT-41, DPT-42, and DPT-45.

Soil samples collected from different borings, but within the same geologic zone, throughout the Plant 5 Building area yielded similar results for grain size and TOC (Table 2). Samples collected from the shallow sand and gravel were less than 20% fines. Samples collected from the shallow silty clay were consistently greater than 90% fines. Samples collected from the deep silty sand varied but were consistently greater than 70% fines.

4.3 Former Underground Storage Tank Area Results

The objective of the former UST Area activities was to refine the lateral delineation of the petroleum hydrocarbon residual plumes in the shallow WBZ. Each boring in this area was advanced to approximately 12 to 16 feet bgs or the top of the silty clay layer.

Groundwater grab samples were collected from each location except DPT-56 (see Section 3.6). In addition to the groundwater grab samples, groundwater samples were collected from 10 existing monitoring wells to provide additional insight on the groundwater conditions in this area. Groundwater grab and existing well groundwater results were compared to the RAOs from the 1994 ROD. Laboratory analytical results of groundwater samples are provided in Appendix C. Analytical results for groundwater samples collected from the western and eastern plume areas of the former UST areas are summarized in Tables 3 and 4, respectively, and depicted on Figure 9.

4.3.1 Western Plume Area

Groundwater grab samples collected from locations in the western portion of the former UST Area (DPT-51 through DPT-53 and DPT-62 through DPT-65) exhibited total detected VOC concentrations that ranged between 12 µg/L in the sample collected from DPT-52 and 19,000 µg/L in the sample collected from DPT-51. The predominant VOCs detected in the sample collected from DPT-51 were xylenes (14,000 µg/L) and ethylbenzene (4,100 µg/L). Other VOCs were detected at concentrations less than 250 µg/L in the sample collected from DPT-51.

Groundwater samples collected from existing monitoring wells in the western portion of the former UST Area (MW-24S, MW-29S, MW-30S, MW-31S, MW-112S, and MW-117S) ranged from 8.1 µg/L total VOC in the sample from MW-112S to 5,400 µg/L in the duplicate sample from MW-29S. Ethylbenzene (2,200 µg/L) and xylenes (2,700 µg/L) were the predominant VOCs detected in the groundwater sample collected from monitoring well MW-29S. Other VOCs were detected in this sample below 200 µg/L.

In the western portion of the former UST Area, total iron concentrations ranged from 0.866 milligrams per liter (mg/L) in the sample collected from MW-117S to 11.6 mg/L in the sample collected from MW-30S, and total manganese concentrations ranged between 1.371 mg/L and 9.906 mg/L in the samples collected from MW-117S and MW-31S, respectively. Chloride concentrations in groundwater samples ranged from 14.1 mg/L in the sample collected MW-30S to 49.7 mg/L in the sample collected from MW-117S. Total alkalinity concentrations ranged from 234 milligrams of calcium carbonate per liter (mgCaCO₃/L) in the sample collected from MW-117S to 560 mgCaCO₃/L in the sample collected from MW-30S.

4.3.2 Eastern Plume Area

Total VOC concentrations detected in groundwater grab samples in the eastern portion of the former UST Area (DPT-54, DPT-55, and DPT-57 through DPT-61) ranged from 0.32 µg/L in the sample from DPT-55 to 2,900 µg/L in the sample from DPT-57. The groundwater grab sample collected from DPT-57 consisted primarily of 1,2,4-TMB (1,600 µg/L); however, n-propylbenzene (570 µg/L), naphthalene (380 µg/L), isopropylbenzene (250 µg/L), ethylbenzene (55 µg/L), and n-butylbenzene (18 µg/L) also were detected in this sample.

Groundwater samples collected from existing monitoring wells in the eastern portion of the former UST Area (MW-26S, MW-27S, MW-28S, and MW-124S) exhibited concentrations of total VOCs that ranged from 2.9 µg/L in the sample from MW-27S to 5,200 µg/L in the sample from MW-26S. In the groundwater sample collected from MW-26S, the predominant VOC was 1,2,4-TMB (3,800 µg/L). Other VOCs detected in this sample included n-propylbenzene (530 µg/L), 1,3,5-TMB (440 µg/L), ethylbenzene (130 µg/L), isopropylbenzene (130 µg/L), xylenes (120 µg/L), and naphthalene (92 µg/L).

In the eastern portion of the former UST Area, total iron concentrations ranged from 3.78 mg/L in the sample collected from MW-27S to 23.3 mg/L in the sample collected from MW-26S, and total manganese concentrations ranged between 3.405 mg/L and 9.626 mg/L in the samples collected from MW-27S and MW-124S, respectively. Chloride concentrations in groundwater samples ranged from 2.50 mg/L in the sample collected from MW-26S to 11.8 mg/L in the sample collected from MW-27S. Total alkalinity concentrations ranged from 95.7 mgCaCO₃/L in the sample collected from MW-27S to 244 mgCaCO₃/L in the sample collected from MW-26S.

4.3.3 Oxidant Demand Testing

Two samples were collected from the former UST Area and submitted to Ursus for TOD testing (Appendix D). The testing was performed to determine the amount of alkaline-activated sodium persulfate required to overcome the oxidant demand in soil in the former UST Area. The TOD testing was completed to support potential application of ISCO to remediate residual VOC contamination in this area.

Two slurry samples, one from the eastern plume area and one from the western plume area, were submitted for analysis. The eastern plume soil sample was collected from MW-124S, and the western

plume soil sample was collected from DPT-51 (Figure 4). These locations were selected as the likely locations exhibiting the highest concentrations of VOCs.

Each slurry sample was titrated with sodium hydroxide to determine the alkalinity required to maintain a pH above 10.5. Samples were then tested for persulfate TOD 48 hours, 96 hours, and 7 days post-treatment. Sodium persulfate dosages of 2, 4, and 7 grams per kilogram soil were tested.

The amount of sodium hydroxide needed for alkaline activation to maintain the pH above 10.5, to compensate for the decomposition of sodium persulfate and the formation of sulfuric acid, was tested in each slurry across the sodium persulfate dosages. The baseline acidity for both soil slurries was 10.5 grams of sodium hydroxide per kilogram of soil. The acidity for the various dosages ranged from 11.2 to 13.0 grams of sodium hydroxide per kilogram. Appendix D contains the full results. The TOD results generally were consistent between the two sample slurries. TOD results ranged from 1.7 to 6.3 grams per kilogram and increased with time and sodium persulfate dosage.

4.4 Quality Assurance and Quality Control

In accordance with the QAPP (CH2M 2016) and QAPP addendum (Jacobs 2019), QA/QC samples were collected based on the number of samples sent to the laboratory. Jacobs collected 76 normal soil samples, 24 normal groundwater samples, 8 soil field duplicate (FD) samples, 3 groundwater FDs, 4 soil matrix spike (MS)/matrix spike duplicate (MSD) sets, 2 groundwater MS/MSD sets, 6 equipment blanks, and 15 trip blanks. The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness as described in the QAPP and QAPP addendum. The data were assessed by reviewing the chain-of-custody documentation, holding time compliance, initial and continuing calibration, method blanks/field blanks, laboratory control spiking sample/laboratory control spiking sample duplicate recoveries and precision, MS/MSD recoveries and precision, internal standard recoveries, surrogate spike recoveries, FD precision, and required method QC samples at the specified frequencies.

The data quality review indicates all data were considered valid. No severe QC issues were encountered, and no analytical data were rejected during the review process. Detailed summaries of the data quality review findings are provided in Appendix E. The analytical results, including those qualified during the data quality review, may be used to support project decisions. Laboratory analytical reports are provided in Appendix C.

5. Discussion

5.1 Geology

Figures 6 and 7 show the updated cross-sections. Notable updates based on the 2019 supplemental investigation include confirmation that the shallow silty clay varies considerably in thickness across the site. Field observations also indicated that small, likely discontinuous, intervals of silty clay are present in the underlying deep silty sand in borings DPT-29, DPT-34, DPT-35, DPT-36, DPT-39, and DPT-49. At DPT-33, the shallow silty clay was present but observed at 24 feet bgs, which was the deepest observed across all borings advanced as part of this supplemental investigation. In general, the elevation of the top of the silty clay decreases from southwest to northeast (Figure 6), and a deeper northeast-trending channel is northeast of the site.

5.2 Hydrogeology

The 2019 supplemental investigation was not intended to collect data to supplement the understanding of hydrogeology in the shallow and deep WBZs, as the hydrogeology has been described in detail in previous site investigations, semiannual performance monitoring, and annual periodic review reports. However, shallow WBZ geochemical conditions in the former UST Area were typically anoxic with negative oxidation-reduction potential values and dissolved oxygen values of less than 1 mg/L, consistent with previous observations.

5.3 Plant 5 Building Area

Consistent with previous investigation results, the predominant VOCs in the Plant 5 Building area are CVOCs, specifically TCE and cis-1,2-DCE. Total VOCs were identified at concentrations exceeding the RAO in most locations, with only six locations exhibiting no VOCs exceeding the RAOs. All six of these locations were along the edges of the investigation area (three east and three west).

The vertical distribution of VOC impacts was consistent across the Plant 5 Building area. None of the soil samples collected from the shallow sand and gravel unit exhibited total VOCs above 1 mg/kg, except DPT-32. The highest VOC concentrations were detected in the shallow silty clay and the upper portions of the deep silty sand, consistent with previous results. Elevated VOC concentrations may not extend vertically to the bottom of the deep silty sand, as evidenced by the results of the sample collected from DPT-48 at a depth of 27 to 29 feet bgs, which had a total VOC concentration of 2.2 J mg/kg. There may be some uncertainty regarding the vertical distribution downgradient of DPT-48, given the deepest samples collected from DPT-45 and DPT-36 (both of which were collected from 27 to 28 feet bgs) exhibited total VOC concentrations above 250 mg/kg. However, the results from soil borings DPT-25 and DPT-26 (CH2M 2018) included samples collected in the deep silty sand from 34 to 36 and 36 to 38 feet bgs, respectively, which did not contain concentrations of total VOCs above 10 mg/kg. These results, as well as historical membrane interface probe and PID readings (CH2M 2017a), indicate the highest concentrations of VOCs are in the silty clay and the upper portions of the silty sand unit at depths of approximately 18 to 35 feet bgs.

The highest total VOC concentrations were identified in boring DPT-48, which is in the eastern portion of the NPLS Area. Total VOC concentrations above 250 mg/kg were identified in only two other locations, DPT-45 and DPT-36, which are both located hydraulically downgradient from DPT-48. Lower concentrations of total VOCs, though still exceeding 50 mg/kg, were encountered in the soil borings north of Hopkins Avenue (DPT-31, DPT-32, and DPT-33). The spatial distribution of elevated VOCs is consistent with previous findings, specifically the deep WBZ groundwater distribution highlighted on Figure 3-11 of the *2017 Data Gap Investigation Report* (CH2M 2018). The results of the 2019 investigation suggest that elevated VOCs are spatially distributed in both the silty clay and underlying upper portions of the deep silty sand, hydraulically downgradient (to the northeast) from an onsite source area near the NPLS Area and western portion of the Plant 5 Building area. The lateral extents to the east and west are well-delineated by the concentrations decreasing in soil borings located hydraulically crossgradient from the source area, as evidenced by the results observed in DPT-40 and DPT-47.

The results from the Plant 5 Building area successfully met the investigation objective of further characterizing the CVOC contamination in this area. These results suggest the CVOC source area is in the eastern NPLS Area and/or southwestern edge of the Plant 5 Building area and primarily is located in the silty clay and silty sand geologic layers. Elevated soil concentrations in these areas are likely the reason for persistent elevated groundwater concentrations in the deep WBZ both onsite and offsite to the northeast, despite ongoing pump and treat remediation. The vertical distribution indicates constituent migration primarily is occurring in the upper portions of the deep WBZ. Given the magnitude of the concentrations observed in the silty clay layer, this unit may be acting as a continuing source of contamination to the shallow WBZ, as the previous and ongoing remedial actions appear to have been successful at reducing VOC concentrations in the shallow sand and gravel saturated soils and groundwater.

While the groundwater extraction and treatment system has consistently removed significant constituent mass, the persistent groundwater concentrations that remain after more than 20 years of operating the groundwater pump and treat system, and the considerable sorbed mass indicate residual mass is present that is only slowly being removed by a pump and treat approach. The contamination in this area presents unique challenges, such as the depth of source areas, the shallow silty clay geologic layer separating groundwater zones, the fine-grained geologic formation that limits the efficacy of injection or groundwater extraction, and the presence of the Plant 5 Building. In-situ thermal treatment may be best suited to treat contamination more quickly in these conditions than the current pump and treat remedy, but current uncertainties preclude full-scale design at this time.

Accordingly, the first step in supplemental remedial action for this area will be to consolidate information from previous investigations, define the challenges presented in this area, and provide considerations for future remedial design. This information will be developed in a Plant 5 Building report. The objective of the report will be to define a treatment zone for this area and identify potential data gaps for the remedial design. The report for the Plant 5 Building is expected to be completed by the fourth quarter of 2020 to set up remedial design in 2021 and remedial action in 2022.

5.4 Former Underground Storage Tank Area

Two distinct areas of petroleum constituent contamination are in the shallow WBZ in the former UST Area. Figure 9 depicts the contours of total VOC concentrations in shallow WBZ groundwater.

Contamination in the eastern portion of the former UST Area, which previously was injected with ISCO reagents, is characterized by total VOC concentrations primarily consisting of 1,2,4-TMB. In the samples collected from MW-26S and DPT-57, the locations with the highest concentrations of total VOCs in the eastern area, 1,2,4-TMB represented 73% and 55% of the total VOC concentrations, respectively. Cumene, naphthalene, and n-propylbenzene primarily contributed to the remaining total VOC concentration in both locations. Elevated total VOC concentrations are relatively limited, spatially, in the eastern area as evidenced by the rapid decline in concentrations away from locations MW-26S and DPT-57. Of the 11 groundwater samples collected in the eastern area, only four samples exhibited total VOC concentrations above 100 µg/L and only two of those four exhibited total VOC concentrations above 1,000 µg/L. These results are consistent with the 2017 investigation results, which identified total VOC concentrations above 1,000 µg/L in only two locations in this area (MW-26S and DPT-020); the total VOC concentrations in these samples were similarly predominately 1,2,4-TMB (CH2M 2018). The 2019 investigation results confirm the lateral extents of petroleum constituent impacts in this area.

Contamination in the western portion of the former UST Area is characterized by total VOC concentrations exceeding those found in the eastern portion. Total VOC concentrations in the western portion are primarily made up of cumene, benzene, toluene, ethylbenzene, and xylenes (CBTEX). The three highest total VOC concentrations identified in the western area (DPT-51, DPT-64, and MW-29S) consisted of more than 90% xylenes and ethylbenzene. As shown on Figure 9, the lateral extent of elevated total VOC concentrations includes an area beneath the West Building and extends out into the former UST Area. The concentration patterns suggest an area of contamination beneath the West Building that was not remediated by the previous ISCO application and since has migrated northeast (hydraulically downgradient) or a general area of residual contamination along the western edge of the

former ISCO treatment area. The 2019 investigation results generally are consistent with the 2017 investigation results, which identified the highest concentrations of total VOCs in the same area of the West Building footprint near MW-30S, MW-31S, and DPT-51. The 2019 investigation results provide additional information delineating the extent of these impacts.

Although the TOD results were consistent with previous results in this area of the site and ISCO has been previously successfully applied in the former UST Area to remediate VOCs (URS Corporation 2012), the alkalinity testing results show an unusually high hydroxide demand, indicating a high soil buffering capacity in this area. These results indicate that the amount of sodium hydroxide required to activate sodium persulfate in an ISCO application likely would be infeasible and uneconomical. Therefore, an alternative activation agent (such as iron citrate) will be evaluated for an ISCO application.

The results of geochemical analyses (iron, manganese, chloride, and alkalinity) will be further used to support ISCO application design. Chloride and alkalinity results are used to evaluate if these could hinder effective persulfate oxidation. Generally, chloride and alkalinity concentrations below 300 mg/L would not influence reactions. Though chloride results were all less than 300 mg/L, alkalinity in two locations in the western plume area were in the moderate range of 300 to 1,000 mg/L. Though concentrations at this magnitude may not hinder persulfate reactions, the ISCO design would need to pay particularly close attention to any base added if alkaline activation is selected for persulfate. The alkalinity results are consistent with the TOD results, which indicated a high hydroxide demand and high soil buffering capacity. Iron and manganese results help determine the degree to which these compounds may contribute to naturally activating persulfate in-situ. Though iron and manganese results varied between locations, iron and manganese are abundant in the locations likely to be within the ISCO treatment zone (MW-30S, MW-31S, and MW-26S).

Further details needed to implement an ISCO application will be developed and presented to NYSDEC in an ISCO treatment work plan. The ISCO treatment work plan is planned for submittal to NYSDEC by the fourth quarter of 2020. The work plan will provide an implementation schedule, which is expected to consist of ISCO application and performance monitoring through 2021 and early 2022.

6. References

CH2M HILL Engineers, Inc. (CH2M). 2016. *Site Characterization Work Plan, Essex Hope Site in Jamestown, New York, Site Number 907015*. Prepared for Essex Hope Specialty Products, Inc. July

CH2M HILL Engineers, Inc. (CH2M). 2017a. *2016 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March.

CH2M HILL Engineers, Inc. (CH2M). 2017b. *Site Management Plan, NYSDEC Site Number: 907015, Essex-Hope Site, Jamestown, New York*. December.

CH2M HILL Engineers, Inc. (CH2M). 2018. *2017 Data Gap Investigation Report for the Essex-Hope Site in Jamestown, New York*. March. Prepared concurrently with the 2017 Annual PRR.

Jacobs Engineering Group Inc. (Jacobs). 2019. *Supplemental Investigation Work Plan, Essex-Hope Site*. August.

New York State Department of Environmental Conservation (NYSDEC). 1994. *Record of Decision Essex-Hope Site, City of Jamestown, Chautauqua County, ID Number 9-07-015*. March.

New York State Department of Environmental Conservation (NYSDEC). 2010. *DER-10 Technical Guidance for Site Investigation and Remediation*. May.

U.S. Environmental Protection Agency (EPA). 1996. *Low-flow (minimal drawdown) groundwater sampling procedures*. Office of Solid Waste and Emergency Response, EPA/540/S-95/504. April.

URS Corporation (URS). 2012. *Performance Monitoring Report, In Situ Chemical Oxidation, 6 months Post-Treatment, Essex/Hope Jamestown Site, 129 Hopkins Avenue, Jamestown, NY*. December.

Tables

Table 1. Soil Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			DPT-28	DPT-28	DPT-28	DPT-29	DPT-29	DPT-29	DPT-29	DPT-30	DPT-30	DPT-30	DPT-30	DPT-31	DPT-31	DPT-31	DPT-32	DPT-32	DPT-32	DPT-32	
	Sample ID			DPT-28-9-11-	DPT-28-11-13-	DPT-28-14-16-	DPT-29-10-12-	DPT-29-18-20-	DPT-29-20-22-	DPT-29-26-28-	DPT-30-10-12-	DPT-30-18-20-	DPT-30-18-20-	DPT-30-20-22-	DPT-31-10-12-	DPT-31-17-19-	DPT-31-21-23-	DPT-32-11-13-	DPT-32-20-22-	DPT-32-22-24-	DPT-32-22-24-	
	Date of Collection			20190925	20190925	20190925	20190926	20190926	20190926	20190926	20190926	20190926	20190926FD	20190926	20190926	20190926	20190926	20190926	20190920	20190920	20190920	20190920FD
	Sample Depth			09/25/2019	09/25/2019	09/25/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/26/2019	09/20/2019	09/20/2019	09/20/2019	09/20/2019
	Geologic Zone			9-11 ft	11-13 ft	14-16 ft	10-12 ft	18-20 ft	20-22 ft	26-28 ft	10-12 ft	18-20 ft	18-20 ft	20-22 ft	10-12 ft	17-19 ft	21-23 ft	11-13 ft	20-22 ft	22-24 ft	22-24 ft	22-24 ft
CAS RN	Screening Level	Sample Type	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	
		Unit																				
1,1-Dichloroethene	75-35-4	1	mg/kg	0.00099 U	0.071 U	0.015 J	0.0010 U	0.0012 U	0.034 J	0.043 J	0.0010 U	0.0010 U	0.0012 U	0.05 J	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
1,2,4-Trimethylbenzene	95-63-6	1	mg/kg	0.0020 U	0.14 U	0.12 U	0.0021 U	0.0024 U	0.13 U	0.16 U	0.0020 U	0.0021 U	0.0024 U	0.14 U	0.0022 U	0.14 U	0.69 U	0.0022 UJ	2.8 U	1.4 U	1.4 U	
1,2-Dichloroethane	107-06-2	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	1	mg/kg	0.0020 U	0.14 U	0.12 U	0.0021 U	0.0024 U	0.13 U	0.16 U	0.0020 U	0.0021 U	0.0024 U	0.14 U	0.0022 U	0.14 U	0.69 U	0.0022 UJ	2.8 U	1.4 U	1.4 U	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1	mg/kg	0.0027 J	0.71 U	0.63 U	0.01 U	0.012 U	0.66 U	0.78 U	0.0086 J	0.0033 J	0.012 U	0.68 U	0.011 U	0.71 U	3.4 U	0.011 UJ	14 U	7.1 U	7 U	
Acetone	67-64-1	1	mg/kg	0.13 J	0.71 U	0.63 U	0.15 J	0.19 J	0.66 U	0.78 U	0.41 J	0.18 J	0.14 J	0.68 U	0.13 J	0.71 U	3.4 U	1.5 J	14 U	7.1 U	7 U	
Benzene	71-43-2	1	mg/kg	0.00049 U	0.036 U	0.031 U	0.00052 U	0.00060 U	0.033 U	0.014 J	0.00050 U	0.00052 U	0.00060 U	0.034 U	0.00054 U	0.036 U	0.17 U	0.00055 UJ	0.69 U	0.35 U	0.35 U	
Chloroform	67-66-3	1	mg/kg	0.0015 U	0.11 U	0.094 U	0.0016 U	0.0018 U	0.099 U	0.12 U	0.0015 U	0.0016 U	0.0018 U	0.1 U	0.0016 U	0.11 U	0.52 U	0.0016 U	2.1 U	1.1 U	1 U	
Chloromethane	74-87-3	1	mg/kg	0.0040 U	0.28 U	0.25 U	0.0042 U	0.0048 U	0.26 U	0.31 U	0.0040 U	0.0042 U	0.0048 U	0.27 U	0.0044 U	0.28 U	1.4 U	0.0044 UJ	5.5 U	2.8 U	2.8 U	
cis-1,2-Dichloroethene	156-59-2	1	mg/kg	0.00099 U	0.55	0.49	0.0010 U	0.0064	18	7.6	0.00061 J	0.0039	0.0025	19	0.0011 U	0.17	45	0.0011 UJ	17	12	13	
Dichloromethane	75-09-2	1	mg/kg	0.0049 U	0.36 U	0.31 U	0.0052 U	0.0060 U	0.33 U	0.39 U	0.0050 U	0.0052 U	0.0060 U	0.34 U	0.0054 U	0.36 U	1.7 U	0.0055 UJ	6.9 U	3.5 U	3.5 U	
Ethylbenzene	100-41-4	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
Isopropylbenzene (Cumene)	98-82-8	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.00066 J	1.4 U	0.71 U	0.7 U	
Naphthalene	91-20-3	1	mg/kg	0.0040 U	0.28 U	0.25 U	0.0042 U	0.0048 U	0.26 U	0.31 U	0.0040 U	0.0042 U	0.0048 U	0.27 U	0.0044 U	0.28 U	1.4 U	0.0044 UJ	5.5 U	2.8 U	2.8 U	
n-Butylbenzene	104-51-8	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0016 J	1.4 U	0.71 U	0.7 U	
n-Propylbenzene	103-65-1	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
p-Isopropyltoluene	99-87-6	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
sec-Butylbenzene	135-98-8	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0029 J	1.4 U	0.71 U	0.7 U	
tert-Butylbenzene	98-06-6	1	mg/kg	0.0020 U	0.14 U	0.12 U	0.0021 U	0.0024 U	0.13 U	0.16 U	0.0020 U	0.0021 U	0.0024 U	0.14 U	0.0022 U	0.14 U	0.69 U	0.0015 J	2.8 U	1.4 U	1.4 U	
tert-Butyl Methyl Ether	1634-04-4	1	mg/kg	0.00062 J	0.14 U	0.12 U	0.0011 J	0.00073 J	0.13 U	0.16 U	0.00096 J	0.00063 J	0.00079 J	0.14 U	0.0010 J	0.14 U	0.69 U	0.0024 J	2.8 U	1.4 U	1.4 U	
Tetrachloroethene	127-18-4	1	mg/kg	0.00049 U	0.036 U	0.031 U	0.00052 U	0.00060 U	0.033 U	0.039 U	0.00050 U	0.00052 U	0.00060 U	0.034 U	0.00054 U	0.036 U	0.17 U	0.00055 UJ	0.69 U	0.35 U	0.35 U	
Toluene	108-88-3	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
trans-1,2-Dichloroethene	156-60-5	1	mg/kg	0.0015 U	0.016 J	0.04 J	0.00026 J	0.0018 U	0.048 J	0.19	0.0015 U	0.0016 U	0.0018 U	0.052 J	0.0016 U	0.11 U	0.13 J	0.0016 UJ	2.1 U	1.1 U	1 U	
Trichloroethene	79-01-6	1	mg/kg	0.00082 U	6	7.3	0.00052 U	0.00060 U	0.084	7.5	0.0015	0.016 J	0.00060 U	0.011 J	0.00054 U	4.2	60	0.00055 UJ	190	140	150	
Vinyl Chloride	75-01-4	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.01	0.78	0.084	0.0010 U	0.0022	0.0023	0.48	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
Xylene, o	95-47-6	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
Xylenes, m & p	179601-23-1	1	mg/kg	0.0020 U	0.14 U	0.12 U	0.0021 U	0.0024 U	0.13 U	0.16 U	0.0020 U	0.0021 U	0.0024 U	0.14 U	0.0022 U	0.14 U	0.69 U	0.0022 UJ	2.8 U	1.4 U	1.4 U	
Xylenes, Total	1330-20-7	1	mg/kg	0.00099 U	0.071 U	0.063 U	0.0010 U	0.0012 U	0.066 U	0.078 U	0.0010 U	0.0010 U	0.0012 U	0.068 U	0.0011 U	0.071 U	0.34 U	0.0011 UJ	1.4 U	0.71 U	0.7 U	
Total VOCs	VOCs	10	mg/kg	0.13 J	6.6 J	7.8 J	0.15 J	0.21 J	19 J	15 J	0.42 J	0.21 J	0.15 J	20 J	0.13 J	4.4	110 J	1.5 J	210	150	160	
Total CVOCs	CVOC	--	mg/kg	0.0099 UJ	6.6 J	7.8 J	0.00026 J	0.016	19 J	15 J	0.0021 J	0.022 J	0.0048	20 J	0.011 UJ	4.4	110 J	0.011 UJ	210	150	160	
Total CBTEX	CBTEX	--	mg/kg	0.0020 U	0.14 U	0.12 U	0.0021 U	0.0024 U	0.13 U	0.014 J	0.0020 U	0.0021 U	0.0024 U	0.14 U	0.0022 U	0.14 U	0.69 U	0.00066 J	2.8 U	1.4 U	1.4 U	

Detections in Bold
Exceedances Shaded (result greater than screening level)
mg/kg = milligrams per kilogram
CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes
CVOC = chlorinated volatile organic compound
VOC = volatile organic compound
J = Estimated detection
U = Analyte not detected
UJ = Analyte not detected (estimated)

Table 1. Soil Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			DPT-33	DPT-33	DPT-33	DPT-34	DPT-34	DPT-34	DPT-34	DPT-35	DPT-35	DPT-35	DPT-36	DPT-36	DPT-036	DPT-36	DPT-37	DPT-37	DPT-37	DPT-38
	Sample ID			DPT-33-10-12-20190920	DPT-33-24-26-20190920	DPT-33-26-28-20190920	DPT-34-9-11-20190918	DPT-34-14-16-20190918	DPT-34-14-16-20190918FD	DPT-34-16-18-20190918	DPT-35-9-11-20190918	DPT-35-11-13-20190918	DPT-35-13-15-20190918	DPT-36-10-12-20190918	DPT-36-20-22-20190918	DPT-36-22-24-20190918	DPT-36-27-28-20190918	DPT-37-10-12-20190919	DPT-37-20-22-20190919	DPT-37-22-24-20190919	DPT-38-10-12-20190919
	Date of Collection			09/20/2019	09/20/2019	09/20/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/18/2019	09/19/2019	09/19/2019	09/19/2019	09/19/2019
	Sample Depth			10-12 ft	24-26 ft	26-28 ft	9-11 ft	14-16 ft	14-16 ft	16-18 ft	9-11 ft	11-13 ft	13-15 ft	10-12 ft	20-22 ft	22-24 ft	27-28 ft	10-12 ft	20-22 ft	22-24 ft	10-12 ft
	Geologic Zone			Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel
CAS RN	Screening Level	Sample Type	Unit																		
1,1-Dichloroethene	75-35-4	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
1,2,4-Trimethylbenzene	95-63-6	1	mg/kg	0.0022 U	0.75 U	0.58 U	0.0020 U	0.0026 U	0.0024 U	0.0025 U	0.0020 U	0.25 U	0.0024 U	0.0018 U	0.83 J	1.4 U	2.6 J	0.0020 U	0.32 U	0.53 U	0.0020 U
1,2-Dichloroethane	107-06-2	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	1	mg/kg	0.0022 U	0.75 U	0.58 U	0.0020 U	0.0026 U	0.0024 U	0.0025 U	0.0020 U	0.25 U	0.0024 U	0.0018 U	3 U	1.4 U	0.7 J	0.0020 U	0.32 U	0.53 U	0.0020 U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1	mg/kg	0.0040 J	3.8 U	2.9 U	0.01 UJ	0.0065 J	0.012 UJ	0.013 UJ	0.01 UJ	1.2 UJ	0.012 UJ	0.0059 J	15 U	7 U	14 U	0.0099 U	1.6 U	2.6 U	0.01 U
Acetone	67-64-1	1	mg/kg	0.37 J	3.8 U	2.9 U	0.073	0.41 J	0.033 J	0.24	0.14	1.2 U	0.091	0.48 J	15 U	7 U	14 U	0.24 J	1.6 U	2.6 U	0.058 J
Benzene	71-43-2	1	mg/kg	0.00054 U	0.19 U	0.14 U	0.00050 U	0.00065 U	0.00060 U	0.00063 U	0.00051 U	0.063 U	0.0022	0.00045 U	0.75 U	0.35 U	0.73 U	0.00049 U	0.043 J	0.07 J	0.00051 U
Chloroform	67-66-3	1	mg/kg	0.0016 U	0.56 U	0.43 U	0.0015 U	0.0019 U	0.0018 U	0.0019 U	0.0015 U	0.19 U	0.0018 U	0.0014 U	2.2 U	1 U	2.2 U	0.0015 U	0.24 U	0.4 U	0.0015 U
Chloromethane	74-87-3	1	mg/kg	0.0043 U	1.5 U	1.2 U	0.0040 UJ	0.0052 UJ	0.0048 UJ	0.0050 UJ	0.0040 UJ	0.5 U	0.0048 UJ	0.0036 U	6 U	2.8 U	5.8 U	0.0015 J	0.63 U	1.1 U	0.0041 U
cis-1,2-Dichloroethene	156-59-2	1	mg/kg	0.0011 U	2.3	2.6	0.0010 U	0.00034 J	0.00049 J	0.012	0.0010 U	0.51	0.04	0.00090 U	19	10	17	0.0031	3.4	5.3	0.0041 J
Dichloromethane	75-09-2	1	mg/kg	0.0054 U	1.9 U	1.4 U	0.0050 U	0.0065 U	0.0060 U	0.0063 U	0.0051 U	0.63 U	0.0060 U	0.0045 U	7.5 U	3.5 U	7.3 U	0.0049 U	0.79 U	1.3 U	0.0051 U
Ethylbenzene	100-41-4	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
Isopropylbenzene (Cumene)	98-82-8	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
Naphthalene	91-20-3	1	mg/kg	0.0043 U	1.5 U	1.2 U	0.0040 U	0.0052 U	0.0048 U	0.0050 U	0.0040 U	0.5 U	0.0048 U	0.0036 U	6 U	2.8 U	5.8 U	0.0039 U	0.63 U	1.1 U	0.0041 U
n-Butylbenzene	104-51-8	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
n-Propylbenzene	103-65-1	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	0.32 J	0.00099 U	0.16 U	0.26 U	0.0010 U
p-Isopropyltoluene	99-87-6	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
sec-Butylbenzene	135-98-8	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
tert-Butylbenzene	98-06-6	1	mg/kg	0.0022 U	0.75 U	0.58 U	0.0020 U	0.0026 U	0.0024 U	0.0025 U	0.0020 U	0.25 U	0.0024 U	0.0018 U	3 U	1.4 U	2.9 U	0.0020 U	0.32 U	0.53 U	0.0020 U
tert-Butyl Methyl Ether	1634-04-4	1	mg/kg	0.0022	0.75 U	0.58 U	0.00044 J	0.0026 U	0.00041 J	0.00050 J	0.00044 J	0.25 U	0.00050 J	0.0018	3 U	1.4 U	2.9 U	0.0020	0.32 U	0.53 U	0.0021
Tetrachloroethene	127-18-4	1	mg/kg	0.00054 U	0.19 U	0.14 U	0.00050 U	0.00041 J	0.00060 U	0.00063 U	0.00051 U	0.063 U	0.00060 U	0.00045 U	0.75 U	0.35 U	0.73 U	0.00049 U	0.079 U	0.13 U	0.00051 U
Toluene	108-88-3	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
trans-1,2-Dichloroethene	156-60-5	1	mg/kg	0.0016 U	0.56 U	0.43 U	0.0015 U	0.0019 U	0.00016 J	0.0020	0.0015 U	0.19 U	0.0011 J	0.0014 U	2.2 U	1 U	2.2 U	0.0015 U	0.24 U	0.4 U	0.0015 U
Trichloroethene	79-01-6	1	mg/kg	0.00054 U	57	48	0.00050 U	0.0064	0.0052	0.094	0.00040 J	16	0.00028 J	0.00026 J	340	170	280	0.048	26	48	0.011
Vinyl Chloride	75-01-4	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 UJ	0.0013 UJ	0.0012 UJ	0.0013 UJ	0.0010 UJ	0.12 U	0.012 J	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.076 J	0.16 J	0.0010 U
Xylene, o	95-47-6	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
Xylenes, m & p	179601-23-1	1	mg/kg	0.0022 U	0.75 U	0.58 U	0.0020 U	0.0026 U	0.0024 U	0.0025 U	0.0020 U	0.25 U	0.0024 U	0.0018 U	3 U	1.4 U	2.9 U	0.0020 U	0.32 U	0.53 U	0.0020 U
Xylenes, Total	1330-20-7	1	mg/kg	0.0011 U	0.38 U	0.29 U	0.0010 U	0.0013 U	0.0012 U	0.0013 U	0.0010 U	0.12 U	0.0012 U	0.00090 U	1.5 U	0.7 U	1.4 U	0.00099 U	0.16 U	0.26 U	0.0010 U
Total VOCs	VOCs	10	mg/kg	0.38 J	59	51	0.073 J	0.42 J	0.039 J	0.35 J	0.14 J	17	0.15 J	0.49 J	360 J	180	300 J	0.29 J	30 J	54 J	0.075 J
Total CVOCs	CVOC	--	mg/kg	0.011 UJ	59	51	0.01 UJ	0.0072 J	0.0059 J	0.11	0.00040 J	17	0.053 J	0.00026 J	360	180	300	0.053 J	29 J	53 J	0.015 J
Total CBTEX	CBTEX	--	mg/kg	0.0022 U	0.75 U	0.58 U	0.0020 U	0.0026 U	0.0024 U	0.0025 U	0.0020 U	0.25 U	0.0022	0.0018 U	3 U	1.4 U	2.9 U	0.0020 U	0.043 J	0.07 J	0.0020 U

Detections in Bold
Exceedances Shaded (result greater than screening level)
mg/kg = milligrams per kilogram
CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes
CVOC = chlorinated volatile organic compound
VOC = volatile organic compound
J = Estimated detection
U = Analyte not detected
UJ = Analyte not detected (estimated)

Table 1. Soil Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			DPT-38	DPT-38	DPT-38	DPT-39	DPT-39	DPT-39	DPT-40	DPT-40	DPT-40	DPT-40	DPT-41	DPT-41	DPT-41	DPT-42	DPT-42	DPT-42	DPT-42	DPT-43
	Sample ID			DPT-38-10-12-20190919FD	DPT-38-18-20-20190919	DPT-38-24-26-20190919	DPT-39-10-12-20190919	DPT-39-18-20-20190919	DPT-39-20-22-20190919	DPT-40-10-12-20190917	DPT-40-10-12-20190917FD	DPT-40-17-19-20190917	DPT-40-19-21-20190917	DPT-41-10-12-20190924	DPT-41-18-20-20190924	DPT-41-20-22-20190924	DPT-42-10-12-20190925	DPT-42-16-18-20190925	DPT-42-20-22-20190925	DPT-42-26-28-20190925	DPT-43-10-12-20190925
	Date of Collection			09/19/2019	09/19/2019	09/19/2019	09/19/2019	09/19/2019	09/19/2019	09/17/2019	09/17/2019	09/17/2019	09/17/2019	09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/25/2019	09/25/2019	09/25/2019
	Sample Depth			10-12 ft	18-20 ft	24-26 ft	10-12 ft	18-20 ft	20-22 ft	10-12 ft	10-12 ft	17-19 ft	19-21 ft	10-12 ft	18-20 ft	20-22 ft	10-12 ft	16-18 ft	20-22 ft	26-28 ft	10-12 ft
	Geologic Zone			Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel
CAS RN	Screening Level	Sample Type	Unit																		
1,1-Dichloroethene	75-35-4	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.026 J	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
1,2,4-Trimethylbenzene	95-63-6	1	mg/kg	0.0019 U	0.0025 U	0.24 U	0.0021 U	0.0021 U	0.0022 UJ	0.0021 U	0.0024 U	0.078 J	0.14 U	0.0018 U	0.14 U	1.4 U	0.0018 U	0.0022 U	2.2	1.4 U	0.0019 U
1,2-Dichloroethane	107-06-2	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	1	mg/kg	0.0019 U	0.0025 U	0.24 U	0.0021 U	0.0021 U	0.0022 UJ	0.0021 U	0.0024 U	0.019 J	0.14 U	0.0018 U	0.14 U	1.4 U	0.0018 U	0.0022 U	0.44 J	1.4 U	0.0019 U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1	mg/kg	0.0095 U	0.012 U	1.2 U	0.01 U	0.01 U	0.017 J	0.01 UJ	0.012 UJ	0.78 UJ	0.68 UJ	0.0055 J	0.71 U	7.1 U	0.0091 U	0.0031 J	3.6 U	6.8 U	0.0033 J
Acetone	67-64-1	1	mg/kg	0.48 J	0.44 J	1.2 U	0.4 J	0.48 J	0.9 J	0.042 J	0.15 J	0.78 U	0.68 U	0.36 J	0.71 U	7.1 U	0.16 J	0.25 J	3.6 U	6.8 U	0.26 J
Benzene	71-43-2	1	mg/kg	0.00048 U	0.00063 U	0.024 J	0.00053 U	0.00053 U	0.00054 UJ	0.00052 U	0.00059 U	0.039 U	0.034 U	0.00044 U	0.027 J	0.36 U	0.00046 U	0.00054 U	0.12 J	0.15 J	0.00048 U
Chloroform	67-66-3	1	mg/kg	0.0014 U	0.0019 U	0.18 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0018 U	0.12 U	0.1 U	0.0013 U	0.011 J	0.11 J	0.0014 U	0.0016 U	0.54 U	1 U	0.0014 U
Chloromethane	74-87-3	1	mg/kg	0.0012 J	0.0017 J	0.49 U	0.0016 J	0.0018 J	0.0018 J	0.0042 UJ	0.0047 UJ	0.31 U	0.27 U	0.0036 U	0.28 U	2.8 U	0.0036 U	0.0044 U	1.4 U	2.7 U	0.0038 U
cis-1,2-Dichloroethene	156-59-2	1	mg/kg	0.0024 J	0.00026 J	11	0.0025	0.043	0.073 J	0.0010 U	0.0012 U	3.8	1	0.00089 U	2.3	9.1	0.00091 U	0.0011 U	4.3	5.9	0.00096 U
Dichloromethane	75-09-2	1	mg/kg	0.0048 U	0.0063 U	0.61 U	0.0053 U	0.0053 U	0.0025 J	0.0052 U	0.0059 U	0.39 U	0.34 U	0.0044 U	0.35 U	3.6 U	0.0046 U	0.0054 U	1.8 U	3.4 U	0.0048 U
Ethylbenzene	100-41-4	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.037 J	0.02 J	0.00089 U	0.071 U	0.12 J	0.00091 U	0.0011 U	0.051 J	0.68 U	0.00096 U
Isopropylbenzene (Cumene)	98-82-8	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.011 J	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
Naphthalene	91-20-3	1	mg/kg	0.0038 U	0.0050 U	0.49 U	0.0042 U	0.0042 U	0.0043 UJ	0.0042 U	0.0047 U	0.31 U	0.27 U	0.0036 U	0.28 U	2.8 U	0.0036 U	0.0044 U	1.4 U	2.7 U	0.0038 U
n-Butylbenzene	104-51-8	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
n-Propylbenzene	103-65-1	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.019 J	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.16 J	0.68 U	0.00096 U
p-Isopropyltoluene	99-87-6	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
sec-Butylbenzene	135-98-8	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.36 U	0.68 U	0.00096 U
tert-Butylbenzene	98-06-6	1	mg/kg	0.0019 U	0.0025 U	0.24 U	0.0021 U	0.0021 U	0.0022 UJ	0.0021 U	0.0024 U	0.16 U	0.14 U	0.0018 U	0.14 U	1.4 U	0.0018 U	0.0022 U	0.72 U	1.4 U	0.0019 U
tert-Butyl Methyl Ether	1634-04-4	1	mg/kg	0.0024	0.0022 J	0.24 U	0.0028	0.0020 J	0.0029 J	0.00034 J	0.00048 J	0.16 U	0.14 U	0.0018 U	0.14 U	1.4 U	0.0018 U	0.0022 U	0.72 U	1.4 U	0.0019 U
Tetrachloroethene	127-18-4	1	mg/kg	0.00048 U	0.00063 U	0.061 U	0.00053 U	0.00053 U	0.00054 UJ	0.00052 U	0.00059 U	0.64	0.034 U	0.00044 U	0.035 U	0.36 U	0.00046 U	0.00054 U	0.18 U	0.34 U	0.00048 U
Toluene	108-88-3	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.078 U	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.27 J	0.68 U	0.00096 U
trans-1,2-Dichloroethene	156-60-5	1	mg/kg	0.0014 U	0.0019 U	0.032 J	0.0016 U	0.00029 J	0.00077 J	0.00018 J	0.0018 U	0.087 J	0.035 J	0.0013 U	0.01 J	1.1 U	0.0014 U	0.0016 U	0.54 U	1 U	0.0014 U
Trichloroethene	79-01-6	1	mg/kg	0.0085	0.00028 J	26	0.0090	0.0038	0.0050 J	0.00016 J	0.00020 J	2.2	0.057	0.00044 U	3	120	0.00046 U	0.00054 U	55	88	0.00064
Vinyl Chloride	75-01-4	1	mg/kg	0.00095 U	0.0012 U	0.095 J	0.0010 U	0.00054 J	0.0011 UJ	0.0010 UJ	0.0012 UJ	0.034 J	0.068 U	0.00089 U	0.068 J	0.71 U	0.00091 U	0.0011 U	0.39	0.64 J	0.00096 U
Xylene, o	95-47-6	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.029 J	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.14 J	0.68 U	0.00096 U
Xylenes, m & p	179601-23-1	1	mg/kg	0.0019 U	0.0025 U	0.24 U	0.0021 U	0.0021 U	0.0022 UJ	0.0021 U	0.0024 U	0.071 J	0.14 U	0.0018 U	0.14 U	1.4 U	0.0018 U	0.0022 U	0.26 J	1.4 U	0.0019 U
Xylenes, Total	1330-20-7	1	mg/kg	0.00095 U	0.0012 U	0.12 U	0.0010 U	0.0010 U	0.0011 UJ	0.0010 U	0.0012 U	0.1 J	0.068 U	0.00089 U	0.071 U	0.71 U	0.00091 U	0.0011 U	0.4 J	0.68 U	0.00096 U
Total VOCs	VOCs	10	mg/kg	0.49 J	0.44 J	37 J	0.42 J	0.53 J	1 J	0.043 J	0.15 J	7 J	1.1 J	0.37 J	5.4 J	130 J	0.16 J	0.25 J	63 J	95 J	0.26 J
Total CVOCs	CVOC	--	mg/kg	0.012 J	0.0022 J	37 J	0.013 J	0.049 J	0.083 J	0.00034 J	0.00020 J	6.8 J	1.1 J	0.0089 U	5.4 J	130 J	0.0091 U	0.011 U	60	95 J	0.00064
Total CBTEX	CBTEX	--	mg/kg	0.0019 U	0.0025 U	0.024 J	0.0021 U	0.0021 U	0.0022 UJ	0.0021 U	0.0024 U	0.15 J	0.02 J	0.0018 U	0.027 J	0.12 J	0.0018 U	0.0022 U	0.84 J	0.15 J	0.0019 U

Detections in Bold
Exceedances Shaded (result greater than screening level)
mg/kg = milligrams per kilogram
CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes
CVOC = chlorinated volatile organic compound
VOC = volatile organic compound
J = Estimated detection
U = Analyte not detected
UJ = Analyte not detected (estimated)

Table 1. Soil Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			DPT-43	DPT-43	DPT-43	DPT-44	DPT-44	DPT-44	DPT-44	DPT-45	DPT-45	DPT-45	DPT-45	DPT-46	DPT-46	DPT-46	DPT-47	DPT-47	DPT-47	DPT-47
	Sample ID			DPT-43-18-20-20190925	DPT-43-18-20-20190925FD	DPT-43-22-24-20190925	DPT-44-10-12-20190917	DPT-44-14-16-20190917	DPT-44-16-18-20190917	DPT-44-16-18-20190917FD	DPT-45-10-12-20190924	DPT-45-17-19-20190924	DPT-45-22-24-20190924	DPT-45-27-28-20190924	DPT-46-10-12-20190924	DPT-46-18-20-20190924	DPT-46-20-22-20190924	DPT-47-11-13-20190924	DPT-47-11-13-20190924FD	DPT-47-18-20-20190924	DPT-47-24-26-20190924
	Date of Collection			09/25/2019	09/25/2019	09/25/2019	09/17/2019	09/17/2019	09/17/2019	09/17/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019
	Sample Depth			18-20 ft	18-20 ft	22-24 ft	10-12 ft	14-16 ft	16-18 ft	16-18 ft	10-12 ft	17-19 ft	22-24 ft	27-28 ft	10-12 ft	18-20 ft	20-22 ft	11-13 ft	11-13 ft	18-20 ft	24-26 ft
	Geologic Zone			Shallow Silty Clay	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand
CAS RN	Screening Level	Sample Type	Unit																		
1,1-Dichloroethene	75-35-4	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.13 U	0.14 U	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
1,2,4-Trimethylbenzene	95-63-6	1	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0021 U	0.032 J	4.8 J	10 J	0.0022 U	0.0023 U	0.69 U	19	0.0019 U	0.0022 U	0.3 U	0.0020 U	0.0020 U	0.0022 U	0.0024 U
1,2-Dichloroethane	107-06-2	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.13 U	0.14 U	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	1	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0021 U	0.14 U	0.24 J	0.22 J	0.0022 U	0.0023 U	0.69 U	4.7 J	0.0019 U	0.0022 U	0.3 U	0.0020 U	0.0020 U	0.0022 U	0.0024 U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1	mg/kg	0.011 U	0.0030 J	0.0042 J	0.0045 J	0.7 UJ	1.3 UJ	1.4 UJ	0.014	0.0086 J	3.5 U	34 U	0.0062 J	0.0054 J	1.5 U	0.0031 J	0.014 J	0.0055 J	0.0070 J
Acetone	67-64-1	1	mg/kg	0.011 U	0.29 J	0.36 J	0.26	0.7 U	1.3 U	1.4 U	0.84 J	0.71 J	3.5 U	34 U	0.41 J	0.51 J	1.5 U	0.19 J	0.96 J	0.53 J	0.57 J
Benzene	71-43-2	1	mg/kg	0.00055 U	0.00053 U	0.00055 U	0.00054 U	0.035 U	0.063 U	0.072 U	0.00055 U	0.00058 U	0.17 U	1.7 U	0.00047 U	0.00055 U	0.059 J	0.00050 U	0.00051 U	0.00055 U	0.0094
Chloroform	67-66-3	1	mg/kg	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.1 U	0.19 U	0.21 U	0.0016 U	0.0017 U	0.52 U	5.1 U	0.0014 U	0.0016 U	0.22 U	0.0015 U	0.0015 U	0.0016 U	0.0018 U
Chloromethane	74-87-3	1	mg/kg	0.0044 U	0.0042 U	0.0044 U	0.0043 UJ	0.28 U	0.51 U	0.57 U	0.0044 U	0.0046 U	1.4 U	14 U	0.0038 U	0.0044 U	0.59 U	0.0040 U	0.0041 U	0.0044 U	0.0048 U
cis-1,2-Dichloroethene	156-59-2	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0033	0.35	12	17	0.0011 U	0.0012 U	15	39	0.00094 U	0.0011 U	1.9	0.0010 U	0.0010 U	0.0011 U	0.00056 J
Dichloromethane	75-09-2	1	mg/kg	0.0055 U	0.0053 U	0.0055 U	0.0054 U	0.35 U	0.63 U	0.72 U	0.0055 U	0.0058 U	1.7 U	17 U	0.0047 U	0.0055 U	0.74 U	0.0050 U	0.0051 U	0.0055 U	0.0060 U
Ethylbenzene	100-41-4	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.048 J	0.056 J	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
Isopropylbenzene (Cumene)	98-82-8	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.18	0.11 J	0.12 J	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
Naphthalene	91-20-3	1	mg/kg	0.0044 U	0.0042 U	0.0044 U	0.0043 U	0.28 U	0.51 U	0.57 U	0.0044 U	0.0046 U	1.4 U	14 U	0.0038 U	0.0044 U	0.59 U	0.0040 U	0.0041 U	0.0044 U	0.0048 U
n-Butylbenzene	104-51-8	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.063 J	0.13	0.18	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
n-Propylbenzene	103-65-1	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.018 J	0.98 J	1.8 J	0.0011 U	0.0012 U	0.35 U	1.7 J	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
p-Isopropyltoluene	99-87-6	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.1 J	0.12 J	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
sec-Butylbenzene	135-98-8	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.14	0.12 J	0.15	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
tert-Butylbenzene	98-06-6	1	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0021 U	0.0096 J	0.25 U	0.29 U	0.0022 U	0.0023 U	0.69 U	6.8 U	0.0019 U	0.0022 U	0.3 U	0.0020 U	0.0020 U	0.0022 U	0.0024 U
tert-Butyl Methyl Ether	1634-04-4	1	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0025	0.14 U	0.25 U	0.29 U	0.0015 J	0.0027	0.69 U	6.8 U	0.0028	0.0022	0.3 U	0.0023	0.0034	0.0029	0.0031
Tetrachloroethene	127-18-4	1	mg/kg	0.00055 U	0.00053 U	0.00055 U	0.00054 U	0.035 U	0.12	0.079	0.00055 U	0.00058 U	0.17 U	2.5	0.00047 U	0.00055 U	0.074 U	0.00050 U	0.00051 U	0.00055 U	0.00060 U
Toluene	108-88-3	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 UJ	0.13 UJ	0.14 UJ	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.16	0.0010 U	0.0010 U	0.0011 U	0.0012 U
trans-1,2-Dichloroethene	156-60-5	1	mg/kg	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.1 U	0.056 J	0.088 J	0.0016 U	0.0017 U	0.52 U	5.1 U	0.0014 U	0.0016 U	0.22 U	0.0015 U	0.0015 U	0.0016 U	0.00018 J
Trichloroethene	79-01-6	1	mg/kg	0.00055 U	0.00053 U	0.00055 U	0.0058	0.035 U	16	12	0.00055 U	0.00058 U	47	560	0.00047 U	0.00055 U	20	0.00050 U	0.00051 U	0.00055 U	0.00060 U
Vinyl Chloride	75-01-4	1	mg/kg	0.0011 U	0.0011 U	0.019	0.0011 UJ	0.07 U	0.078 J	0.073 J	0.0011 U	0.0017	0.22 J	3.4 U	0.00094 U	0.0014	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.05
Xylene, o	95-47-6	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.13 U	0.14	0.0011 U	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
Xylenes, m & p	179601-23-1	1	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0021 U	0.14 U	0.097 J	0.088 J	0.0012 J	0.0023 U	0.69 U	6.8 U	0.0019 U	0.0022 U	0.3 U	0.0020 U	0.0020 U	0.0022 U	0.0024 U
Xylenes, Total	1330-20-7	1	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.07 U	0.097 J	0.23 J	0.0012 J	0.0012 U	0.35 U	3.4 U	0.00094 U	0.0011 U	0.15 U	0.0010 U	0.0010 U	0.0011 U	0.0012 U
Total VOCs	VOCs	10	mg/kg	0.088 UJ	0.29 J	0.38 J	0.28 J	0.79 J	35 J	42 J	0.86 J	0.72 J	62 J	630 J	0.42 J	0.52 J	22 J	0.2 J	0.98 J	0.54 J	0.64 J
Total CVOCs	CVOC	--	mg/kg	0.011 UJ	0.011 UJ	0.019	0.0091	0.35	28 J	29 J	0.011 U	0.0017	62 J	600	0.0094 U	0.0014	22	0.01 U	0.01 U	0.011 U	0.051 J
Total CBTEX	CBTEX	--	mg/kg	0.0022 U	0.0021 U	0.0022 U	0.0021 U	0.18	0.26 J	0.4 J	0.0012 J	0.0023 U	0.69 U	6.8 U	0.0019 U	0.0022 U	0.22 J	0.0020 U	0.0020 U	0.0022 U	0.0094

Detections in Bold
Exceedances Shaded (result greater than screening level)
mg/kg = milligrams per kilogram
CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes
CVOC = chlorinated volatile organic compound
VOC = volatile organic compound
J = Estimated detection
U = Analyte not detected
UJ = Analyte not detected (estimated)

Table 1. Soil Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			DPT-48	DPT-48	DPT-48	DPT-48	DPT-49	DPT-49	DPT-49	DPT-50	DPT-50	DPT-50	DPT-50	MW-124S
	Sample ID			DPT-48-10-12-20190917	DPT-48-18-20-20190917	DPT-48-20-22-20190917	DPT-48-27-29-20190917	DPT-49-8-9-20190923	DPT-49-14-16-20190923	DPT-49-19-21-20190923	DPT-50-10-12-20190923	DPT-50-18-20-20190923	DPT-50-22-24-20190923	DPT-50-27-28-20190923	MW-124S-10-12-20190910
	Date of Collection			09/17/2019	09/17/2019	09/17/2019	09/17/2019	09/23/2019	09/23/2019	09/23/2019	09/23/2019	09/23/2019	09/23/2019	09/23/2019	09/10/2019
	Sample Depth			10-12 ft	18-20 ft	20-22 ft	27-29 ft	8-9 ft	14-16 ft	19-21 ft	10-12 ft	18-20 ft	22-24 ft	27-28 ft	10-12 ft
	Geologic Zone			Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Deep Silty Sand	Shallow Sand and Gravel
CAS RN	Screening Level	Sample Type	Unit												
1,1-Dichloroethene	75-35-4	1	mg/kg	0.0010 U	7.1 U	0.072 J	0.049 J	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.07 U	0.1 U
1,2,4-Trimethylbenzene	95-63-6	1	mg/kg	0.0021 U	3.7 J	2.4	0.26 U	0.0020 U	0.0022 U	0.53 U	0.0019 U	0.0023 U	0.3 U	3.4	3.5
1,2-Dichloroethane	107-06-2	1	mg/kg	0.0010 U	7.1 U	0.15 U	0.037 J	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.07 U	0.1 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	1	mg/kg	0.0021 U	14 U	0.56	0.26 U	0.0020 U	0.0022 U	0.53 U	0.0019 U	0.0023 U	0.3 U	1	0.21 U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1	mg/kg	0.0040 J	71 UJ	1.5 UJ	1.3 UJ	0.0071 J	0.0048 J	2.6 U	0.0067 J	0.0050 J	1.5 U	0.7 U	1 UJ
Acetone	67-64-1	1	mg/kg	0.18	71 U	1.5 U	1.3 U	0.29 J	0.35 J	2.6 U	0.26 J	0.44 J	1.5 U	0.7 U	1 U
Benzene	71-43-2	1	mg/kg	0.00052 U	3.6 U	0.076 U	0.21	0.00050 U	0.00026 J	0.23	0.00048 U	0.00058 U	0.18	0.049	0.053 U
Chloroform	67-66-3	1	mg/kg	0.0016 U	11 U	0.23 U	0.19 U	0.0015 U	0.0017 U	0.4 U	0.0014 U	0.0017 U	0.22 U	0.1 U	0.16 U
Chloromethane	74-87-3	1	mg/kg	0.0042 UJ	28 U	0.61 UJ	0.51 UJ	0.0040 U	0.0044 U	1.1 U	0.0038 U	0.0046 U	0.59 U	0.28 U	0.42 U
cis-1,2-Dichloroethene	156-59-2	1	mg/kg	0.0010	26	14	0.56	0.00099 U	0.0011 U	10	0.00096 U	0.0012 U	1.4	1	0.1 U
Dichloromethane	75-09-2	1	mg/kg	0.0052 U	36 U	0.36 J	0.29 J	0.0050 U	0.0056 U	1.3 U	0.0048 U	0.0058 U	0.74 U	0.35 U	0.53 U
Ethylbenzene	100-41-4	1	mg/kg	0.0010 U	7.1 U	0.082 J	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.022 J	0.02 J	0.041 J
Isopropylbenzene (Cumene)	98-82-8	1	mg/kg	0.0010 U	7.1 U	0.027 J	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.03 J	0.19
Naphthalene	91-20-3	1	mg/kg	0.0042 U	28 U	0.61 U	0.51 U	0.00074 J	0.0044 U	1.1 U	0.0038 U	0.0046 U	0.59 U	0.28 U	0.32 J
n-Butylbenzene	104-51-8	1	mg/kg	0.0010 U	7.1 U	0.15 U	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.07 U	0.26
n-Propylbenzene	103-65-1	1	mg/kg	0.0010 U	7.1 U	0.24	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.87	0.8
p-Isopropyltoluene	99-87-6	1	mg/kg	0.0010 U	7.1 U	0.017 J	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.044 J	0.16
sec-Butylbenzene	135-98-8	1	mg/kg	0.0010 U	7.1 U	0.15 U	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.033 J	0.12
tert-Butylbenzene	98-06-6	1	mg/kg	0.0021 U	14 U	0.3 U	0.26 U	0.0020 U	0.0022 U	0.53 U	0.00014 J	0.0023 U	0.3 U	0.14 U	0.018 J
tert-Butyl Methyl Ether	1634-04-4	1	mg/kg	0.0024	14 U	0.3 U	0.26 U	0.0020	0.0013 J	0.53 U	0.0018 J	0.0016 J	0.3 U	0.14 U	0.21 U
Tetrachloroethene	127-18-4	1	mg/kg	0.00052 U	3.6 U	1.1	0.064 U	0.00050 U	0.00056 U	0.13 U	0.00048 U	0.00058 U	0.074 U	0.035 U	0.053 U
Toluene	108-88-3	1	mg/kg	0.0010 U	7.1 UJ	0.13 J	0.13 U	0.00099 U	0.0011 U	0.55	0.00096 U	0.0012 U	0.086 J	0.07 U	0.1 U
trans-1,2-Dichloroethene	156-60-5	1	mg/kg	0.0016 U	11 U	0.049 J	0.052 J	0.00056 J	0.00029 J	0.051 J	0.00028 J	0.00021 J	0.22 U	0.1 U	0.16 U
Trichloroethene	79-01-6	1	mg/kg	0.0017	1300	500	0.99	0.00067	0.00056 U	39	0.00023 J	0.00058 U	18	4.5	0.053 U
Vinyl Chloride	75-01-4	1	mg/kg	0.0010 UJ	7.1 U	0.64 J	0.13 UJ	0.00099 U	0.0011 U	0.18 J	0.00096 U	0.00054 J	0.15 U	0.031 J	0.1 U
Xylene, o	95-47-6	1	mg/kg	0.0010 U	7.1 U	0.2	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.07 U	0.1 U
Xylenes, m & p	179601-23-1	1	mg/kg	0.0021 U	14 U	0.43	0.26 U	0.0020 U	0.0022 U	0.53 U	0.0019 U	0.0023 U	0.3 U	0.14 U	0.21 U
Xylenes, Total	1330-20-7	1	mg/kg	0.0010 U	7.1 U	0.63	0.13 U	0.00099 U	0.0011 U	0.26 U	0.00096 U	0.0012 U	0.15 U	0.07 U	0.1 U
Total VOCs	VOCs	10	mg/kg	0.19 J	1300 J	520 J	2.2 J	0.3 J	0.36 J	50 J	0.27 J	0.45 J	20 J	11 J	5.4 J
Total CVOCs	CVOC	--	mg/kg	0.0027	1300	520 J	2 J	0.0012 J	0.00029 J	49 J	0.00051 J	0.00075 J	19	5.5 J	1 U
Total CBTEX	CBTEX	--	mg/kg	0.0021 U	14 UJ	0.87 J	0.21	0.0020 U	0.00026 J	0.78	0.0019 U	0.0023 U	0.29 J	0.099 J	0.23 J

Detections in Bold

Exceedances Shaded (result greater than screening level)

mg/kg = milligrams per kilogram

CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes

CVOC = chlorinated volatile organic compound

VOC = volatile organic compound

J = Estimated detection

U = Analyte not detected

UJ = Analyte not detected (estimated)

Table 2. Soil Geotechnical and General Chemistry Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID		DPT-029	DPT-029	DPT-029	DPT-036	DPT-036	DPT-036	DPT-042	DPT-042	DPT-042	DPT-045	DPT-045	DPT-045	DPT-048	DPT-048	DPT-048	DPT-050	DPT-050	DPT-050	MW-124S
	Sample ID		DPT-29-10-12-20190926	DPT-29-18-20-20190926	DPT-29-20-22-20190926	DPT-36-10-12-20190918	DPT-36-20-22-20190918	DPT-36-22-24-20190918	DPT-42-10-12-20190925	DPT-42-16-18-20190925	DPT-42-20-22-20190925	DPT-45-10-12-20190924	DPT-45-17-19-20190924	DPT-45-22-24-20190924	DPT-48-10-12-20190917	DPT-48-18-20-20190917	DPT-48-20-22-20190917	DPT-50-10-12-20190923	DPT-50-18-20-20190923	DPT-50-22-24-20190923	MW-124S-10-12-20190910
	Date of Collection		09/26/2019	09/26/2019	09/26/2019	09/18/2019	09/18/2019	09/18/2019	09/25/2019	09/25/2019	09/25/2019	09/24/2019	09/24/2019	09/24/2019	09/17/2019	09/17/2019	09/17/2019	09/23/2019	09/23/2019	09/23/2019	09/10/2019
	Sample Depth		10-12 ft	18-20 ft	20-22 ft	10-12 ft	20-22 ft	22-24 ft	10-12 ft	16-18 ft	20-22 ft	10-12 ft	17-19 ft	22-24 ft	10-12 ft	18-20 ft	20-22 ft	10-12 ft	18-20 ft	22-24 ft	10-12 ft
	Geologic Zone		Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel	Shallow Silty Clay	Deep Silty Sand	Shallow Sand and Gravel
CAS RN		Unit	Gravel	Clay	Deep Silty Sand	and Gravel	Clay	Deep Silty Sand	and Gravel	Clay	Deep Silty Sand	and Gravel	Clay	Deep Silty Sand	and Gravel	Clay	Deep Silty Sand	and Gravel	Clay	Deep Silty Sand	and Gravel
Grain Size																					
Cobbles (>6cm)	COBBLEs	%	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	
Gravel, Coarse	GRAVELCOARSE	%	0.100 U	0.100 U	0.100 U	27.8	0.100 U	5.80	20.7	0.100 U	0.100 U	25.1	0.100 U	0.100 U	34.6	0.300	0.100 U	20.4	0.100 U	0.100 U	25.8
Gravel, Fine	GRAVELFINE	%	51.3	0.100 U	0.100 U	26.7	0.100 U	3.20	23.3	0.100 U	0.100 U	26.7	0.100 U	0.100 U	26.4	0.300	0.100 U	22.6	0.100 U	0.100 U	25.5
Gravel, Total	GRAVEL	%	51.3	0.100 U	0.100 U	54.5	0.100 U	9.00	44.0	0.100 U	0.100 U	51.8	0.100 U	0.100 U	61.0	0.600	0.100 U	43.0	0.100 U	0.100 U	51.3
Sand, Coarse	SANDCOARSE	%	16.7	0.200	0.100 U	14.3	0.100	0.100 U	15.4	0.100 U	0.100 U	16.6	0.100 U	0.100	10.1	0.500	0.100	14.4	0.100 U	0.100 U	14.6
Sand, Medium	SANDMEDIUM	%	14.8	0.900	0.100	11.9	0.800	0.100	17.7	0.200	0.300	15.7	0.700	0.100 U	13.4	2.60	0.200	16.9	0.200	0.100	13.7
Sand, Fine	SANDFINE	%	5.20	0.400	4.70	6.60	0.700	12.1	8.70	0.300	25.5	5.40	0.500	2.30	5.90	1.50	26.5	8.20	0.200	12.4	6.30
Sand, Total	SANDTOTAL	%	36.7	1.50	4.80	32.8	1.60	12.2	41.8	0.500	25.8	37.7	1.20	2.40	29.4	4.60	26.8	39.5	0.400	12.5	34.6
Fines, Total (Silt and Clay)	FINES	%	12.0	98.5	95.2	12.7	98.4	78.8	14.2	99.5	74.2	10.5	98.8	97.6	9.60	94.8	73.2	17.5	99.6	87.5	14.1
General Chemistry																					
Total Organic Carbon %C	7440-44-0	%	0.104	0.740	0.506	0.068	0.454	0.300	0.134	0.851	0.731	0.148	0.850	0.669	0.291	1.68	0.643	0.104	0.753	0.787	--

Detections in Bold

% = percent

-- = not available/not analyzed

C = Carbon

cm = centimeter

ft = feet

U = Analyte not detected

Table 3. Former UST Investigation Area Western Plume Groundwater Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			MW-24S	MW-29S	MW-29S	MW-30S	MW-31S	MW-112S	MW-117S	DPT-51	DPT-52	DPT-53	DPT-62	DPT-63	DPT-64	DPT-65
	Sample ID			MW-24S-20190918	MW-29S-20190918	MW-29S-20190918FD	MW-30S-20190917	MW-31S-20190917	MW-112S-20190917	MW-117S-20190918	DPT-51-GW-12-14-20190911	DPT-52-GW-12-14-20190911	DPT-53-GW-10-12-20190911	DPT-62-GW-10-12-20190913	DPT-63-GW-10-12-20190911	DPT-64-GW-10-12-20190911	DPT-65-GW-10-12-20190911
	Date of Collection			09/18/2019	09/18/2019	09/18/2019	09/17/2019	09/17/2019	09/17/2019	09/18/2019	09/11/2019	09/11/2019	09/18/2019	09/13/2019	09/11/2019	09/11/2019	09/11/2019
	Sample Depth			NA	NA	NA	NA	NA	NA	NA	12-14 ft	12-14 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
	CAS RN	Screening Level	Sample Type Unit	Permanent Well	Permanent Well	FD, Permanent Well	Permanent Well	Permanent Well	Permanent Well	Permanent Well	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Metals, Total																	
Iron	7439-89-6	--	mg/L	--	--	--	11.6	10.7	--	0.866	--	--	--	--	--	--	--
Manganese	7439-96-5	--	mg/L	--	--	--	8.421	9.906	--	1.371	--	--	--	--	--	--	--
General Chemistry																	
Chloride (as Cl)	16887-00-6	--	mg/L	--	--	--	14.1	23.7	--	49.7	--	--	--	--	--	--	--
Total Alkalinity	ALK	--	mg CaCO ₃ /L	--	--	--	560	454	--	234	--	--	--	--	--	--	--
VOCs																	
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	15	120	120	120	48	2.5 U	3.3	240	2.5 U	6.7	64	72	45 J	5.8 J
1,2-Dichloroethene, Total	540-59-0	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	2.5 U	100 U	0.73 J	5.0 U	2.5 U	10 U	50 U	6.2 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	5	µg/L	4.0 J	16 J	15 J	8.5	11 J	2.5 U	0.90 J	59 J	2.5 U	5.0 U	2.5 U	5.8 J	15 J	6.2 U
Benzene	71-43-2	1	µg/L	0.84 J	19	19	3.6	3.6	0.36 J	0.43 J	20 U	2.4	12	0.22 J	0.78 J	10 U	3.1
Chlorobenzene	108-90-7	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	2.5 U	100 U	2.5 U	1.8 J	2.5 U	10 U	50 U	6.2 U
cis-1,2-Dichloroethene	156-59-2	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	2.5 U	100 U	0.73 J	5.0 U	2.5 U	10 U	50 U	6.2 U
Ethylbenzene	100-41-4	5	µg/L	6.2 U	2000	2200	440	870	2.5 U	20	4100	2.4 J	180	140	110	960	75
Isopropylbenzene (Cumene)	98-82-8	5	µg/L	29	170	170	48	32	1.6 J	15	130	2.5 U	41	31	90	72	15
Naphthalene	91-20-3	10	µg/L	6.5	83	90	77	48	2.4 J	3.3	170	2.5 U	4.9 J	35	4.5 J	18 J	6.5
n-Butylbenzene	104-51-8	5	µg/L	6.2 U	25 U	25 U	2.3 J	12 U	2.5 U	0.74 J	100 U	2.5 U	5.0 U	5.4	10 U	50 U	6.2 U
n-Propylbenzene	103-65-1	5	µg/L	6.8	68	68	29	16	2.5 U	6.2	76 J	2.5 U	11	30	40	31 J	2.1 J
p-Isopropyltoluene	99-87-6	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	2.5 U	100 U	2.5 U	7.5	2.5 U	10 U	50 U	6.2 U
sec-Butylbenzene	135-98-8	5	µg/L	6.2 U	25 U	25 U	3.4 J	12 U	2.5 U	1.3 J	100 U	2.5 U	6.4	2.8	10 U	50 U	2.9 J
tert-Butylbenzene	98-06-6	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	1.8 J	100 U	2.5 U	1.4 J	2.5 U	10 U	50 U	6.2 U
Toluene	108-88-3	5	µg/L	6.2 U	25 U	25 U	6.2 U	12 U	2.5 U	2.0 J	30 J	2.5 U	20	2.5 U	10 U	50 U	430
Trichloroethene	79-01-6	5	µg/L	1.2 U	5.0 U	5.0 U	1.2 U	2.5 U	0.45 J	0.50 U	20 U	0.50 U	1.0 U	0.49 J	2.0 U	10 U	0.45 J
Vinyl Chloride	75-01-4	5	µg/L	2.5 U	10 U	10 U	2.5 U	5.0 U	0.12 J	1.0 U	40 U	1.0 U	2.0 U	0.09 J	4.0 U	20 U	2.5 U
Xylene, o	95-47-6	5	µg/L	6.2 U	130	130	18	4.2 J	2.5 U	18	910	2.5 U	86	5.1	23	210	93
Xylenes, m & p	179601-23-1	5	µg/L	510	2700	2600	390	1500	2.5 U	120	13000	6.6	470	110	740	5400	350
Xylenes, Total	1330-20-7	5	µg/L	510	2800	2700	410	1500 J	2.5 U	140	14000	6.6	560	120	760	5600	440
Total VOCs	VOCs	--	µg/L	570 J	5300 J	5400 J	1100 J	2500 J	8.1 J	190 J	19000 J	12 J	850 J	420 J	1100 J	6800 J	980 J
Total CVOCs	CVOC	--	µg/L	12 U	50 U	50 U	12 U	25 U	0.57 J	5.0 U	200 U	0.73 J	1.8 J	0.58 J	20 UJ	100 UJ	0.45 J
Total CBTEX	CBTEX	--	µg/L	540 J	5000	5100	900	2400 J	2.0 J	180 J	18000 J	11 J	810	290 J	960 J	6600	970

Screening levels are the Remedial Action Objectives set forth in the 1994 Record of Decision.

Detections in Bold

Exceedances Shaded (result greater than screening level)

mg/L = milligrams per liter

mg CaCO₃/L = milligrams as calcium carbonate per liter

µg/L = micrograms per liter

-- = not available/not analyzed

CBTEX = cumene (Isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes

CVOC = chlorinated volatile organic compound

VOC = volatile organic compound

J = Estimated detection

U = Analyte not detected

UJ = Analyte not detected (estimated)

Table 4. Former UST Investigation Area Eastern Plume Groundwater Analytical Results
2019 Supplemental Investigation Report
Essex-Hope Site, Jamestown, NY

Analyte	Location ID			MW-26S	MW-27S	MW-28S	MW-124S	DPT-54	DPT-55	DPT-55	DPT-57	DPT-58	DPT-59	DPT-60	DPT-60	DPT-61
	Sample ID			MW-26S-20190918	MW-27S-20190916	MW-28S-20190917	MW-124S-20190917	DPT-54-GW-10-12-20190916	DPT-55-GW-10-12-20190916	DPT-55-GW-10-12-20190916FD	DPT-57-GW-10-12-20190912	DPT-58-GW-10-12-20190912	DPT-59-GW-10-12-20190912	DPT-60-GW-10-12-20190912	DPT-60-GW-10-12-20190912FD	DPT-61-GW-10-12-20190912
	Date of Collection			09/18/2019	09/16/2019	09/17/2019	09/17/2019	09/16/2019	09/16/2019	09/16/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019	09/12/2019
	Sample Depth			NA	NA	NA	NA	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
	CAS RN	Screening Level	Sample Type Unit	Permanent Well	Permanent Well	Permanent Well	Permanent Well	Grab	Grab	FD, Grab	Grab	Grab	Grab	Grab	FD, Grab	Grab
Metals, Total																
Iron	7439-89-6	--	mg/L	23.3	3.78	--	12.7	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	--	mg/L	8.020	3.405	--	9.626	--	--	--	--	--	--	--	--	--
General Chemistry																
Chloride (as Cl)	16887-00-6	--	mg/L	2.50	11.8	--	4.40	--	--	--	--	--	--	--	--	--
Total Alkalinity	ALK	--	mg CaCO ₃ /L	244	95.7	--	219	--	--	--	--	--	--	--	--	--
VOCs																
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	3800	0.98 J	2.0 J	390	330	2.5 U	2.5 U	1600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethene, Total	540-59-0	5	µg/L	62 U	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	5	µg/L	440	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Benzene	71-43-2	1	µg/L	12 U	0.50 U	0.50 U	1.2 U	1.0 U	0.50 U	0.50 U	10 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	108-90-7	5	µg/L	62 U	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
cis-1,2-Dichloroethene	156-59-2	5	µg/L	62 U	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene	100-41-4	5	µg/L	130	2.5 U	2.5 U	5.0 J	5.0 U	2.5 U	2.5 U	55	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Isopropylbenzene (Cumene)	98-82-8	5	µg/L	130	1.2 J	3.3	33	6.9	2.5 U	2.5 U	250	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Naphthalene	91-20-3	10	µg/L	92	2.5 U	2.5 U	60	10	2.5 U	2.5 U	380	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
n-Butylbenzene	104-51-8	5	µg/L	62 U	2.5 U	2.5 U	3.0 J	5.0 U	2.5 U	2.5 U	18 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
n-Propylbenzene	103-65-1	5	µg/L	530	0.71 J	2.0 J	76	30	2.5 U	2.5 U	570	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
p-Isopropyltoluene	99-87-6	5	µg/L	62 U	2.5 U	2.5 U	2.0 J	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
sec-Butylbenzene	135-98-8	5	µg/L	62 U	2.5 U	2.5 U	5.1 J	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
tert-Butylbenzene	98-06-6	5	µg/L	62 U	2.5 U	2.5 U	2.0 J	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	108-88-3	5	µg/L	62 U	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Trichloroethene	79-01-6	5	µg/L	12 U	0.50 U	0.50 U	1.2 U	0.45 J	0.35 J	0.32 J	10 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl Chloride	75-01-4	5	µg/L	25 U	1.0 U	1.0 U	2.5 U	2.0 U	1.0 U	1.0 U	20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylene, o	95-47-6	5	µg/L	62 U	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Xylenes, m & p	179601-23-1	5	µg/L	120	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Xylenes, Total	1330-20-7	5	µg/L	120	2.5 U	2.5 U	6.2 U	5.0 U	2.5 U	2.5 U	50 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Total VOCs	VOCs	--	µg/L	5200	2.9 J	7.3 J	580 J	380 J	0.35 J	0.32 J	2900 J	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ
Total CVOCs	CVOC	--	µg/L	120 U	5.0 U	5.0 U	12 U	0.45 J	0.35 J	0.32 J	100 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Total CBTEX	CBTEX	--	µg/L	380	1.2 J	3.3	38 J	6.9	2.5 U	2.5 U	310	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

Screening levels are the Remedial Action Objectives set forth in the 1994 Record of Decision.

Detections in Bold

Exceedances Shaded (result greater than screening level)

mg/L = milligrams per liter

mg CaCO₃/L = milligrams as calcium carbonate per liter

µg/L = micrograms per liter

-- = not available/not analyzed

CBTEX = cumene (isopropylbenzene), benzene, toluene, ethylbenzene, and xylenes

CVOC = chlorinated volatile organic compound

VOC = volatile organic compound

J = Estimated detection

U = Analyte not detected

UJ = Analyte not detected (estimated)

Figures

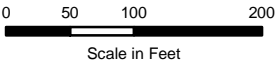
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- Approximate Site Boundary
- Parcel



BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, Obtained: Feb 2019.



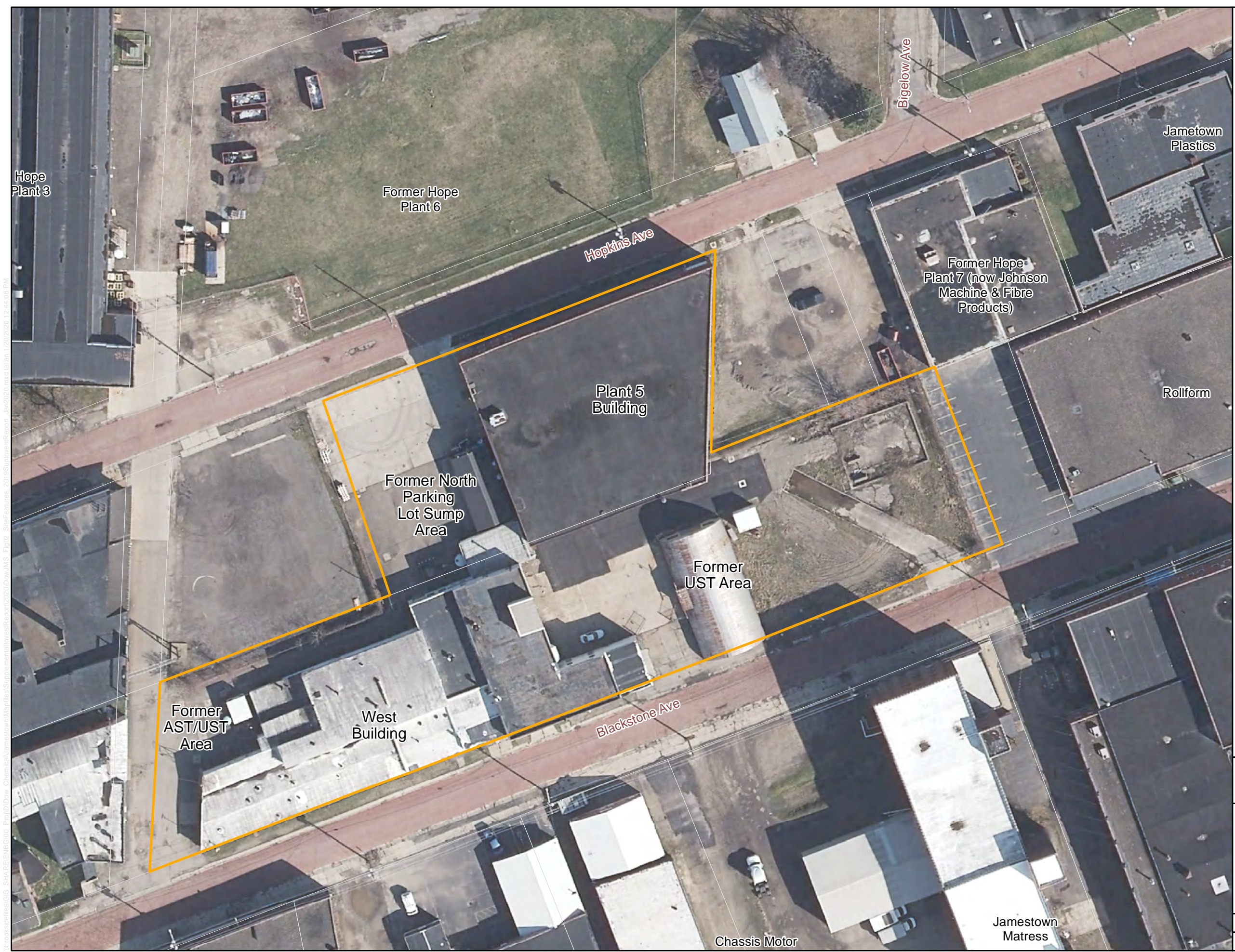
Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
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FIGURE 1
Site Overview Map
2019 Supplemental Investigation Report

CREATED BY: LA
REVIEWED BY: JK

Jacobs

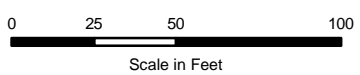
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-  Approximate Site Boundary
-  Parcel



BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, Obtained: Feb 2019.



Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
FIGURE 2 Site Features Map 2019 Supplemental Investigation Report	
CREATED BY: LA	Jacobs
REVIEWED BY: JK	



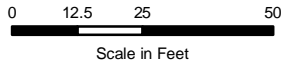
Approximate Site Boundary

- Sampling Locations**
- Deep Monitoring Well
 - Shallow Monitoring Well
 - Direct Push Location
 - Recovery Well

- Surveyed Sample Locations from 2019**
- Surveyed DPT Boring/Grab Groundwater Sample Location
 - Surveyed Monitoring Well



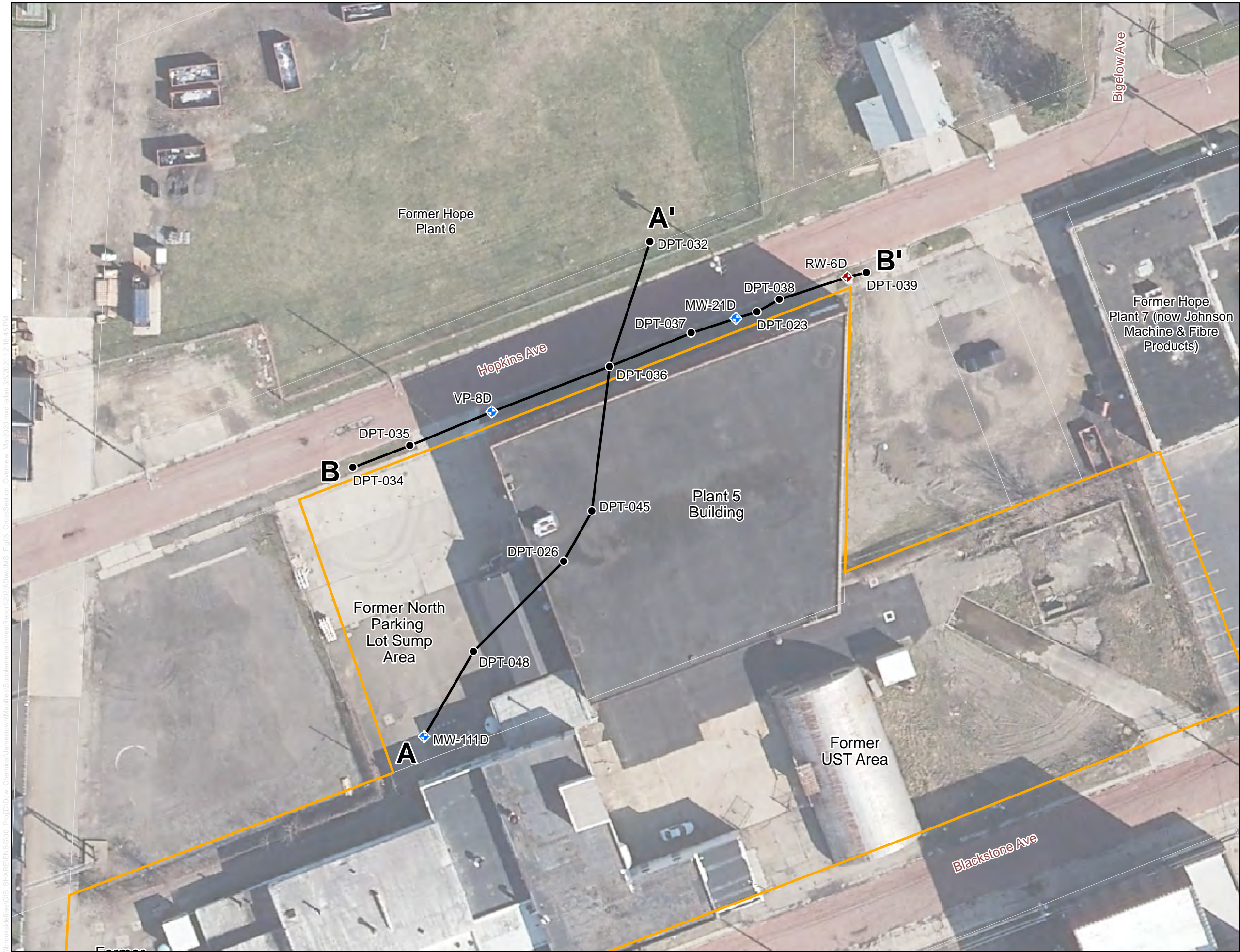
BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, Obtained: Feb 2019.



Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
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FIGURE 4
Former UST Investigation Area Locations
2019 Supplemental Investigation Report

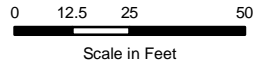
CREATED BY: LA	Jacobs
REVIEWED BY: JK	



- Direct Push Location
- ⬢ Deep Monitoring Well
- ⬢ Recovery Well
- Cross Section
- Approximate Site Boundary
- Parcels



BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, Obtained: Feb 2019.



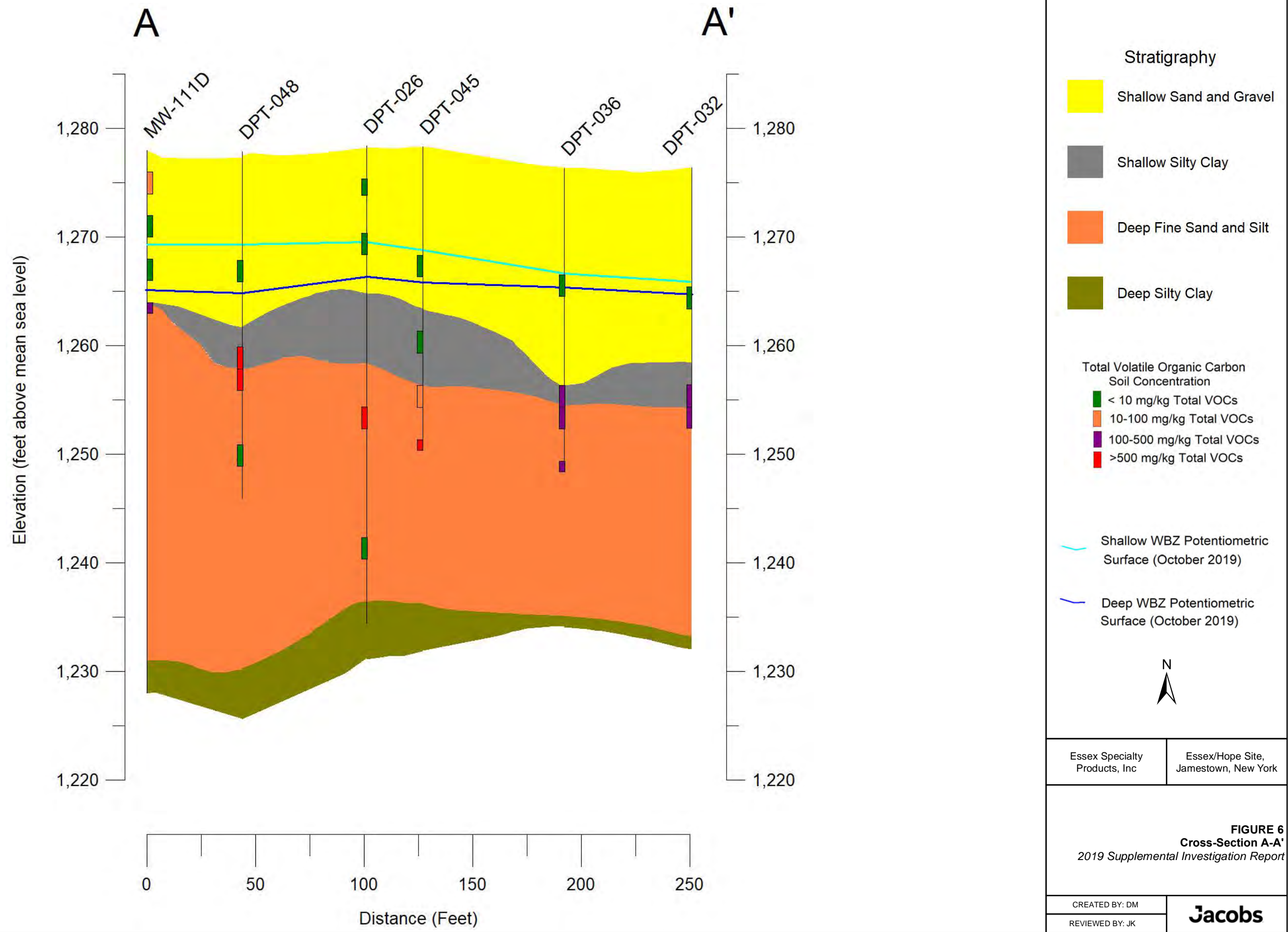
Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
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FIGURE 5
Cross Sections
2019 Supplemental Investigation Report

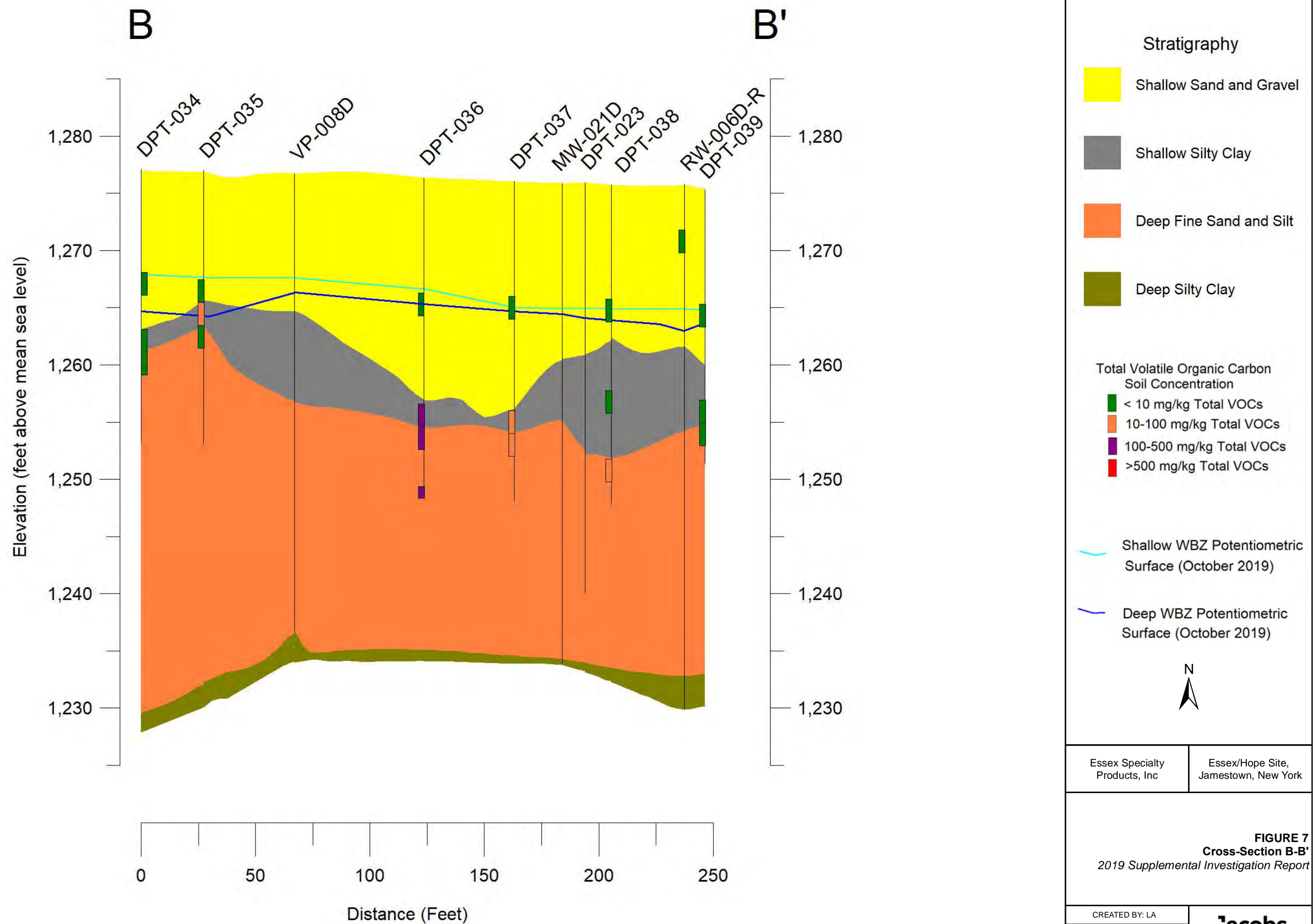
CREATED BY: LA
REVIEWED BY: JK



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\\brooks\idellies\GIS_SHARE\ENBG\00_Proj\ID\ow_Chemical\Jamestown\Mapfiles\SupplementalInvestReport\2020\Down\MS_Fig08_SoilsResults_2019SupInvestReport_Jan2020.mxd Iallan 3/19/2020 9:10:57 AM



Approximate Site Boundary

Sampling Locations

- Deep Monitoring Well
- Shallow Monitoring Well
- Direct Push Location
- Recovery Well

Surveyed Sample Locations from 2019

- Surveyed DPT Boring Location
- Surveyed Monitoring Well

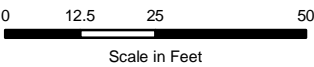
Soils Concentration (mg/kg)

- < 10
- 10 - 100
- 100 - 500
- 500+

- Notes:
- Concentrations represent total sum of VOCs detected in each sample
 - Sample interval depths in feet below ground surface
 - Measurements in mg/kg



BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, Obtained: Feb 2019.



Essex Specialty
Products, Inc

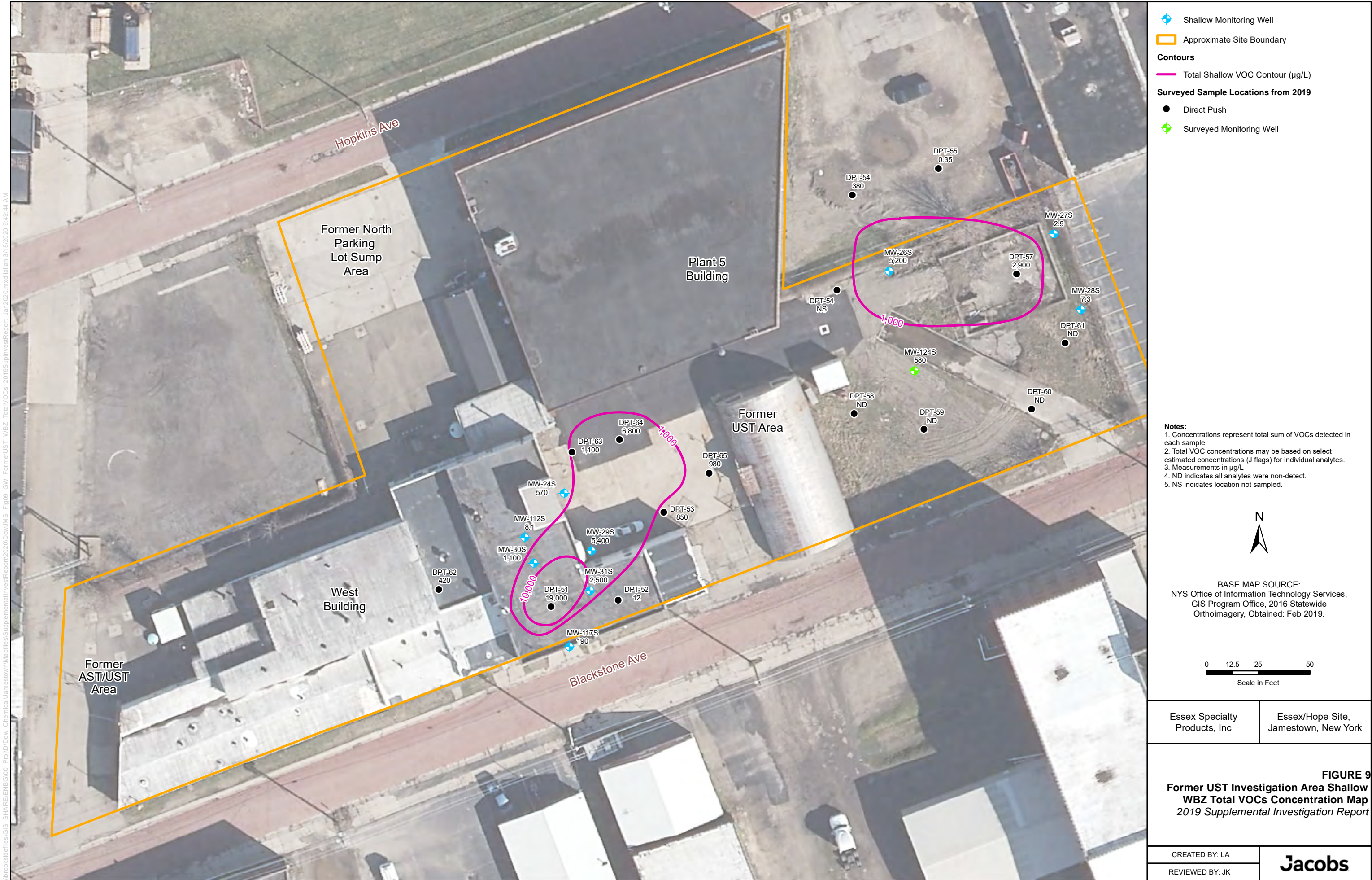
Essex/Hope Site,
Jamestown, New York

FIGURE 8
Plant 5 Investigation Area Soil Results
2019 Supplemental Investigation Report

CREATED BY: LA

REVIEWED BY: JK

Jacobs



Appendix A

Soil Boring Logs and Well Completion Diagram



PROJECT NUMBER

DWJMS004

WELL NUMBER

MW-124S

SHEET 1

OF 1

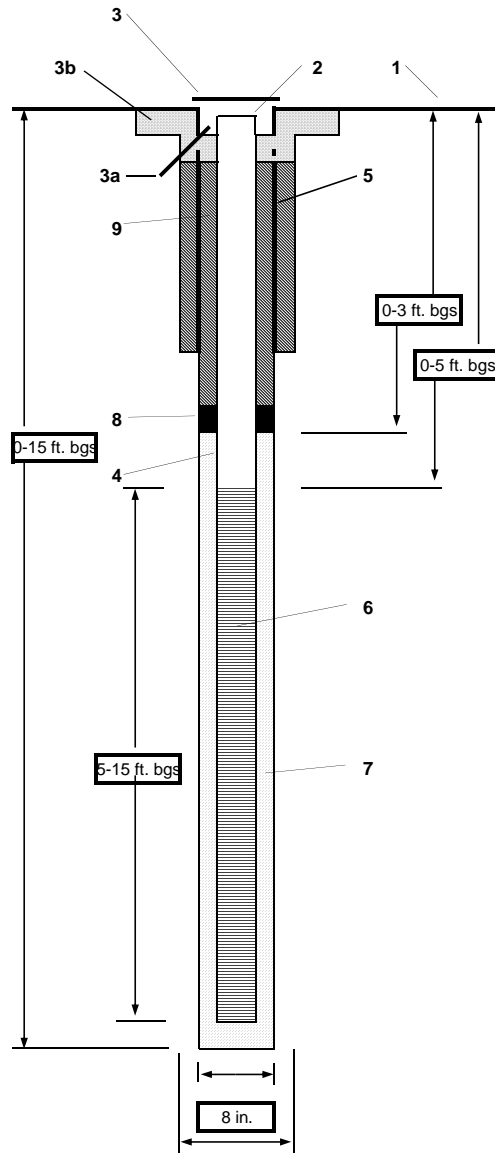
WELL COMPLETION DIAGRAM

PROJECT : Essex Hope Site Supplemental Investigation 2019 LOCATION : Jamestown, NY


DRILLING CONTRACTOR : Parratt Wolf Inc.

DRILLING METHOD / EQUIPMENT USED : DPT/ Geoprobe 6620DT

WATER LEVELS : 10 feet bgs DATE: 9/10/2019 LOGGER : Dave Kortjohn



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush mount road box
a) drain tube?	No
b) concrete pad dimensions	2 x 2 feet
4- Dia./type of well casing	2 inch schedule 40 PVC
5- Dia./type surface casing	N/A
6- Type/slot/size of screen	0.010 inch schedule 40 PVC
7- Type screen filter	#0
a) Quantity used	300 lbs. / 3-15 feet bgs
8- Type of seal	Bentonite Chips
a) Quantity used	50 lbs. / 0-3 feet bgs
9- Grout	
a) Grout mix used	N/A
b) Method of placement	N/A
c) Vol.of surface casing grout	N/A
d) Vol. of well casing grout	N/A
Development method	Surge and Purge
Development time	9/13/2019 @ 850
Estimated purge volume	3.5 gallons
Comments:	

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-29	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019				LOCATION : Jamestown, NY					
WEATHER: 60°F, Cloudy				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/26/2019 07:40-09:30		LOGGER : Dave Kortjohn			
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)		SAMPLE #						
	RECOVERY (FT)								
0-4	3	1	0-1' Dry, brown, poorly graded, fine sand, little subangular gravel, roots and organics	SP	0.0	N/A	-		
			1-4' Dry, brown, silt, little subangular gravel, trace fine sand	ML	0.2				
4									
4-8	3	2	4-8' Dry, light brown, poorly graded, fine sand, little silt, little subangular gravel	SM	0.0	N/A	-		
					0.0				
8									
8-12	2.8	3	8-10' Moist, brown, poorly graded, fine silty sand, and angular gravel	SM-GP	0.8	N/A	-		
			10-12' Wet, brown, poorly graded, fine silty sand, and subangular gravel, no odor	SM-GP	0.8				
12									
12-16	1.5	4	12-16' Wet, brown, well graded, subangular gravel, trace fine sand	GW	0.2	N/A	-		
					0.2				
16									
16-20	2.0	5	16-20' Wet, brown to gray, silty clay, no odor	CL-ML	3.9	N/A	-		
							DPT-29-18-20-20190926 (Soil)		
20									
20-24	3.7	6	20-24' Wet, gray, fine silty sand, little silty clay, no odor	SM	19.3	N/A	DPT-29-20-22-20190926 (Soil)		
							-		
24									
24-28	4	7	24-28' Wet, gray, fine silty sand, little silty clay, no odor	SM	29.6	N/A	-		
					22.3				
					6.9				
28								DPT-29-26-28-20190926 (Soil)	

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 60°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/26/2019 09:30-10:40

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)	SAMPLE #						
0-4	2.5	1	0-2' Dry, brown, poorly graded, fine sand, little subrounded gravel, grass and roots at surface	SP	0.0	N/A	-	
			2-4' Dry, brown, poorly graded, fine sand, some silt, trace subangular gravel, red brick fragments at 3'	SP	0.1			
4-8	2.5	2	4-8' Dry, brown, poorly graded, fine sand, little silt, some subangular gravel	SP	0.0	N/A	-	
					0.0			
8-12	3	3	8-12' Moist to wet at 10', brown, poorly graded, medium sand, and subangular gravel, trace silt, no odor	SP-GW	0.3	N/A	-	
					0.8		DPT-30-10-12-20190926 (Soil)	
12-16	3	4	12-16' Wet, brown, well graded, subrounded and subangular gravel, little fine to medium sand, no odor	GW	3.2	N/A	-	
16-20	3.2	5	16-20' Wet, brown to gray, silty clay	CL-ML	3.1	N/A	-	
					3.6		DPT-30-18-20-20190926 (Soil)	
20-24	3	6	20-24' Wet, gray, fine silty sand	SM	29.3	N/A	DPT-30-20-22-20190926 (Soil)	
					24.8		-	



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-31

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 60°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/26/2019 10:50-12:15

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)							
		SAMPLE #						
	0-4	3.3	1	0-1' Dry, brown, poorly graded, fine sand, some silt, little angular gravel, grass and roots at surface	SP	0.0	N/A	-
				1-4' Dry, brown, fine silty sand, little subrounded gravel	SM	0.0		
	4-8	3.6	2	4-6' Dry, brown, poorly graded, fine to medium sand, little subrounded gravel	SP	0.0	N/A	-
				6-8' Dry to moist, brown, poorly graded, fine sand, some subrounded gravel, little silt	SP	0.0		
	8-12	2.9	3	8-12' Moist to wet at 10', brown, well graded, fine sand, and subangular gravel, little silt, no odor	SW-GW	1.8	N/A	-
								DPT-31-10-12-20190926 (Soil)
	12-16	3.6	4	12-16' Wet, brown to gray, well graded, subangular, medium to large gravel, trace fine sand, no odor	GW	1.6	N/A	-
	16-20	2.5	5	16-20' Wet, brown to gray, silty clay, no odor	CL-ML	2.1	N/A	-
								DPT-31-17-19-20190926 (Soil) (MS/MSD)
						8.3		-
				20-21' Wet, brown to gray, silty clay, no odor	CL-ML		N/A	-
	20-24	3.2	6	21-24' Wet, gray, fine silty sand, odor	SM	350	Neg.	DPT-31-21-23-20190926 (Soil)
						179.6	Neg.	-



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-32

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 60°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/20/2019 09:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		SAMPLE #					
	RECOVERY (FT)							
0-4	2.6	1	0-4' Dry, brown, poorly graded, fine sand, some angular gravel, little silt, grass and roots at surface	SP	0.0	N/A	-	
4-8	3.5	2	4-5' Dry, brown, poorly graded, fine sand, some angular gravel, little silt	SP	0.0	N/A	-	
5-8'			5-8' Dry to moist, brown with orange pockets, poorly graded, fine silty sand, some subangular gravel	SM	0.0			
8-12	2.8	3	8-11' Moist to wet, brown, poorly graded, fine sand, and medium subangular gravel, trace silt	SP-GW	8.1	N/A	-	
11-12'			11-12' Wet, gray stained, poorly graded, fine sand, and medium subangular gravel, odor	SP-GW	28.6		DPT-32-11-13-20190920 (Soil)	
12-16	2.8	4	12-13' Wet, gray, well graded, subangular gravel, some fine sand, odor	GW	39.8	N/A	-	
13-16'			13-16' Wet, brown, well graded, subrounded gravel, some fine sand	GW	5.2			
16-20	0	5	16-20' No recovery	-	-	N/A	-	
20-24	4	6	20-22' Wet, gray, silty clay, little fine silty sand, odor	CL-ML	101.7	Neg.	DPT-32-20-22-20190920 (Soil)	
22-24'			22-24' Wet, gray, fine silty sand, odor	SM	229.9	Neg.	DPT-32-22-24-20190920 (Soil)	

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-33	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 60°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/20/2019 07:45-09:30				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)								
	RECOVERY (FT)								
		SAMPLE #							
	0-4	3	1	0-4' Dry, brown, poorly graded, fine sand, and silt, some subangular gravel, grass and roots at surface	SP-ML	0.0	N/A	-	
4						0.0			
	4-8	3.2	2	4-8' Dry, brown, poorly graded, fine sand, and subrounded gravel, trace silt	SP-GW	0.0	N/A	-	
8						0.0			
	8-12	3.2	3	8-10' Moist, brown, poorly graded, fine sand, and subangular gravel, little silt	SP-GW	0.0	N/A	-	
12				10-12' Wet, brown, poorly graded, fine sand, some subrounded gravel, little silt	SP	0.0		DPT-33-10-12-20190920 (Soil)	
	12-16	2.7	4	12-16' Wet, brown, well graded, medium to large subangular gravel, little medium sand	GW	0.0	N/A	-	
16						0.0			
	16-20	0.5	5	16-20' Wet, brown, fine subangular gravel, trace fine sand	GP	0.0	N/A	-	
20						0.0			
	20-24	3	6	20-24' Wet, brown, fine to medium subrounded gravel, trace fine sand	GW	0.0	N/A	-	
24						0.0			
	24-28	3	7	24-26' Wet, brown to gray, silty clay	CL-ML	25	N/A	DPT-33-24-26-20190920 (Soil)	
28				26-28' Wet, gray, fine silty sand	SM	33.1		DPT-33-26-28-20190920 (Soil)	



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-34

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 55°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/18/2019 08:00-10:10

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)	SAMPLE #					
4 								



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-35

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 68°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 9 ft bgs


TOTAL DEPTH: 24 feet


DATE : 9/18/2019 10:20

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)	SAMPLE						
		SAMPLE #						
0-4	3.8	1	0-0.5' Dry, brown, organic silt, some subangular gravel	OL	0.0	N/A	-	
			0.5-4' Dry, brown, fine silty sand, little angular gravel, trace cobble	SM				0.0
4-8	4	2	4-8' Dry, brown, fine silty sand, and well graded medium gravel, trace cobble, trace medium sand	SM-GW	0.0	N/A	-	
					0.0			
8-12	3	3	8-11' Moist, brown, fine silty sand, little medium sand, little angular gravel, trace cobble	SM	0.5	N/A	-	
			11-12' Moist, brown to gray, silty clay, no odor	CL-ML	22.6		DPT-35-9-11-20190918 (Soil)	
12-16	4	4	12-13' Moist, brown to gray, silty clay, no odor	CL-ML	20.3	N/A	DPT-35-11-13-20190918 (Soil)	
			13-16' Wet, gray, fine silty sand, no odor	SM	10.9		DPT-35-13-15-20190918 (Soil)	
16-20	3	5	16-20' Wet gray, fine silty sand, little clay, no odor	SM	17.3	N/A	-	
					6.9			
20-24	4	6	20-24' Wet, gray, fine silty sand, no odor	SM	6.9	N/A	-	
					12.8			

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-36	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 72°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 8 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/18/2019 13:20		LOGGER : Dave Kortjohn			
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
INTERVAL (FT)									
RECOVERY (FT)									
SAMPLE #									
0-4	3.2	1	0-1' Dry, dark brown, silt, and organics	OL	0.0	N/A	-		
			1-3' Dry, brown, silt, some fine sand, little subrounded gravel	ML					
			3-4' Dry, brown, fine sand, and subangular gravel, trace silt	SW-GW					
4-8	3.4	2	4-7' Dry to moist, brown, fine sand, and subangular gravel, trace silt	SW-GW	0.1	N/A	-		
			7-8' Moist, brown, poorly graded, fine to medium sand, and gravel	SP-GP				0.2	
8-12	2.8	3	8-10' Moist to wet, brown, poorly graded, fine to medium sand, and gravel	SP-GP	0.6	N/A	-		
			10-12' Wet, brown, poorly graded, fine sand, some subrounded gravel, little silt	SP				0.5	
12-16	3.9	4	12-16' Wet, brown, large subangular gravel, some fine sand, little silt	GW	0.3	N/A	-		
					0.3				
16-20	4	5	16-18' Wet, brown, large subangular gravel, some fine sand, little silt	GW	0.2	N/A	-		
			18-20' Wet, brown, large subangular gravel, little silt, trace clay	GW				1.6	
20-24	4	6	20-22' Wet, gray, silty clay, odor	CL-ML	356	Neg.	DPT-36-20-22-20190918 (Soil)		
			22-24' Wet, gray, fine silty sand, odor	SM	237.8		DPT-36-22-24-20190918 (Soil)		
24-28	4	7	24-28' Wet, gray, fine silty sand, clay at 26-26.5', slight odor	SM	283.1	Neg.	-		
				CL	182.5				
				SM					
28							DPT-36-27-28-20190918 (Soil)		

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-37	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 55°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/19/2019 08:00				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)								
	RECOVERY (FT)	SAMPLE #							
0-4	2.9	1	0-1' Dry, dark brown, fine sand, little silt, little subrounded gravel, grass and roots	SP	0.0	N/A	-		
			1-4' Dry, brown, poorly graded, fine sand, some subangular gravel, little silt	SP				0.0	
4-8	3.8	2	4-8' Dry to moist, brown, poorly graded, fine to medium sand, trace silt, some gravel	SP	0.0	N/A	-		
8-12	2.5	3	8-10' Moist, brown, poorly graded, fine sand, and subangular gravel, trace silt, few cobbles	SP-GP	0.0	N/A	-		
			10-12' Wet, brown, well graded, medium subangular gravel, some medium sand, trace silt	GW	0.7		DPT-37-10-12-20190919 (Soil)		
12-16	3.4	4	12-16' Wet, brown, well graded, subrounded gravel, few fine sands	GW	0.9	N/A	-		
16-20	2.5	5	16-20' Wet, brown, well graded, medium subrounded gravel, few fine sands	GW	1.3 8.3	N/A	-		
20-24	3	6	20-22' Wet, brown to gray, silty clay	CL-ML	35.2	N/A	DPT-37-20-22-20190919 (Soil)		
			22-24' Wet, gray fine silty sand, odor	SM	68.7		DPT-37-22-24-20190919 (Soil)		
24-28	4	7	24-28' Wet, gray, fine silty sand, odor	SM	62.3 68.6	N/A	-		

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-38	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019				LOCATION : Jamestown, NY					
WEATHER: 60°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/19/2019				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)								
	RECOVERY (FT)		SAMPLE #						
	0-4	3	1	0-1' Dry, dark brown, poorly graded, fine sand, and gravel, grass and organics at surface	SP-GP	0.0	N/A	-	
				1-4' Dry, brown, poorly graded, fine sand, some subangular gravel, little silt	SP	0.0			
4									
	4-8	2.8	2	4-8' Dry to moist, brown, poorly graded, fine to medium sand, some subangular gravel, trace silt	SP	0.0	N/A	-	
						0.0			
8									
	8-12	2.8	3	8-12' Moist to wet at 9', brown, poorly graded, fine to medium sand, some subrounded gravel	SP	0.0	N/A	-	
						0.0		DPT-38-10-12-20190919FD (Soil)	
12									
	12-16	2.7	4	12-13' Wet, brown, poorly graded, fine to medium sand, some subrounded gravel	SP	0.0	N/A	-	
				13-16' Wet, brown to gray, silty clay, slight odor	CL-ML	5.2			
16									
	16-20	2.7	5	16-20' Wet, gray, silty clay, no odor	CL-ML	0.0	N/A	-	
						0.0		DPT-38-18-20-20190919 (Soil)	
20									
	20-24	2.8	6	20-24' Wet, gray, silty clay, no odor	CL-ML	0.0	N/A	-	
						0.0			
24									
	24-28	2.5	7	24-28' Wet, gray, fine silty sand, slight odor	SM	106.7	Neg.	DPT-38-24-26-20190919 (Soil)	
						94.3	N/A	-	
28									



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-39

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 65°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/19/2019 13:00-14:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
		RECOVERY (FT)	SAMPLE #					
0	0-4	3.2	1	0-1' Dry, brown, silt, some fine sand, little subangular gravel, grass and organics at surface	OL	0.0	N/A	-
4				1-4' Dry, brown, poorly graded, fine to medium sand, some subangular gravel	SP	0.0		
8	4-8	3.5	2	4-8' Dry, brown, poorly graded, fine sand, and subangular gravel	SP-GP	0.1	N/A	-
						0.0		
12	8-12	3	3	8-12' Moist to wet at 9', well graded, medium sand, some subangular gravel	SW	0.0	N/A	-
						0.0		DPT-39-10-12-20190919 (Soil)
16	12-16	3	4	12-16' Wet, brown, well graded, subangular gravel, little fine sand, trace silt	GW	0.3	N/A	-
						0.0		
20	16-20	3.5	5	16-20' Wet, gray, silty clay, few small fine silty sand pockets	CL-ML	0.1	N/A	-
					CL-ML	1.0		DPT-39-18-20-20190919 (Soil)
24	20-24	3.4	6	20-24' Wet, gray, fine silty sand	SM	2.5	N/A	DPT-39-20-22-20190919 (Soil)
						0.9		-

DWJMS 004

BORING NUMBER

DPT-40

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 75°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/17/2019 13:30-16:10

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	DEPTH BELOW SURFACE (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		SAMPLE #					
	RECOVERY (FT)							
0-4	0-4	2.9	1	0-0.5' Concrete	-	-	N/A	-
				0.5-3' Dry, dark brown to black, poorly graded, fine to medium sand, little subangular gravel	SP	0.0		
				3-4' Dry, brown, silt, little clay	ML	0.3		
4-8	4-8	3.2	2	4-8' Dry, brown, poorly graded, fine sand, little silt, some medium subangular gravel	SP-GW	0.9	N/A	-
						1.1		
8-12	8-12	2.6	3	8-10' Moist, brown, poorly graded, medium sand, little silt, some subangular gravel	SP	1.2	N/A	-
				10-12' Wet, brown, poorly graded, fine sand, some silt, little medium rounded gravel	SP	1.1		DPT-40-10-12-20190917F (Soil)
12-16	12-16	3.6	4	12-15' Wet, brown, poorly graded, fine sand, some silt, little medium rounded gravel	SP	1.3	N/A	-
				15-16' Wet, brown, fine silty sand, trace subangular gravel	SM	2.6		
16-20	16-20	3.7	5	16-17' Wet, brown, fine silty sand, trace subangular gravel	SM	2.8	N/A	-
				17-19' Wet, gray to brown, silty clay	CL-ML	2.4		DPT-40-17-19-20190917 (Soil)
				19-20' Wet, gray to brown, fine silty sand	SP-SM	3.1		DPT-40-19-21-20190917 (Soil)
20-24	20-24	4	6	20-24' Wet, gray to brown, fine silty sand	SP-SM	1.7	N/A	-
						1.6		

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 75°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/24/2019 14:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)							
		SAMPLE #						
	0-4	1.8	1	0-8" Concrete	-	-	N/A	-
	0-4	1.8	1	8"-4' Dry, brown, poorly graded, fine sand, some subangular gravel, little silt	SP	0.0		
						0.0		
	4-8	4	2	4-8' Dry, brown, poorly graded, fine to medium sand, and subangular gravel, trace silt	SP-GP	0.0	N/A	-
	4-8	4	2	4-8' Dry, brown, poorly graded, fine to medium sand, and subangular gravel, trace silt	SP-GP	0.0		
						8-12	3.2	3
	8-12	3.2	3	10-12' Wet, brown to gray, poorly graded, fine to medium sand, and subrounded gravel, little silt	SP-GP	0.5	DPT-41-10-12-20190924 (MS/MSD) (Soil)	
				12-16	2.1	4	12-16' Wet, brown, fine to medium subrounded gravel, trace fine sand	GW
	12-16	2.1	4	12-16' Wet, brown, fine to medium subrounded gravel, trace fine sand	GW	0.9		
						16-20	3.8	5
	16-20	3.8	5	16-20' Wet, gray, silty clay	CL-ML	8.5	DPT-41-18-20-20190924 (Soil)	
						20-24	4	6
	20-24	4	6	20-24' Wet, gray, fine silty sand	SM	258	Neg.	-

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-42	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 60°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/25/2019 09:00-11:10				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)								
	RECOVERY (FT)		SAMPLE #						
	0-4	2.3	1	0-8" Concrete	-	-	N/A	-	
4				8"-4' Dry, brown, well graded, subrounded gravel, and cobble, trace fine sand	GW	0.0			
						0.0			
8	4-8	3	2	4-8' Dry, brown, poorly graded, fine sand, little silt, some subangular gravel	SP	0.0	N/A	-	
						0.0			
12	8-12	3	3	8-11' Moist to wet, brown, poorly graded, fine sand, and subangular gravel, trace silt	SP-GW	0.0	N/A	-	
				11-12' Wet, gray, poorly graded, fine to medium sand, little subrounded gravel	SP	0.4		DPT-42-10-12-20190925 (Soil)	
16	12-16	3.3	4	12-13' Wet, brown silty clay	CL-ML	0.3	N/A	-	
				13-16' Wet, gray, silty clay	CL-ML	0.5			
20	16-20	3	5	16-20' Wet, gray, silty clay	CL-ML	0.5	N/A	DPT-42-16-18-20190925 (Soil)	
						0.7		-	
24	20-24	4	6	20-24' Wet, gray, fine silty sand, slight odor	SM	42.8	N/A	DPT-42-20-22-20190925 (Soil)	
						39.6		-	
28	24-28	4	7	24-28' Wet, gray, fine silty sand, slight odor	SM	37.9	N/A	-	
						39.2		DPT-42-26-28-20190925 (Soil)	

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 65°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/25/2019 11:20-13:00

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		SAMPLE #					
	RECOVERY (FT)							
	0-4	2	1	0-8" Concrete	-	-	N/A	-
	0-4	2	1	8"-4' Dry, brown, poorly graded, fine sand, and silt, little subangular gravel	SP-ML	0.0		
						0.0		
	4-8	3	2	4-8' Dry, brown, poorly graded, fine sand, some subangular gravel	SP	0.2	N/A	-
	4-8	3	2	4-8' Dry, brown, poorly graded, fine sand, some subangular gravel	SP	0.2		
						8-12	2.8	3
	8-12	2.8	3	10-12' Wet, brown, poorly graded, fine to medium sand, little subrounded gravel	SP	3.6	DPT-43-10-12-20190925 (Soil)	
				12-16	2.8	4	12-16' Wet, brown, well graded, medium to coarse sand, some subrounded gravel	SW
	16-20	3.8	5	16-20' Wet, gray, silty clay	CL-ML	3.2	N/A	-
	16-20	3.8	5	16-20' Wet, gray, silty clay	CL-ML	2.9		DPT-43-18-20-20190925 (Soil)
						20-24	4	6
	20-24	4	6	22-24' Wet, gray, fine silty sand	SM	6.3	N/A	DPT-43-22-24-20190925 (Soil)



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-44

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/17/2019 11:00-13:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		SAMPLE #					
	RECOVERY (FT)							
4	0-4	3.3	1	0-0.5' Asphalt	-	-	N/A	-
				0.5-2' Dry, brown, poorly graded, fine to medium sand, little subangular gravel	SP	1.2		
				2-4' Dry, dark brown, poorly graded, fine sand, little subangular gravel	SP	2.4		
	4-8	3.6	2	4-5.5' Dry, brown, silty clay, no odor	CL-ML	10.7	N/A	-
				5.5-8' Dry, brown, poorly graded, fine to medium sand, little subangular gravel, trace cobble	SP	21.3		
	8-12	2.6	3	8-10' Moist, brown, poorly graded, fine to medium sand, little subangular gravel, trace cobble	SP	25.6	N/A	-
10-12' Wet, brown, poorly graded, fine sand, some subrounded gravel, trace silt				SP	34.6	DPT-44-10-12-20190917 (Soil)		
12-16	2.4	4	12-14' Wet, brown, well graded, subangular gravel, some fine to medium sand	GW	12.2	N/A	-	
			14-16' Wet, brown, silty clay, slight odor	CL-ML	7.7		DPT-44-14-16-20190917 (Soil)	
16-20	1.7	5	16-20' Wet, gray, fine silty sand, slight odor	SM	94.8	N/A	DPT-44-16-18-20190917 DPT-44-16-18-20190917FD (Soil)	
							-	
20-24	3.8	6	20-24' Wet, gray, fine silty sand, slight odor	SM	20.5	N/A	-	

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-45	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 65°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/24/2019 12:10-14:15				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)								
	RECOVERY (FT)								
		SAMPLE #							
0-4	2	1	0-8" Concrete	-	-	N/A	-		
			8'-4' Dry, brown to dark brown, silt, little fine sand, some subrounded gravel	ML	0.0				
					0.0				
4-8	3.5	2	4-8' Dry, brown, poorly graded, fine sand, some silt, little subangular gravel	SP	0.0	N/A	-		
					0.0				
			8-12	3.3	3	8-10' Moist to wet, brown, poorly graded, fine sand, and subrounded gravel, little silt	SP-GP	0.0	N/A
10-12' Wet, brown to gray, poorly graded, medium sand, and subangular gravel , trace cobble	SP-GP	0.0							
12-16	3.2	4				12-15' Wet, gray, well graded, gravel, little fine to medium sand, trace silt	GW	0.0	N/A
			15-16' Wet, brown, silty clay	CL-ML	0.2				
			16-20	3.1	5	16-20' Wet, gray, silty clay	CL-ML	0.2	N/A
0.4	-								
20-24	3.0	6				20-22' Wet, gray, silty clay, little silty sand, slight odor	CL-ML	78.4	N/A
			22-24' Wet, gray, fine silty sand, slight odor	SM	82.9	DPT-45-22-24-20190924 (Soil)			
			24-28	3.0	7	24-28' Wet, gray, fine silty sand, strong odor	SM	753	Neg.
3300	Neg.	DPT-45-27-28-20190924 (Soil)							

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 60°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/24/2019 10:10-11:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	DEPTH BELOW SURFACE (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		SAMPLE #					
	RECOVERY (FT)							
0-4	0-4	2.3	1	0-8" Concrete	-	-	N/A	-
				8"-4' Dry, brown, silt, some subrounded gravel, trace fine sand	ML	0.0		
						0.0		
4-8	4-8	3	2	4-6' Dry to moist, brown, silt, trace fine sand, trace subrounded gravel	ML	0.0	N/A	-
				6-8' Dry, brown, poorly graded, fine sand, some subangular gravel, little silt	SP	0.0		
8-12	8-12	2.8	3	8-10' Moist, brown, poorly graded, fine to medium sand, little subangular gravel, little silt	SP	0.0	N/A	-
				10-12' Wet, brown to gray, poorly graded, fine to medium sand, little subangular gravel	SP	0.0		DPT-46-10-12-20190924 (Soil)
12-16	12-16	4	4	12-13' Wet, brown to gray, poorly graded, fine to medium sand, little subangular gravel	SP	0.1	N/A	-
				13-16' Wet, brown, medium subangular gravel, trace fine sand	GW	0.0		
16-20	16-20	3.6	5	16-20' Wet, gray to brown, silty clay	CL-ML	0.0	N/A	-
						0.0		DPT-46-18-20-20190924 (Soil)
20-24	20-24	2.7	6	20-24' Wet, gray, fine silty sand, slight odor	SM	76.4	N/A	DPT-46-20-22-20190924
						72.8		-

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-47	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 60°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 10 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/24/2019 08:00-10:00				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
INTERVAL (FT)									
RECOVERY (FT)									
SAMPLE #									
0-4	2.9	1	0-8" Concrete	-	-	N/A	-		
			8"-1.5' Dry, brown, poorly graded, fine sand, little silt	SP	0.0				
			1.5-4' Dry, dark brown, silt, little fine sand, trace subrounded gravel	ML	0.0				
4-8	2.7	2	4-8' Dry, brown, poorly graded, fine sand, some silt, little subangular gravel	SP	0.0	N/A	-		
					0.0				
8-12	2.7	3	8-12' Moist to wet at 10', brown, poorly graded, fine sand, some subangular gravel, little silt	SP	0.0	N/A	-		
					0.0				
12-16	3.6	4	12-15' Wet, gray to brown, well graded, medium subangular gravel, trace fine sand	GW	0.0	N/A	DPT-47-11-13-20190924 (Soil)		
			15-16'-Wet, brown to gray, silty clay	CL-ML	0.0		-		
16-20	3	5	16-20' Wet, brown to gray, silty clay	CL-ML	0.0	N/A	-		
					0.0		DPT-47-18-20-20190924 (Soil)		
20-24	0	6	20-24' No recovery (sand may have slipped out of liner)	-	-	N/A	-		
24-28	4	7	24-28' Wet, gray to brown, fine silty sand	SM	0.1	N/A	DPT-47-24-26-20190924 (Soil)		
					0.1		-		

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019				LOCATION : Jamestown, NY				
WEATHER: 70°F, Sunny				DRILLING CONTRACTOR : Parratt Wolff Inc.				
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 9 ft bgs				
TOTAL DEPTH: 32 feet				DATE : 9/17/2019 08:00-10:40				
				LOGGER : Dave Kortjohn				
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)	SAMPLE #					
0-4	3.6	1	0-0.5' Asphalt	-	-	N/A	-	
			0.5-3' Dry, brown, well graded, medium sand, and gravel, trace cobble	SW-GW	0.0			
			3-4' Dry, dark brown to black, poorly graded, fine silty sand, little subangular gravel, no odor	SM	0.2			
4-8	2.5	2	4-6' Dry, dark brown to black, poorly graded, fine silty sand, trace clay, little subangular gravel	SM	0.0	N/A	-	
			6-8' Dry, brown, well graded, medium sand, and subangular gravel, little silt, few cobbles	SW	0.3			
8-12	2.5	3	8-10' Moist, brown, well graded, medium sand, and subangular gravel	SW-GW	3.4	N/A	DPT-48-10-12-20190917 (Soil)	
			10-12' Wet, brown to gray, well graded, medium sand, and gravel, little silt	SW-GW	7.2			
12-16	2.3	4	12-15' Wet, brown to gray, large subrounded gravel, and cobble, trace medium sand	GW	0.9	N/A	-	
			15-16' Wet, brown, silty clay	CL-ML	5.3			
16-20	2.8	5	16-18' Wet, brown to gray, well graded, subrounded gravel, some medium sand	GW	18.2	N/A	-	
			18-20' Wet, brown to gray, silty clay, strong odor	CL-ML	1095	Neg.	DPT-48-18-20-20190917 (Soil)	
20-24	3.5	6	20-24' Wet, brown to gray, fine silty sand, odor	SM	295	Neg.	DPT-48-20-22-20190917 (Soil)	
					240	Neg.	-	
24-28	4	7	24-28' Wet, brown to gray, fine silty sand, no odor	SM	19.5	N/A	-	
							DPT-48-27-29-20190917 (Soil)	
28-32	4	8	28-32' Wet, brown to gray, fine silty sand, no odor	SM	13.2	N/A	-	



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-49

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F. Rainy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT


WATER LEVEL: 8 ft bgs

TOTAL DEPTH: 24 feet

DATE : 9/23/2019 12:00

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)	SAMPLE #					
0-4	0-4	2.5	1	0-0.5' Concrete	-	-	N/A	-
				0.5-4' Dry, brown, silt, trace fine sand, little clay	ML	0.0		
						0.0		
4-8	4-8	3.2	2	4-6' Dry, brown, silt, some clay	ML	0.0	N/A	-
				6-8' Dry to moist at 8', brown, poorly graded, fine sand, some silt, little subrounded gravel	SP	0.0		
8-12	8-12	3.3	3	8-9' Wet, gray, poorly graded, medium sand, and subrounded gravel, trace silt	SP	1.3	N/A	DPT-49-8-9-20190923 (Soil)
				9-12' Wet, gray, silty clay	CL-ML	1.1		-
12-16	12-16	3.7	4	12-16' Wet, gray, silty clay	CL-ML	3.7	N/A	-
								DPT-49-14-16-20190923 (Soil)
16-20	16-20	3.8	5	16-19' Wet, gray, silty clay	CL-ML	0.7	N/A	-
20-24	20-24	4	6	19-20' Wet, gray, fine silty sand, little clay, slight odor	SM	177.4	Neg.	DPT-49-19-21-20190923 (MS/MSD) (Soil)
				20-24' Wet, gray, fine silty sand, little clay, slight odor	SM	189.4	Neg.	-
24								

				PROJECT NUMBER DWJMS 004				BORING NUMBER DPT-50	
				SOIL BORING LOG					
PROJECT : Essex Hope Site Supplemental Investigation 2019						LOCATION : Jamestown, NY			
WEATHER: 70°F, Rainy				DRILLING CONTRACTOR : Parratt Wolff Inc.					
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT				WATER LEVEL: 10 ft bgs					
TOTAL DEPTH: 28 feet				DATE : 9/23/2019 13:45-15:30				LOGGER : Dave Kortjohn	
DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID	
	INTERVAL (FT)		RECOVERY (FT)						
									SAMPLE #
	0-4	2	1	0-8" Concrete	-	-	N/A	-	
4				8"-4' Dry, brown to gray, silt, little fine sand, trace subrounded gravel	ML	0.0			
						0.0			
8	4-8	4	2	4-6' Dry, brown, poorly graded, fine to medium sand, some subangular gravel	SP	0.0	N/A	-	
				6-8' Dry, tan to brown, silt, trace fine sand	ML	0.0			
12	8-12	3.5	3	8-11' Dry to moist, brown, poorly graded, fine sand, some silt, little subangular gravel	SP	0.0	N/A	-	
				11-12' Wet, brown to gray, poorly graded, fine sand, some subangular gravel	SP	0.0		DPT-50-10-12-20190923 (Soil)	
16	12-16	2	4	12-14' Wet, brown, well graded, subangular gravel, trace fine sand	GW	0.2	N/A	-	
				14-16' Wet, brown to gray, silty clay	CL-ML	0.0			
20	16-20	3.6	5	16-20' Wet, gray, silty clay	CL-ML	0.0	N/A	-	
						0.0		DPT-50-18-20-20190923 (Soil)	
24	20-24	4	6	20-22' Wet, gray, silty clay	CL-ML	0.0	N/A	-	
				22-24' Wet, gray, fine silty sand	SM	16.9		DPT-50-22-24-20190923	
28	24-28	4	7	24-28' Wet, gray, fine silty sand	SM	1.0	N/A	-	
								DPT-50-27-28-20190923 (Soil)	



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-51

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 10 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/11/2019 08:00-09:50

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
		RECOVERY (FT)	SAMPLE #					
0-4	3	1	0-8" Concrete	-	-	N/A	-	
			8"-2' Dry, brown to black, well graded, fine to medium sand, little angular gravel	SW	0.0			
			2-4' Dry, brown, poorly graded, fine silty sand, some angular gravel	SM	6.8			
4-8	3.5	2	4-8' Dry to moist, brown, poorly graded, fine silty sand, and gravel	SM-GP	5.2	N/A	-	
					3.3			
8-12	3.2	3	8-10' Moist, brown, silt, little fine sand, little subrounded gravel, trace clay	ML	10.4	N/A	-	
			10-12' Wet, black, well graded, subangular gravel, some fine sand, trace cobble	GW	242	Neg.	DPT-51-10-12-20190911 (Soil)	
12-16	2.3	4	12-16' Wet, black, well graded, angular gravel, trace cobble	GW	57.3	N/A	DPT-51-GW-12-14-20190911 (Groundwater)	
					41.2	N/A	-	



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-52

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 75°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 10 ft bgs

TOTAL DEPTH: 15 feet

DATE : 9/11/2019 10:10

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)						
		RECOVERY (FT)	SAMPLE					
			#					
4	0-4	3	1	0-0.5' Concrete	-	-	N/A	-
				0.5-3' Dry, brown, silt, little clay, trace angular gravel	ML	0.7		
				3-4' Dry, brown, poorly graded, fine silty sand, trace subrounded gravel	SP-SM	1.2		
	4-8	3.2	2	4-8' Dry to moist, brown, fine silty sand, poorly graded, little subrounded gravel	SP-SM	1.3	N/A	-
	8-12	2.5	3	8-10' Moist, brown to gray, poorly graded, fine silty sand, little subrounded gravel	SP-SM	10.8	N/A	-
				10-12' Wet, gray, subangular gravel, trace fine sand, trace cobbles	GW	109		
	12-15	2	4	12-14' Wet, gray, subangular gravel, little medium sand, trace cobbles	GW	40.7	N/A	DPT-52-GW-12-14-20190911 (Groundwater)
				14-15' Wet, gray to brown, clay, some silt	CL-ML	27.3		-



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-53

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 85°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

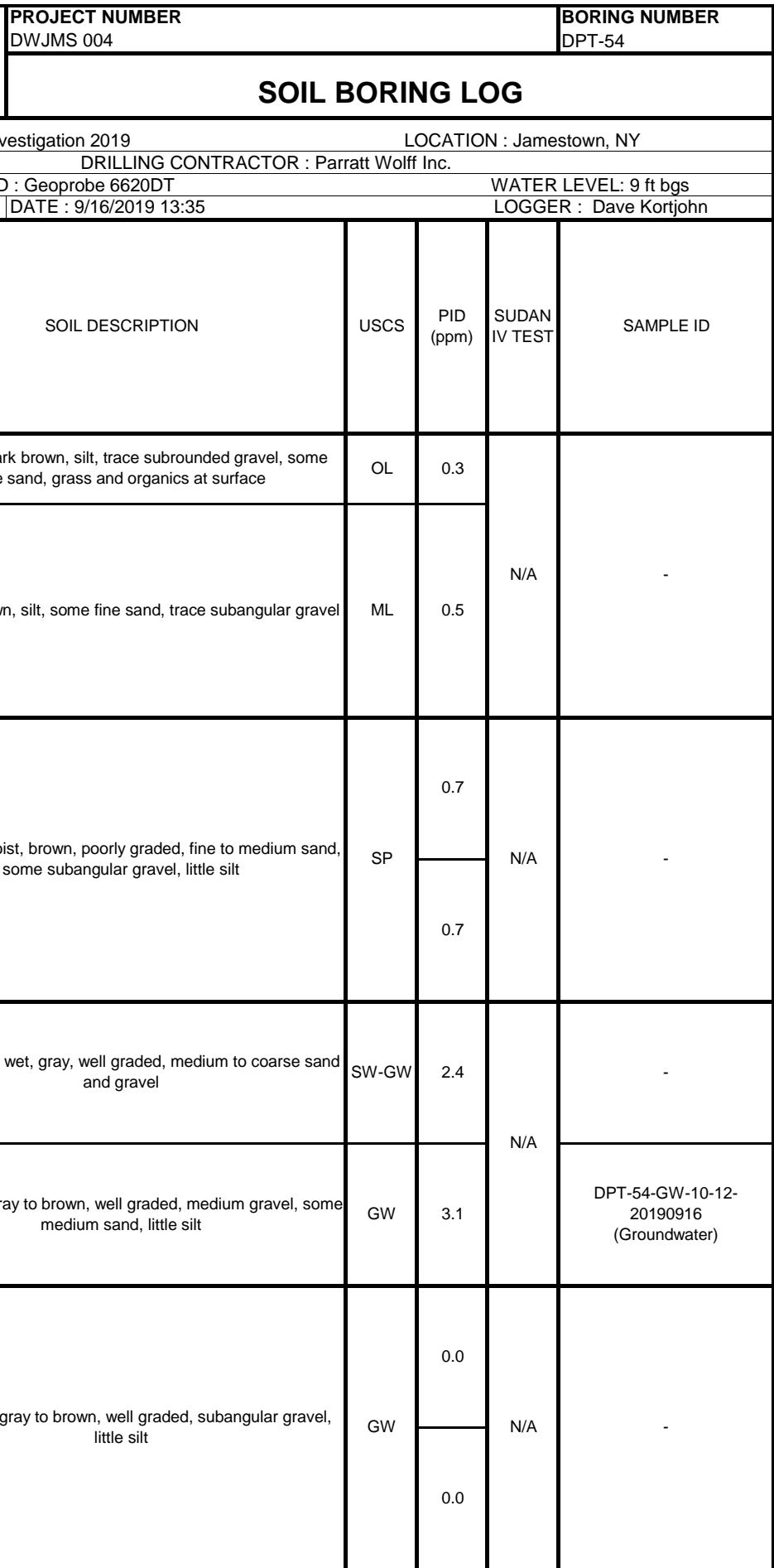
WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 12 feet

DATE : 9/11/2019 13:40

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	DEPTH BELOW SURFACE (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)							
	RECOVERY (FT)	SAMPLE						
		#						
0 4 8 12	0-4	3	1	0-8" Concrete	-	-	N/A	-
				8"-2' Dry, brown, well graded, medium sand, little angular gravel	SW	1		
				2-4' Dry, dark brown, clay	CH	2.2		
	4-8	4	2	4-7' Dry, brown, poorly graded, silt, little clay, trace subangular gravel	ML	0.8	N/A	-
				7-8' Moist, black, subangular and angular gravel, little cobble, trace medium sand, odor	GW	402	Neg.	
	8-12	3	3	8-11' Wet, black, subangular and angular gravel, little cobble, trace medium sand, odor	GW	323	Neg.	DPT-53-GW-10-12-20190911 (Groundwater)
				11-12' Wet, brown to gray, silt, some clay	ML	4.2	N/A	





PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-55

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 75°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/16/2019 12:20

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)							
	RECOVERY (FT)	SAMPLE						
			#					
				0-1' Dry, dark brown, poorly graded, fine to medium sand, little subangular gravel	SP	0.0	N/A	-
0-4	3.2	1	1-4' Dry, brown, silt, little cobble, little subangular gravel	ML	0.2			
				4-7' Dry, brown, well graded, fine to medium sand, some subangular gravel	SW	0.0	N/A	-
4-8	3.7	2	7-8' Moist, brown, well graded, medium sand, some subangular gravel	SW-GW	0.3			
				8-10' Moist, brown, well graded medium sand, some subangular gravel	SW-GW	0.4	N/A	DPT-55-GW-10-12-20190916
8-12	3	3	10-12' Wet, brown, well graded, subangular gravel, little silt	GW	0.0	DPT-55-GW-10-12-20190916FD (Groundwater)		
				12-16' Wet, brown, well graded, subangular gravel, trace silt	GW	0.1	N/A	-
12-16	3	4						
16								



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-56

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 15:15-16:15

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)						
		RECOVERY (FT)	SAMPLE #					
0-4	4	1	0-0.5' Asphalt	-	-	N/A	-	
			0.5-1.5' Dry, dark brown, poorly graded, fine silty sand, little subrounded gravel	SP-SM	0.9			
			1.5-4' Dry, brown, silt, little fine sand	ML	1.2			
4-8	4	2	4-8' Dry, brown, well graded, fine to medium sand, and gravel, little silt	SW-GW	3.1	N/A	-	
8-12	3.2	3	8-10' Moist, well graded, gray to brown, fine to medium sand, and gravel, slight odor	SW-GW	52.3	N/A	No water obtained from boring hole - intervals attempted: 9-11 ft, 10-12 ft, 11-13 ft	
			10-12' Wet, gray to black, well graded, subangular gravel, little fine sand, little silt, odor	GW	580	Neg.		
12-16	3.4	4	12-16' Moist, gray, clay, some silt	CL-ML	22.3	N/A	-	



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-57

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 14:00-15:00

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)	SAMPLE #						
0-4	0.5	1	0-1' Concrete	-	-	N/A	-	
			1-4' Dry, brown, well graded, medium sand, and gravel	SW-GW	0.0			
4-8	2.9	2	4-6' Dry, brown, fine silty sand, some subrounded gravel	SM	2.8	N/A	-	
			6-8' Moist, brown, fine silty sand, some subrounded gravel	SM	4.6			
8-12	4	3	8-10' Wet, brown to gray, well graded, medium sand, and gravel, slight odor	SW-GW	62.3	N/A	-	
			10-12' Wet, gray, well graded, subangular gravel, little fine sand, trace cobble, slight odor	GW	91.2		DPT-57-GW-10-12-20190912 (Groundwater)	
12-16	3.5	4	12-16' Wet, gray, well graded, subangular gravel	GW	0.0	N/A	-	
					0.0			



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-58

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy/rainy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 08:15-09:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)	SAMPLE						
			#					
0-4	3.9	1	0-1' Dry, brown, silt, grass and organics at surface, brick fragments at 1'	OL	-	N/A	-	
			1-4' Dry, brown, silt, trace clay, trace fine sand	ML	0.0			
4-8	3	2	4-8' Dry, brown, poorly graded, fine silty sand, some subangular gravel, trace cobble	SP-SM	0.0	N/A	-	
					0.3			
8-12	2	3	8-10' Moist, brown to gray, poorly graded, fine silty sand, and gravel	SP-SM	0.6	N/A	-	
			10-12' Wet, gray, well graded, medium sand, and gravel, trace cobbles	SW-GW	2.2		DPT-58-GW-10-12-20190912 (Groundwater)	
12-16	4	4	12-16' Wet, gray, well graded, subangular gravel, little cobbles, trace fine sand	GW	0.9	N/A	-	



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-59

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 09:50-10:50

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)							
	RECOVERY (FT)	SAMPLE						
			#					
0 4 8 12 16	0-4	3.9	1	0-1' Dry, brown, silt, trace subrounded gravel, grass and roots at surface	OL	0.0	N/A	-
				1-2' Dry, brown, poorly graded, fine sand, little silt, little subrounded gravel	SP	3.4		
				2-4' Dry, brown, silt, little clay	ML	2.1		
	4-8	4	2	4-6' Dry, brown, silt, little clay	ML	3.5	N/A	-
				6-8' Dry to moist, brown, poorly graded, fine silty sand, little cobble	SM	14.3		
	8-12	2.5	3	8-9' Moist, brown, well graded, fine to medium sand, some subrounded gravel, trace silt	SW	10.9	N/A	-
				9-12' Wet, brown, well graded, fine to medium sand, little silt, little subangular gravel	SW	20.6		DPT-59-GW-10-12-20190912 (Groundwater)
	12-16	1.5	4	12-16' Wet, brown to gray, well graded, subangular gravel, little fine sand	GW	15.2	N/A	-



PROJECT NUMBER
DWJMS 004

BORING NUMBER
DPT-60

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 73°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 11:00-12:00

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)	SAMPLE					
			#					
0 4 8 12 16	0-4	3.1	1	0-0.5' Concrete	-	-	N/A	-
				0.5-4' Dry, brown, silt, trace fine sand, trace subangular gravel	ML	0.0		
	4-8	3.8	2	4-6' Dry, brown, poorly graded, fine silty sand, little subangular gravel	SM	0.0	N/A	-
				6-8' Dry to moist at 8', brown, poorly graded, fine silty sand, little subangular gravel, trace cobble	SM	0.9		
	8-12	3.7	3	8-10' Moist, brown, well graded, fine to medium sand, some subangular gravel	SW	1.2	N/A	-
				10-12' Wet, gray, well graded, gravel, some medium sand, trace cobble	GW	1.3		DPT-60-GW-10-12-20190912 DPT-60GW-10-12-20190912FD (Groundwater)
	12-16	3.8	4	12-16' Wet, gray, well graded, subangular gravel, trace silt	GW	0.7	N/A	-



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-61

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 8 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/12/2019 12:50-13:50

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)							
	RECOVERY (FT)	SAMPLE #						
	0-4	3.6	1	0-1' Dry, brown, fine silty sand, trace subrounded gravel, grass and organics at surface 1-4' Dry, brown, well graded, medium sand, little subrounded gravel	SM SW	- 0.0	N/A	-
	4-8	2.7	2	4-6' Dry to moist, brown, silt, some fine sand, trace subrounded gravel 6-8' Moist to wet, brown, silt, some fine sand, some subrounded gravel	ML ML	0.3 0.5	N/A	-
	8-12	2.6	3	8-12' Wet, brown, well graded, subrounded gravel, and medium sand, little cobble	GW-SW	0.0	N/A	- DPT-61-GW-10-12-20190912 (Groundwater)
	12-16	3	4	12-16' Wet, gray, well graded, subangular gravel, trace fine to medium sand	GW	0.2	N/A	-



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-62

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 70°F, Cloudy

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 10 ft bgs

TOTAL DEPTH: 16 feet

DATE : 9/13/2019 07:30

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)							
	RECOVERY (FT)							
		SAMPLE #						
	0-4	2.9	1	0-0.5' Concrete	-	-	N/A	-
				0.5-4' Dry, brown, well graded, fine to medium sand, and gravel, little cobble	SW-GW	0.3		
						0.3		
4	4-8	3	2	4-6' Dry, brown, well graded, fine to medium sand, and gravel, little cobble	SW-GW	1.2	N/A	-
				6-8' Dry, brown to tan, poorly graded, fine silty sand, some subrounded gravel, little cobble	SM	5.7		
8	8-12	1.2	3	8-10' Moist, brown to gray, silt, some subrounded gravel, trace fine sand	GW-GM	20.6	N/A	-
				10-12' Wet, gray, well graded, medium subrounded gravel, little silt	GW	20.9		DPT-62-GW-10-12-20190913 (Groundwater)
12	12-16	2	4	12-14' Wet, gray, well graded, medium subrounded gravel, little silt	GW	4.6	N/A	-
				14-16' Wet, gray, well graded, cobble and gravel, little silt	GW	0.9		
16								



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-63

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 85°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 12 feet

DATE : 9/11/2019 14:50

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
		RECOVERY (FT)	SAMPLE #					
0-4	3	1	0-8" Concrete	-	-	N/A	-	
			8"- 2' Dry, brown, well graded, medium sand, and gravel	SW	0.0			
			2-4' Dry, brown, clay, little silt	CH	0.2			
4-8	3.2	2	4-6' Dry, brown, clay, little silt	CH	0.3	N/A	-	
			6-8' Dry to moist, brown, well graded, fine to medium sand, some subrounded gravel, little silt, slight odor	SW	2.7			
8-12	3.1	3	8-10' Moist to wet, black to gray, subangular gravel, some fine sand, little cobble, odor	GW	538	Neg.	-	
			10-12' Wet, gray, subangular gravel, some cobble, trace medium sand	GW	3.0	N/A	DPT-63-GW-10-12-20190911 (Groundwater)	



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-64

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 75°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 12 feet

DATE : 9/11/2019 15:40-16:15

LOGGER : Jon Gowing

DEPTH BELOW SURFACE (FT)				SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)		RECOVERY (FT)					
	SAMPLE #							
0	0-4	2.9	1	0-3' Light to medium brown, Dry to moist sand and gravel, trace silt and clay. Clay content increasing and dark staining and odor at 2.5'	GW	21.4	N/A	-
4						36.4		
4	4-8	2.8	2	3-7' Light brown to gray, clay, trace fine gravel and sand, medium to fine silt, moist, orange mottling	CL	15.5	N/A	-
8						48.5		
8	8-12	2.9	3	7-10.5' Gray sand and gravel with darker staining , trace moist to wet clay	SW-GW	82.6	Neg.	-
12						76.4		



PROJECT NUMBER

DWJMS 004

BORING NUMBER

DPT-65

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 80°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT

WATER LEVEL: 9 ft bgs

TOTAL DEPTH: 12 feet

DATE : 9/11/2019 12:30-13:40

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	RECOVERY (FT)	SAMPLE						
			#					
0-4	1.8	1	0-8" Concrete	-	-	N/A	-	
			8"-3' Dry, brown, well graded, fine to medium sand, some rounded gravel	SW	0.9			
			3-4' Red brick fragments	-	-			
4-8	2.5	2	4-8' Dry to moist, brown, poorly graded, fine silty sand, trace clay, little cobbles, little fine gravel	SM	2.1	N/A	-	
					3.4			
8-12	2.7	3	8-9' Moist to wet, brown, well graded, medium sand, and gravel, trace cobbles, strong odor	SW	245	+ Pos.	-	
			9-12' Wet, gray, subrounded gravel, some medium sand, little cobbles, slight odor	GW	48.6	N/A		
12							DPT-65-GW-10-12-20190911 (Groundwater)	



PROJECT NUMBER

DWJMS 004

BORING NUMBER

MW-124S

SOIL BORING LOG

PROJECT : Essex Hope Site Supplemental Investigation 2019

LOCATION : Jamestown, NY

WEATHER: 65°F, Sunny

DRILLING CONTRACTOR : Parratt Wolff Inc.

WATER LEVEL: 10 ft bgs

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 6620DT (DPT for soil sampling/spin augers for well installation)

TOTAL DEPTH: 16 feet

DATE : 9/10/2019 08:55

LOGGER : Dave Kortjohn

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			SOIL DESCRIPTION	USCS	PID (ppm)	SUDAN IV TEST	SAMPLE ID
	INTERVAL (FT)	RECOVERY (FT)	SAMPLE #					
0-4	2.3	1	0-1' Dry, brown, silt, and organics	OL	0.0	N/A	-	
			1-3' Dry, brown, poorly graded, fine to medium sand, little subrounded gravel	SP	1.3			
			3-4' Dry, brown to gray, silt, trace clay	ML	1.5			
4-8	3.8	2	4-6' Dry, brown, silt, little clay	ML	1.6	N/A	-	
			6-8' Dry, brown, silt, little clay, some subrounded gravel	ML	1.3			
8-12	3.7	3	8-10' Moist, brown, well graded, medium sand, some gravel, trace silt, trace clay	SW	5.4	N/A	-	
			10-12' Wet, brown to gray, well graded, fine to medium sand, some gravel, trace silt, trace clay, odor	SW	301	Neg.	MW-124S-10-12-20190910 (Soil)	
12-16	3.8	4	12-14' Wet, gray, well graded, medium sand, some silt, little subrounded gravel, odor	SW	227	N/A	-	
			14-16' Wet, gray, silt, trace clay, slight odor	ML	8.4			

Appendix B

Waste Manifest



006896053SKS

Form Approved OMB No. 2050-0039

LAW 1905130208-002 SC PPW 3/12/2019

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number NYR000046094	2. Page 1 of 1	3. Emergency Response Phone (800) 483-3718	4. Manifest Tracking Number 006896053 SKS		
5. Generator's Name and Mailing Address Essex Specialty Products, Inc. 3200 Kanawha Turnpike Bldg 200 Sout Charleston, WV 25303		Generator's Site Address (if different than mailing address) 125 Blackstone Ave Jamestown, NY 14701					
Generator's Phone:		6. Transporter 1 Company Name Clean Harbors Environmental Services, Inc.			U.S. EPA ID Number MAD039322250		
7. Transporter 2 Company Name					U.S. EPA ID Number		
8. Designated Facility Name and Site Address Clean Harbors El Dorado LLC 309 American Circle El Dorado, AR 71730		Facility's Phone: (870) 863-7173			U.S. EPA ID Number ARD069748192		
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	x	HA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TRICHLOROETHYLENE, VINYL CHLORIDE), 9, PG III	2 Dm		900	P	U002 U220 U239 U040 U043 B
	2.						
	3.						
	4.						
14. See labeling instructions and Additional Information 1. CHL 184A 2 X SS							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. Generator's/Offeror's Printed/Typed Name ON BEHALF OF AND AS AGENT FOR DOW CHEMICAL CORP. Signature Travis P. [Signature] Month 10 Day 2 Year 15							
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:						
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name John Welch Signature [Signature] Month 10 Day 2 Year 19 Transporter 2 Printed/Typed Name Signature Month Day Year						
	18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: 18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year						
DESIGNATED FACILITY	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 H040 2 3 4						
	20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a. Printed/Typed Name Signature Month Day Year						

Appendix C

Alpha Analytical Laboratory Reports



ANALYTICAL REPORT

Lab Number:	L1941269
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/23/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1941269-01	MW-1245-10-12-20190910	SOIL	JAMESTOWN, NY	09/10/19 10:10	09/10/19
L1941269-02	TB-001-20190910	WATER	JAMESTOWN, NY	09/10/19 00:00	09/10/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Case Narrative (continued)

Report Submission

September 23, 2019: This final report includes the results of all requested analyses.

September 16, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1941269-01: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L1941269-02: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1284400-3/-4 LCS/LCSD recoveries, associated with L1941269-01, are below the individual acceptance criteria for 2-butanone (67%/68%), but within the overall method allowances. The results of the associated sample are reported; however, all results are considered to have a potentially low bias for this compound.

The initial calibration, associated with L1941269-01, did not meet the method required minimum response factor for the calibration standards for 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The initial calibration, associated with L1941269-02, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

The continuing calibration, associated with L1941269-01, did not meet the method required minimum response factor for 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The continuing calibration, associated with L1941269-02, did not meet the method required minimum response factor for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

The initial calibration verification standard has the percent deviation for bromomethane (41%D) and

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Case Narrative (continued)


dichlorodifluoromethane (47%D) outside the 30% ICV criteria, but within overall method allowances.
WG1284002-2: The continuing calibration verification standard has the percent deviation for bromomethane (30%D), dichlorodifluoromethane (32%D), and vinyl acetate (36%D) above the 20% CCV criteria, but within overall method allowances.

Grain Size Analysis

The WG1283891-1 Laboratory Duplicate RPDs for % coarse gravel (32%), % total gravel (21%), % medium sand (25%), and % fine sand (21%), performed on L1941269-01, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/23/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**SAMPLE RESULTS**

Lab ID: L1941269-01 D
 Client ID: MW-1245-10-12-20190910
 Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 10:10
 Date Received: 09/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/14/19 18:25
 Analyst: KJD
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	530	240	2
1,1-Dichloroethane	ND		ug/kg	100	15.	2
Chloroform	ND		ug/kg	160	15.	2
Carbon tetrachloride	ND		ug/kg	100	24.	2
1,2-Dichloropropane	ND		ug/kg	100	13.	2
Dibromochloromethane	ND		ug/kg	100	15.	2
1,1,2-Trichloroethane	ND		ug/kg	100	28.	2
Tetrachloroethene	ND		ug/kg	53	21.	2
Chlorobenzene	ND		ug/kg	53	13.	2
Trichlorofluoromethane	ND		ug/kg	420	73.	2
1,2-Dichloroethane	ND		ug/kg	100	27.	2
1,1,1-Trichloroethane	ND		ug/kg	53	18.	2
Bromodichloromethane	ND		ug/kg	53	12.	2
trans-1,3-Dichloropropene	ND		ug/kg	100	29.	2
cis-1,3-Dichloropropene	ND		ug/kg	53	17.	2
1,3-Dichloropropene, Total	ND		ug/kg	53	17.	2
1,1-Dichloropropene	ND		ug/kg	53	17.	2
Bromoform	ND		ug/kg	420	26.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	53	18.	2
Benzene	ND		ug/kg	53	18.	2
Toluene	ND		ug/kg	100	57.	2
Ethylbenzene	41	J	ug/kg	100	15.	2
Chloromethane	ND		ug/kg	420	98.	2
Bromomethane	ND		ug/kg	210	61.	2
Vinyl chloride	ND		ug/kg	100	35.	2
Chloroethane	ND		ug/kg	210	48.	2
1,1-Dichloroethene	ND		ug/kg	100	25.	2
trans-1,2-Dichloroethene	ND		ug/kg	160	14.	2

Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**SAMPLE RESULTS**

Lab ID: L1941269-01 D
 Client ID: MW-1245-10-12-20190910
 Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 10:10
 Date Received: 09/10/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	53	14.	2
1,2-Dichlorobenzene	ND		ug/kg	210	15.	2
1,3-Dichlorobenzene	ND		ug/kg	210	16.	2
1,4-Dichlorobenzene	ND		ug/kg	210	18.	2
Methyl tert butyl ether	ND		ug/kg	210	21.	2
p/m-Xylene	ND		ug/kg	210	59.	2
o-Xylene	ND		ug/kg	100	31.	2
Xylenes, Total	ND		ug/kg	100	31.	2
cis-1,2-Dichloroethene	ND		ug/kg	100	18.	2
1,2-Dichloroethene, Total	ND		ug/kg	100	14.	2
Dibromomethane	ND		ug/kg	210	25.	2
Styrene	ND		ug/kg	100	21.	2
Dichlorodifluoromethane	ND		ug/kg	1000	97.	2
Acetone	ND		ug/kg	1000	510	2
Carbon disulfide	ND		ug/kg	1000	480	2
2-Butanone	ND		ug/kg	1000	230	2
Vinyl acetate	ND		ug/kg	1000	230	2
4-Methyl-2-pentanone	ND		ug/kg	1000	140	2
1,2,3-Trichloropropane	ND		ug/kg	210	13.	2
2-Hexanone	ND		ug/kg	1000	120	2
Bromochloromethane	ND		ug/kg	210	22.	2
2,2-Dichloropropane	ND		ug/kg	210	21.	2
1,2-Dibromoethane	ND		ug/kg	100	29.	2
1,3-Dichloropropane	ND		ug/kg	210	18.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	53	14.	2
Bromobenzene	ND		ug/kg	210	15.	2
n-Butylbenzene	260		ug/kg	100	18.	2
sec-Butylbenzene	120		ug/kg	100	15.	2
tert-Butylbenzene	18	J	ug/kg	210	12.	2
o-Chlorotoluene	ND		ug/kg	210	20.	2
p-Chlorotoluene	ND		ug/kg	210	11.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	320	100	2
Hexachlorobutadiene	ND		ug/kg	420	18.	2
Isopropylbenzene	190		ug/kg	100	12.	2
p-Isopropyltoluene	160		ug/kg	100	12.	2
Naphthalene	320	J	ug/kg	420	69.	2
n-Propylbenzene	800		ug/kg	100	18.	2



Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**SAMPLE RESULTS**

Lab ID: L1941269-01 D
 Client ID: MW-1245-10-12-20190910
 Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 10:10
 Date Received: 09/10/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	210	34.	2
1,2,4-Trichlorobenzene	ND		ug/kg	210	29.	2
1,3,5-Trimethylbenzene	ND		ug/kg	210	20.	2
1,2,4-Trimethylbenzene	3500		ug/kg	210	35.	2
1,4-Dioxane	ND		ug/kg	8400	3700	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**SAMPLE RESULTS**

Lab ID: L1941269-02
 Client ID: TB-001-20190910
 Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 00:00
 Date Received: 09/10/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:58
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1941269

Project Number: DWJMS004

Report Date: 09/23/19

SAMPLE RESULTS

Lab ID: L1941269-02
 Client ID: TB-001-20190910
 Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 00:00
 Date Received: 09/10/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.3		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**SAMPLE RESULTS****Lab ID:** L1941269-02**Date Collected:** 09/10/19 00:00**Client ID:** TB-001-20190910**Date Received:** 09/10/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX HOPE

Lab Number: L1941269

Project Number: DWJMS004

Report Date: 09/23/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1284002-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1941269

Project Number: DWJMS004

Report Date: 09/23/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1284002-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1284002-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE

Lab Number: L1941269

Project Number: DWJMS004

Report Date: 09/23/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/14/19 09:30
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1284400-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	ND		ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/14/19 09:30
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1284400-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1941269

Project Number: DWJMS004

Report Date: 09/23/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/14/19 09:30
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1284400-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	10	J	ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	17	J	ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	92		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1284002-3 WG1284002-4								
Methylene chloride	97		96		70-130	1		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		96		70-130	4		20
Carbon tetrachloride	89		90		63-132	1		20
1,2-Dichloropropane	99		100		70-130	1		20
Dibromochloromethane	87		89		63-130	2		20
1,1,2-Trichloroethane	96		94		70-130	2		20
Tetrachloroethene	83		85		70-130	2		20
Chlorobenzene	86		86		75-130	0		20
Trichlorofluoromethane	87		88		62-150	1		20
1,2-Dichloroethane	94		96		70-130	2		20
1,1,1-Trichloroethane	89		88		67-130	1		20
Bromodichloromethane	96		98		67-130	2		20
trans-1,3-Dichloropropene	88		90		70-130	2		20
cis-1,3-Dichloropropene	89		90		70-130	1		20
1,1-Dichloropropene	88		88		70-130	0		20
Bromoform	92		92		54-136	0		20
1,1,1,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	100		100		70-130	0		20
Toluene	87		87		70-130	0		20
Ethylbenzene	88		87		70-130	1		20
Chloromethane	130		120		64-130	8		20
Bromomethane	50		48		39-139	4		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1284002-3 WG1284002-4								
Vinyl chloride	84		82		55-140	2		20
Chloroethane	78		81		55-138	4		20
1,1-Dichloroethene	96		95		61-145	1		20
trans-1,2-Dichloroethene	95		95		70-130	0		20
Trichloroethene	94		94		70-130	0		20
1,2-Dichlorobenzene	88		87		70-130	1		20
1,3-Dichlorobenzene	91		89		70-130	2		20
1,4-Dichlorobenzene	89		88		70-130	1		20
Methyl tert butyl ether	85		85		63-130	0		20
p/m-Xylene	85		85		70-130	0		20
o-Xylene	80		85		70-130	6		20
cis-1,2-Dichloroethene	98		98		70-130	0		20
Dibromomethane	93		91		70-130	2		20
1,2,3-Trichloropropane	86		86		64-130	0		20
Styrene	85		90		70-130	6		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		100		58-148	10		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	110		120		63-138	9		20
Vinyl acetate	120		130		70-130	8		20
4-Methyl-2-pentanone	85		86		59-130	1		20
2-Hexanone	82		84		57-130	2		20
Bromochloromethane	96		97		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1284002-3 WG1284002-4								
2,2-Dichloropropane	92		91		63-133	1		20
1,2-Dibromoethane	87		87		70-130	0		20
1,3-Dichloropropane	90		91		70-130	1		20
1,1,1,2-Tetrachloroethane	92		93		64-130	1		20
Bromobenzene	84		85		70-130	1		20
n-Butylbenzene	90		87		53-136	3		20
sec-Butylbenzene	92		87		70-130	6		20
tert-Butylbenzene	79		79		70-130	0		20
o-Chlorotoluene	99		99		70-130	0		20
p-Chlorotoluene	85		83		70-130	2		20
1,2-Dibromo-3-chloropropane	81		84		41-144	4		20
Hexachlorobutadiene	99		90		63-130	10		20
Isopropylbenzene	80		79		70-130	1		20
p-Isopropyltoluene	80		79		70-130	1		20
Naphthalene	80		76		70-130	5		20
n-Propylbenzene	84		84		69-130	0		20
1,2,3-Trichlorobenzene	86		84		70-130	2		20
1,2,4-Trichlorobenzene	85		82		70-130	4		20
1,3,5-Trimethylbenzene	82		80		64-130	2		20
1,2,4-Trimethylbenzene	81		80		70-130	1		20
1,4-Dioxane	92		100		56-162	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1284002-3 WG1284002-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		104		70-130
Toluene-d8	89		91		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	96		94		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1284400-3 WG1284400-4								
Methylene chloride	90		89		70-130	1		30
1,1-Dichloroethane	86		86		70-130	0		30
Chloroform	94		94		70-130	0		30
Carbon tetrachloride	88		88		70-130	0		30
1,2-Dichloropropane	90		91		70-130	1		30
Dibromochloromethane	87		88		70-130	1		30
1,1,2-Trichloroethane	87		87		70-130	0		30
Tetrachloroethene	94		96		70-130	2		30
Chlorobenzene	87		90		70-130	3		30
Trichlorofluoromethane	78		78		70-139	0		30
1,2-Dichloroethane	88		87		70-130	1		30
1,1,1-Trichloroethane	88		88		70-130	0		30
Bromodichloromethane	87		86		70-130	1		30
trans-1,3-Dichloropropene	87		88		70-130	1		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	92		91		70-130	1		30
Bromoform	87		87		70-130	0		30
1,1,2,2-Tetrachloroethane	81		81		70-130	0		30
Benzene	90		91		70-130	1		30
Toluene	88		91		70-130	3		30
Ethylbenzene	89		91		70-130	2		30
Chloromethane	83		83		52-130	0		30
Bromomethane	86		86		57-147	0		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1284400-3 WG1284400-4								
Vinyl chloride	77		77		67-130	0		30
Chloroethane	82		82		50-151	0		30
1,1-Dichloroethene	88		88		65-135	0		30
trans-1,2-Dichloroethene	90		91		70-130	1		30
Trichloroethene	89		90		70-130	1		30
1,2-Dichlorobenzene	88		89		70-130	1		30
1,3-Dichlorobenzene	88		89		70-130	1		30
1,4-Dichlorobenzene	91		94		70-130	3		30
Methyl tert butyl ether	84		83		66-130	1		30
p/m-Xylene	91		92		70-130	1		30
o-Xylene	91		92		70-130	1		30
cis-1,2-Dichloroethene	90		91		70-130	1		30
Dibromomethane	89		90		70-130	1		30
Styrene	93		94		70-130	1		30
Dichlorodifluoromethane	76		76		30-146	0		30
Acetone	80		79		54-140	1		30
Carbon disulfide	87		87		59-130	0		30
2-Butanone	67	Q	68	Q	70-130	1		30
Vinyl acetate	82		80		70-130	2		30
4-Methyl-2-pentanone	90		88		70-130	2		30
1,2,3-Trichloropropane	79		79		68-130	0		30
2-Hexanone	86		84		70-130	2		30
Bromochloromethane	91		91		70-130	0		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1284400-3 WG1284400-4								
2,2-Dichloropropane	87		87		70-130	0		30
1,2-Dibromoethane	89		89		70-130	0		30
1,3-Dichloropropane	85		87		69-130	2		30
1,1,1,2-Tetrachloroethane	88		90		70-130	2		30
Bromobenzene	87		89		70-130	2		30
n-Butylbenzene	83		84		70-130	1		30
sec-Butylbenzene	84		85		70-130	1		30
tert-Butylbenzene	85		86		70-130	1		30
o-Chlorotoluene	86		88		70-130	2		30
p-Chlorotoluene	84		87		70-130	4		30
1,2-Dibromo-3-chloropropane	87		87		68-130	0		30
Hexachlorobutadiene	86		86		67-130	0		30
Isopropylbenzene	86		88		70-130	2		30
p-Isopropyltoluene	86		87		70-130	1		30
Naphthalene	85		84		70-130	1		30
n-Propylbenzene	85		86		70-130	1		30
1,2,3-Trichlorobenzene	87		88		70-130	1		30
1,2,4-Trichlorobenzene	90		90		70-130	0		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30
1,4-Dioxane	92		93		65-136	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1284400-3 WG1284400-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	98		96		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: MS Sample												
Methylene chloride	ND	10	11	110		11	110		70-130	0		20
1,1-Dichloroethane	ND	10	12	120		12	120		70-130	0		20
Chloroform	ND	10	11	110		11	110		70-130	0		20
Carbon tetrachloride	ND	10	10	100		10	100		63-132	0		20
1,2-Dichloropropane	ND	10	11	110		11	110		70-130	0		20
Dibromochloromethane	ND	10	9.4	94		9.2	92		63-130	2		20
1,1,2-Trichloroethane	ND	10	11	110		12	120		70-130	9		20
Tetrachloroethene	ND	10	8.8	88		9.0	90		70-130	2		20
Chlorobenzene	ND	10	9.4	94		9.4	94		75-130	0		20
Trichlorofluoromethane	ND	10	11	110		10	100		62-150	10		20
1,2-Dichloroethane	ND	10	11	110		11	110		70-130	0		20
1,1,1-Trichloroethane	ND	10	10	100		10	100		67-130	0		20
Bromodichloromethane	ND	10	11	110		10	100		67-130	10		20
trans-1,3-Dichloropropene	ND	10	8.9	89		8.7	87		70-130	2		20
cis-1,3-Dichloropropene	ND	10	9.3	93		9.2	92		70-130	1		20
1,1-Dichloropropene	ND	10	9.5	95		9.9	99		70-130	4		20
Bromoform	ND	10	9.5	95		9.6	96		54-136	1		20
1,1,2,2-Tetrachloroethane	ND	10	10	100		10	100		67-130	0		20
Benzene	2.4	10	14	116		14	116		70-130	0		20
Toluene	ND	10	9.5	95		9.9	99		70-130	4		20
Ethylbenzene	2.4J	10	11	110		12	120		70-130	9		20
Chloromethane	ND	10	14	140	Q	15	150	Q	64-130	7		20
Bromomethane	ND	10	3.0	30	Q	3.8	38	Q	39-139	24	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Sample Associated sample(s): 02 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: MS												
Vinyl chloride	ND	10	10	100		10	100		55-140	0		20
Chloroethane	ND	10	9.9	99		9.5	95		55-138	4		20
1,1-Dichloroethene	ND	10	11	110		11	110		61-145	0		20
trans-1,2-Dichloroethene	ND	10	11	110		11	110		70-130	0		20
Trichloroethene	ND	10	10	100		11	110		70-130	10		20
1,2-Dichlorobenzene	ND	10	9.0	90		9.2	92		70-130	2		20
1,3-Dichlorobenzene	ND	10	9.2	92		9.4	94		70-130	2		20
1,4-Dichlorobenzene	ND	10	8.8	88		8.9	89		70-130	1		20
Methyl tert butyl ether	ND	10	9.3	93		9.2	92		63-130	1		20
p/m-Xylene	6.6	20	24	87		25	92		70-130	4		20
o-Xylene	ND	20	18	90		18	90		70-130	0		20
cis-1,2-Dichloroethene	0.73J	10	11	110		12	120		70-130	9		20
Dibromomethane	ND	10	10	100		10	100		70-130	0		20
1,2,3-Trichloropropane	ND	10	9.3	93		9.4	94		64-130	1		20
Styrene	ND	20	18	90		18	90		70-130	0		20
Dichlorodifluoromethane	ND	10	14	140		14	140		36-147	0		20
Acetone	10	10	29	190	Q	30	200	Q	58-148	3		20
Carbon disulfide	ND	10	13	130		13	130		51-130	0		20
2-Butanone	ND	10	13	130		14	140	Q	63-138	7		20
Vinyl acetate	ND	10	14	140	Q	14	140	Q	70-130	0		20
4-Methyl-2-pentanone	ND	10	9.9	99		9.7	97		59-130	2		20
2-Hexanone	ND	10	8.7	87		9.2	92		57-130	6		20
Bromochloromethane	ND	10	11	110		11	110		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Sample Associated sample(s): 02 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: MS												
2,2-Dichloropropane	ND	10	9.3	93		8.5	85		63-133	9		20
1,2-Dibromoethane	ND	10	9.3	93		9.3	93		70-130	0		20
1,3-Dichloropropane	ND	10	9.7	97		9.7	97		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	10	9.8	98		9.6	96		64-130	2		20
Bromobenzene	ND	10	8.6	86		8.7	87		70-130	1		20
n-Butylbenzene	ND	10	8.5	85		9.3	93		53-136	9		20
sec-Butylbenzene	ND	10	8.6	86		9.8	98		70-130	13		20
tert-Butylbenzene	ND	10	8.1	81		8.7	87		70-130	7		20
o-Chlorotoluene	ND	10	10	100		10	100		70-130	0		20
p-Chlorotoluene	ND	10	8.4	84		8.8	88		70-130	5		20
1,2-Dibromo-3-chloropropane	ND	10	9.1	91		9.1	91		41-144	0		20
Hexachlorobutadiene	ND	10	8.6	86		9.1	91		63-130	6		20
Isopropylbenzene	ND	10	8.3	83		8.8	88		70-130	6		20
p-Isopropyltoluene	ND	10	7.6	76		8.2	82		70-130	8		20
Naphthalene	ND	10	8.3	83		8.8	88		70-130	6		20
n-Propylbenzene	ND	10	8.6	86		9.1	91		69-130	6		20
1,2,3-Trichlorobenzene	ND	10	8.4	84		8.7	87		70-130	4		20
1,2,4-Trichlorobenzene	ND	10	8.6	86		8.8	88		70-130	2		20
1,3,5-Trimethylbenzene	ND	10	8.2	82		8.6	86		64-130	5		20
1,2,4-Trimethylbenzene	ND	10	8.7	87		8.9	89		70-130	2		20
1,4-Dioxane	ND	500	400	80		490	98		56-162	20		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1941269**Report Date:** 09/23/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: MS Sample

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	105		101		70-130
4-Bromofluorobenzene	81		84		70-130
Dibromofluoromethane	98		97		70-130
Toluene-d8	86		88		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941269

Report Date: 09/23/19

SAMPLE RESULTS

Lab ID: L1941269-01

Client ID: MW-1245-10-12-20190910

Sample Location: JAMESTOWN, NY

Date Collected: 09/10/19 10:10

Date Received: 09/10/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Coarse Gravel	25.8		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Fine Gravel	25.5		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Total Gravel	51.3		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Coarse Sand	14.6		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Medium Sand	13.7		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Fine Sand	6.30		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Total Sand	34.6		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
% Total Fines	14.1		%	0.100	NA	1	-	09/13/19 13:38	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	09/11/19 10:10	121,2540G	RI



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1941269
Report Date: 09/23/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1283891-1 QC Sample: L1941269-01 Client ID: MW-1245-10-12-20190910						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	25.8	18.7	%	32	Q	20
% Fine Gravel	25.5	23.0	%	10		20
% Total Gravel	51.3	41.7	%	21	Q	20
% Coarse Sand	14.6	16.6	%	13		20
% Medium Sand	13.7	17.7	%	25	Q	20
% Fine Sand	6.30	7.80	%	21	Q	20
% Total Sand	34.6	42.1	%	20		20
% Total Fines	14.1	16.2	%	14		20

Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1941269-01A	5 gram Encore Sampler	A	NA		5.5	Y	Absent		NYTCL-8260HLW(14)
L1941269-01B	5 gram Encore Sampler	A	NA		5.5	Y	Absent		NYTCL-8260HLW(14)
L1941269-01C	5 gram Encore Sampler	A	NA		5.5	Y	Absent		NYTCL-8260HLW(14)
L1941269-01D	Plastic 2oz unpreserved for TS	A	NA		5.5	Y	Absent		TS(7)
L1941269-01E	Plastic 2oz unpreserved for TS	A	NA		5.5	Y	Absent		TS(7)
L1941269-01F	Plastic 8oz unpreserved for Grain Size	A	NA		5.5	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND()
L1941269-01X	Vial MeOH preserved split	A	NA		5.5	Y	Absent		NYTCL-8260HLW(14)
L1941269-01Y	Vial Water preserved split	A	NA		5.5	Y	Absent	11-SEP-19 10:12	NYTCL-8260HLW(14)
L1941269-01Z	Vial Water preserved split	A	NA		5.5	Y	Absent	11-SEP-19 10:12	NYTCL-8260HLW(14)
L1941269-02A	Vial HCl preserved	A	NA		5.5	Y	Absent		NYTCL-8260(14)
L1941269-02B	Vial HCl preserved	A	NA		5.5	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941269
Report Date: 09/23/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1941269**Project Number:** DWJMS004**Report Date:** 09/23/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

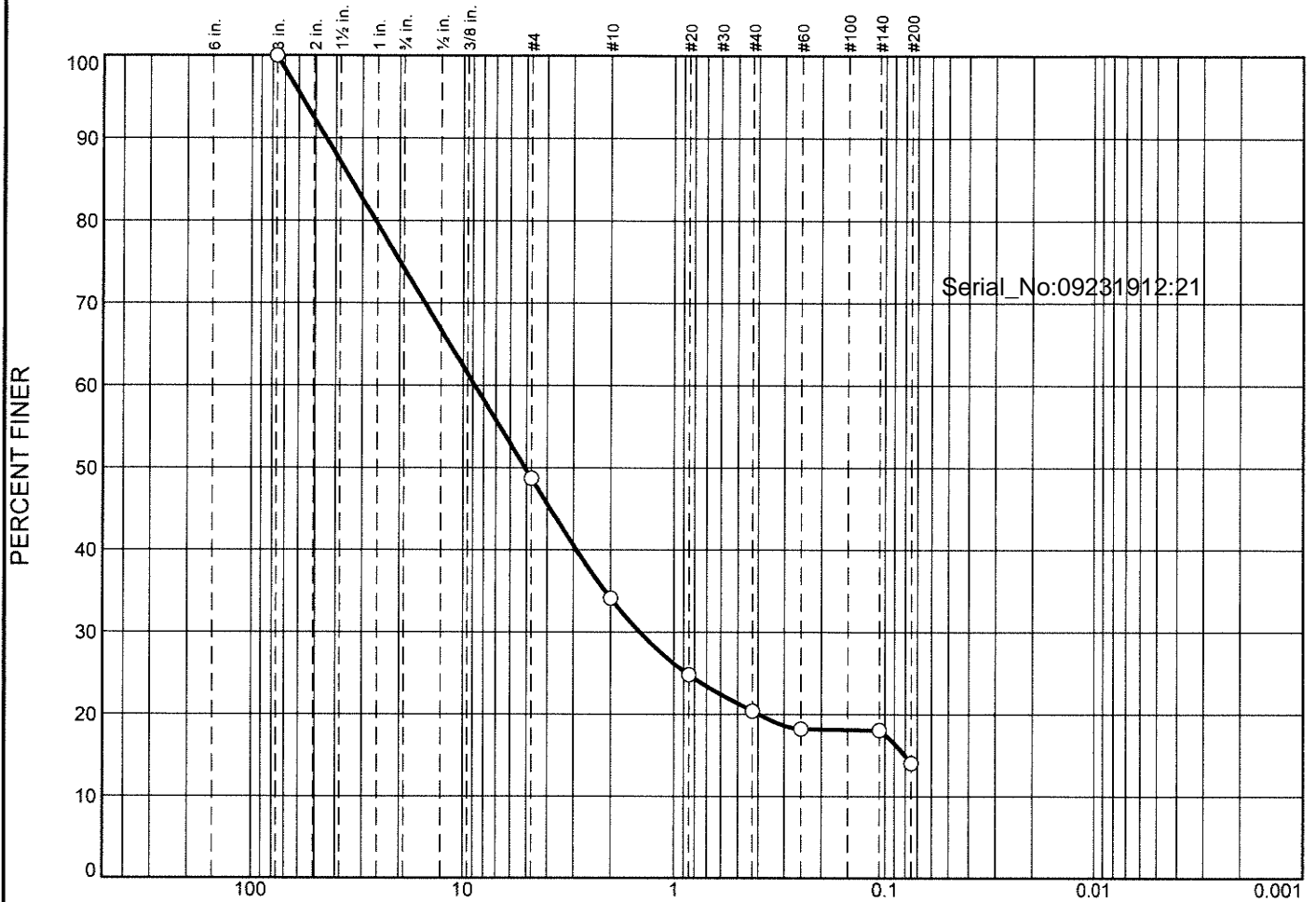


Serial_No:09231912:21

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>	0.0	25.8	25.5	14.6	13.7	6.3	14.1			
<input type="radio"/>										
<input checked="" type="radio"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c
<input type="radio"/>				34.0172	8.7986	5.0944	1.4536	0.0804		
<input type="radio"/>										
<input type="radio"/>										

Material Description

USCS

AASHTO

Project No.

Client:

Remarks:

Project:

☐ Source: MW-1245-10-12-20190910

Sample No.: L1941269-01

Date: ☐

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

9/16/2019

Location: MW-1245-10-12-20190910

Sample Number: L1941269-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 91.37
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
91.37	0.00	3"	0.00	0.00	100.0
		#4	46.85	0.00	48.7
		#10	13.33	0.00	34.1
		#20	8.52	0.00	24.8
		#40	4.04	0.00	20.4
		#60	2.00	0.00	18.2
		#140	0.13	0.00	18.1
		#200	3.66	0.00	14.1

Serial_No:09231912:21

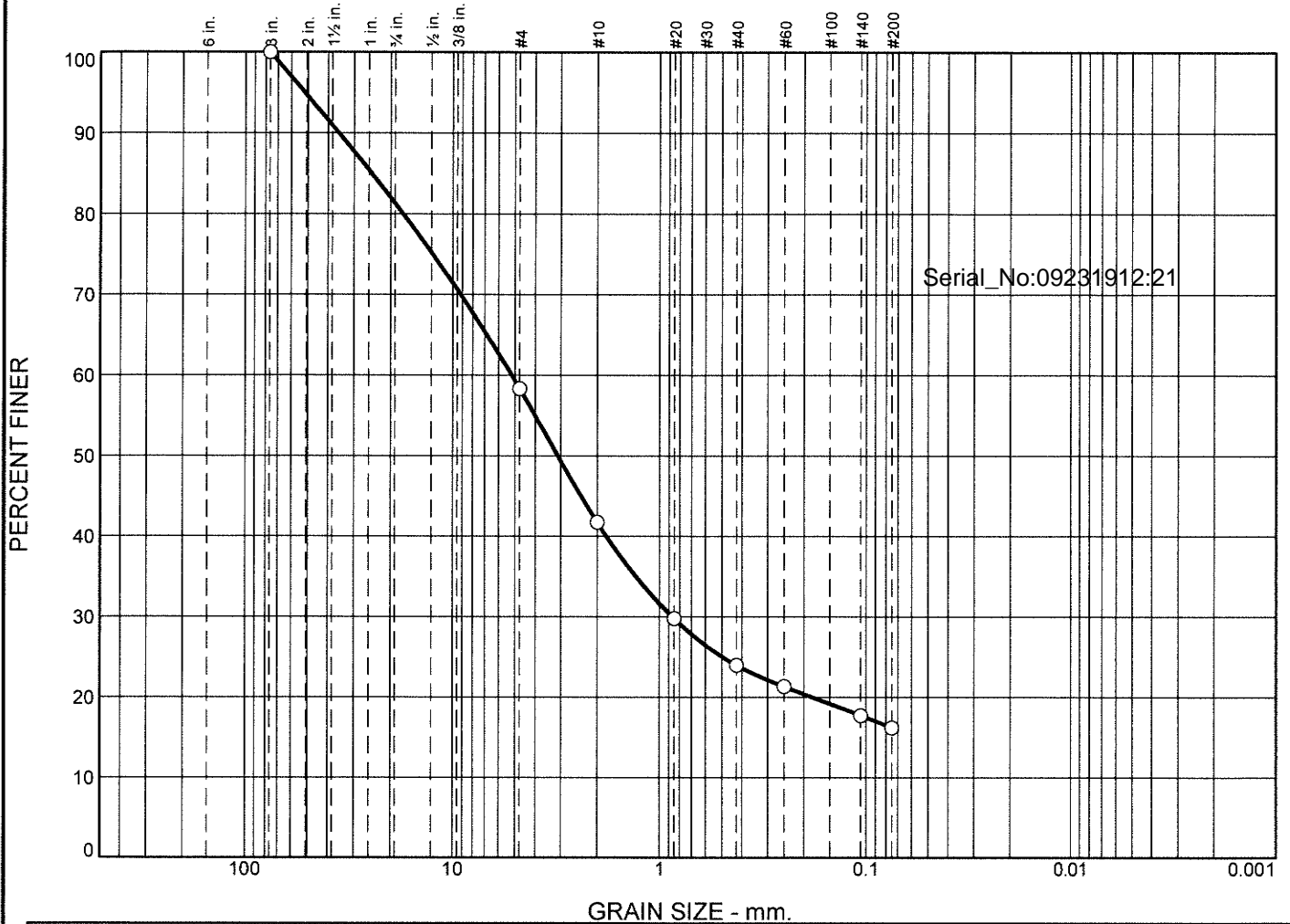
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	25.8	25.5	51.3	14.6	13.7	6.3	34.6			14.1

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0804	0.3972	1.4536	2.9049	5.0944	8.7986	25.9851	34.0172	44.5174	58.2460

Fineness Modulus
5.05

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"	% Gravel		% Sand			% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	18.7	23.0	16.6	17.7	7.8	16.2				
Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
			24.6793	5.1889	3.1063	0.8672				

Material Description							USCS	AASHTO

Project No. Client: Project: ○ Source: MW-1245-10-12-20190910 Sample No.: WG1283891-1 Date: ○	Remarks:
Alpha Analytical Mansfield, MA	Figure

GRAIN SIZE DISTRIBUTION TEST DATA

9/16/2019

Location: MW-1245-10-12-20190910

Sample Number: WG1283891-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 90.42

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
90.42	0.00	3"	0.00	0.00	100.0
		#4	37.68	0.00	58.3
		#10	15.00	0.00	41.7
		#20	10.81	0.00	29.8
		#40	5.25	0.00	24.0
		#60	2.40	0.00	21.3
		#140	3.26	0.00	17.7
		#200	1.38	0.00	16.2

Serial_No:09231912:21

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	18.7	23.0	41.7	16.6	17.7	7.8	42.1			16.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1828	0.8672	1.8052	3.1063	5.1889	17.4091	24.6793	35.5609	51.8798

Fineness Modulus
4.53

Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B, SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

Mansfield, MA 02040
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3286

Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

1 of 1

9/11/10

L1941269

PO

☐ NJ ☒ NY

☐ Other: _____

Sample Specific Comments
<p>1. The sample is a 100% pure substance, as indicated by the single sharp peak in the mass spectrum.</p> <p>2. The molecular ion peak is observed at m/z 100, which corresponds to the molecular weight of the compound.</p> <p>3. The base peak is at m/z 43, which is a common fragment for many organic compounds.</p> <p>4. The fragmentation pattern suggests a branched alkane structure.</p> <p>5. The compound is likely to be 2-methylbutane, based on the mass spectral data.</p>

	5
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Date/Time	9/10/19 14:55
	9/4/19 1:20

Form No: 01-25 HC (rev. 30-Sept-2013)



ANALYTICAL REPORT

Lab Number:	L1941513
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/18/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1941513-01	DPT-51-GW-12-14-20190911	WATER	JAMESTOWN, NY	09/11/19 09:50	09/11/19
L1941513-02	DPT-52-GW-12-14-20190911	WATER	JAMESTOWN, NY	09/11/19 11:20	09/11/19
L1941513-03	DPT-65-GW-10-12-20190911	WATER	JAMESTOWN, NY	09/11/19 13:20	09/11/19
L1941513-04	DPT-53-GW-10-12-20190911	WATER	JAMESTOWN, NY	09/11/19 14:18	09/11/19
L1941513-05	TB-002-20190911	WATER	JAMESTOWN, NY	09/11/19 00:00	09/11/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1941513-01, -03, and -04: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1941513-05: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

WG1284002-2: The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (32%D), bromomethane (30%D) and vinyl acetate (36%D) above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1941513-01 through -05, did not meet the method required minimum response factor for the calibration standards for 2-butanone, cis-1,3-Dichloropropene, 1,4-dioxane and 4-methyl-2-pentanone.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (47%D) and bromomethane (41%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1941513-01 through -05, did not meet the method required minimum response factor for 2-butanone, bromochloromethane, 1,4-dioxane, and 4-methyl-2-pentanone.

The WG1284002-6/-7 MS/MSD recoveries, performed on L1941513-02, are outside the acceptance criteria for chloromethane (140%/150%), bromomethane (30%/38%), acetone (190%/200%), 2-butanone (MSD at 140%), and vinyl acetate (140%/140%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

The WG1284002-6/-7 MS/MSD RPD, performed on L1941513-02, is outside the acceptance criteria for bromomethane (24%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/18/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-01 D
 Client ID: DPT-51-GW-12-14-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 09:50
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 12:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
1,3-Dichloropropene, Total	ND		ug/l	20	5.8	40
1,1-Dichloropropene	ND		ug/l	100	28.	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	ND		ug/l	20	6.4	40
Toluene	30	J	ug/l	100	28.	40
Ethylbenzene	4100		ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	ND		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	ND		ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40

Project Name: ESSEX HOPE

Lab Number: L1941513

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941513-01 D
 Client ID: DPT-51-GW-12-14-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 09:50
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	13000		ug/l	100	28.	40
o-Xylene	910		ug/l	100	28.	40
Xylenes, Total	14000		ug/l	100	28.	40
cis-1,2-Dichloroethene	ND		ug/l	100	28.	40
1,2-Dichloroethene, Total	ND		ug/l	100	28.	40
Dibromomethane	ND		ug/l	200	40.	40
1,2,3-Trichloropropane	ND		ug/l	100	28.	40
Styrene	ND		ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
Vinyl acetate	ND		ug/l	200	40.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
2,2-Dichloropropane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,3-Dichloropropane	ND		ug/l	100	28.	40
1,1,1,2-Tetrachloroethane	ND		ug/l	100	28.	40
Bromobenzene	ND		ug/l	100	28.	40
n-Butylbenzene	ND		ug/l	100	28.	40
sec-Butylbenzene	ND		ug/l	100	28.	40
tert-Butylbenzene	ND		ug/l	100	28.	40
o-Chlorotoluene	ND		ug/l	100	28.	40
p-Chlorotoluene	ND		ug/l	100	28.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Hexachlorobutadiene	ND		ug/l	100	28.	40
Isopropylbenzene	130		ug/l	100	28.	40
p-Isopropyltoluene	ND		ug/l	100	28.	40
Naphthalene	170		ug/l	100	28.	40
n-Propylbenzene	76	J	ug/l	100	28.	40



Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-01 D
 Client ID: DPT-51-GW-12-14-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 09:50
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
1,3,5-Trimethylbenzene	59	J	ug/l	100	28.	40
1,2,4-Trimethylbenzene	240		ug/l	100	28.	40
1,4-Dioxane	ND		ug/l	10000	2400	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-02
 Client ID: DPT-52-GW-12-14-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 11:20
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 11:49
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	2.4		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	2.4	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-02
 Client ID: DPT-52-GW-12-14-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 11:20
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	6.6		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	6.6		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	0.73	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	0.73	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	10		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941513-02**Date Collected:** 09/11/19 11:20**Client ID:** DPT-52-GW-12-14-20190911**Date Received:** 09/11/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-03 D
 Client ID: DPT-65-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 13:20
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 12:41
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	0.36	2.5
1,1-Dichloropropene	ND		ug/l	6.2	1.8	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	3.1		ug/l	1.2	0.40	2.5
Toluene	430		ug/l	6.2	1.8	2.5
Ethylbenzene	75		ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-03 D
 Client ID: DPT-65-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 13:20
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.45	J	ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	350		ug/l	6.2	1.8	2.5
o-Xylene	93		ug/l	6.2	1.8	2.5
Xylenes, Total	440		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethene, Total	ND		ug/l	6.2	1.8	2.5
Dibromomethane	ND		ug/l	12	2.5	2.5
1,2,3-Trichloropropane	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	ND		ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
Vinyl acetate	ND		ug/l	12	2.5	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
2,2-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,3-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	6.2	1.8	2.5
Bromobenzene	ND		ug/l	6.2	1.8	2.5
n-Butylbenzene	ND		ug/l	6.2	1.8	2.5
sec-Butylbenzene	2.9	J	ug/l	6.2	1.8	2.5
tert-Butylbenzene	ND		ug/l	6.2	1.8	2.5
o-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
p-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Hexachlorobutadiene	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	15		ug/l	6.2	1.8	2.5
p-Isopropyltoluene	ND		ug/l	6.2	1.8	2.5
Naphthalene	6.5		ug/l	6.2	1.8	2.5
n-Propylbenzene	2.1	J	ug/l	6.2	1.8	2.5



Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-03 D
 Client ID: DPT-65-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 13:20
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3,5-Trimethylbenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trimethylbenzene	5.8	J	ug/l	6.2	1.8	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-04 D
 Client ID: DPT-53-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 14:18
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 13:06
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	1.4	2
1,1-Dichloroethane	ND		ug/l	5.0	1.4	2
Chloroform	ND		ug/l	5.0	1.4	2
Carbon tetrachloride	ND		ug/l	1.0	0.27	2
1,2-Dichloropropane	ND		ug/l	2.0	0.27	2
Dibromochloromethane	ND		ug/l	1.0	0.30	2
1,1,2-Trichloroethane	ND		ug/l	3.0	1.0	2
Tetrachloroethene	ND		ug/l	1.0	0.36	2
Chlorobenzene	1.8	J	ug/l	5.0	1.4	2
Trichlorofluoromethane	ND		ug/l	5.0	1.4	2
1,2-Dichloroethane	ND		ug/l	1.0	0.26	2
1,1,1-Trichloroethane	ND		ug/l	5.0	1.4	2
Bromodichloromethane	ND		ug/l	1.0	0.38	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	0.33	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	0.29	2
1,3-Dichloropropene, Total	ND		ug/l	1.0	0.29	2
1,1-Dichloropropene	ND		ug/l	5.0	1.4	2
Bromoform	ND		ug/l	4.0	1.3	2
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.33	2
Benzene	12		ug/l	1.0	0.32	2
Toluene	20		ug/l	5.0	1.4	2
Ethylbenzene	180		ug/l	5.0	1.4	2
Chloromethane	ND		ug/l	5.0	1.4	2
Bromomethane	ND		ug/l	5.0	1.4	2
Vinyl chloride	ND		ug/l	2.0	0.14	2
Chloroethane	ND		ug/l	5.0	1.4	2
1,1-Dichloroethene	ND		ug/l	1.0	0.34	2
trans-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2

Project Name: ESSEX HOPE

Lab Number: L1941513

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941513-04 D
 Client ID: DPT-53-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 14:18
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	0.35	2
1,2-Dichlorobenzene	ND		ug/l	5.0	1.4	2
1,3-Dichlorobenzene	ND		ug/l	5.0	1.4	2
1,4-Dichlorobenzene	ND		ug/l	5.0	1.4	2
Methyl tert butyl ether	ND		ug/l	5.0	1.4	2
p/m-Xylene	470		ug/l	5.0	1.4	2
o-Xylene	86		ug/l	5.0	1.4	2
Xylenes, Total	560		ug/l	5.0	1.4	2
cis-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
1,2-Dichloroethene, Total	ND		ug/l	5.0	1.4	2
Dibromomethane	ND		ug/l	10	2.0	2
1,2,3-Trichloropropane	ND		ug/l	5.0	1.4	2
Styrene	ND		ug/l	5.0	1.4	2
Dichlorodifluoromethane	ND		ug/l	10	2.0	2
Acetone	14		ug/l	10	2.9	2
Carbon disulfide	ND		ug/l	10	2.0	2
2-Butanone	ND		ug/l	10	3.9	2
Vinyl acetate	ND		ug/l	10	2.0	2
4-Methyl-2-pentanone	ND		ug/l	10	2.0	2
2-Hexanone	ND		ug/l	10	2.0	2
Bromochloromethane	ND		ug/l	5.0	1.4	2
2,2-Dichloropropane	ND		ug/l	5.0	1.4	2
1,2-Dibromoethane	ND		ug/l	4.0	1.3	2
1,3-Dichloropropane	ND		ug/l	5.0	1.4	2
1,1,1,2-Tetrachloroethane	ND		ug/l	5.0	1.4	2
Bromobenzene	ND		ug/l	5.0	1.4	2
n-Butylbenzene	ND		ug/l	5.0	1.4	2
sec-Butylbenzene	6.4		ug/l	5.0	1.4	2
tert-Butylbenzene	1.4	J	ug/l	5.0	1.4	2
o-Chlorotoluene	ND		ug/l	5.0	1.4	2
p-Chlorotoluene	ND		ug/l	5.0	1.4	2
1,2-Dibromo-3-chloropropane	ND		ug/l	5.0	1.4	2
Hexachlorobutadiene	ND		ug/l	5.0	1.4	2
Isopropylbenzene	41		ug/l	5.0	1.4	2
p-Isopropyltoluene	7.5		ug/l	5.0	1.4	2
Naphthalene	4.9	J	ug/l	5.0	1.4	2
n-Propylbenzene	11		ug/l	5.0	1.4	2



Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-04 D
 Client ID: DPT-53-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 14:18
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	5.0	1.4	2
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.4	2
1,3,5-Trimethylbenzene	ND		ug/l	5.0	1.4	2
1,2,4-Trimethylbenzene	6.7		ug/l	5.0	1.4	2
1,4-Dioxane	ND		ug/l	500	120	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-05
 Client ID: TB-002-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 00:00
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/13/19 11:24
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	1.6	J	ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941513-05
 Client ID: TB-002-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 00:00
 Date Received: 09/11/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.1		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941513-05**Date Collected:** 09/11/19 00:00**Client ID:** TB-002-20190911**Date Received:** 09/11/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE

Lab Number: L1941513

Project Number: DWJMS004

Report Date: 09/18/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1284002-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1284002-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/13/19 10:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1284002-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130



Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941513

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1284002-3 WG1284002-4								
Methylene chloride	97		96		70-130	1		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		96		70-130	4		20
Carbon tetrachloride	89		90		63-132	1		20
1,2-Dichloropropane	99		100		70-130	1		20
Dibromochloromethane	87		89		63-130	2		20
1,1,2-Trichloroethane	96		94		70-130	2		20
Tetrachloroethene	83		85		70-130	2		20
Chlorobenzene	86		86		75-130	0		20
Trichlorofluoromethane	87		88		62-150	1		20
1,2-Dichloroethane	94		96		70-130	2		20
1,1,1-Trichloroethane	89		88		67-130	1		20
Bromodichloromethane	96		98		67-130	2		20
trans-1,3-Dichloropropene	88		90		70-130	2		20
cis-1,3-Dichloropropene	89		90		70-130	1		20
1,1-Dichloropropene	88		88		70-130	0		20
Bromoform	92		92		54-136	0		20
1,1,2,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	100		100		70-130	0		20
Toluene	87		87		70-130	0		20
Ethylbenzene	88		87		70-130	1		20
Chloromethane	130		120		64-130	8		20
Bromomethane	50		48		39-139	4		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941513

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1284002-3 WG1284002-4								
Vinyl chloride	84		82		55-140	2		20
Chloroethane	78		81		55-138	4		20
1,1-Dichloroethene	96		95		61-145	1		20
trans-1,2-Dichloroethene	95		95		70-130	0		20
Trichloroethene	94		94		70-130	0		20
1,2-Dichlorobenzene	88		87		70-130	1		20
1,3-Dichlorobenzene	91		89		70-130	2		20
1,4-Dichlorobenzene	89		88		70-130	1		20
Methyl tert butyl ether	85		85		63-130	0		20
p/m-Xylene	85		85		70-130	0		20
o-Xylene	80		85		70-130	6		20
cis-1,2-Dichloroethene	98		98		70-130	0		20
Dibromomethane	93		91		70-130	2		20
1,2,3-Trichloropropane	86		86		64-130	0		20
Styrene	85		90		70-130	6		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		100		58-148	10		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	110		120		63-138	9		20
Vinyl acetate	120		130		70-130	8		20
4-Methyl-2-pentanone	85		86		59-130	1		20
2-Hexanone	82		84		57-130	2		20
Bromochloromethane	96		97		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941513

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1284002-3 WG1284002-4								
2,2-Dichloropropane	92		91		63-133	1		20
1,2-Dibromoethane	87		87		70-130	0		20
1,3-Dichloropropane	90		91		70-130	1		20
1,1,1,2-Tetrachloroethane	92		93		64-130	1		20
Bromobenzene	84		85		70-130	1		20
n-Butylbenzene	90		87		53-136	3		20
sec-Butylbenzene	92		87		70-130	6		20
tert-Butylbenzene	79		79		70-130	0		20
o-Chlorotoluene	99		99		70-130	0		20
p-Chlorotoluene	85		83		70-130	2		20
1,2-Dibromo-3-chloropropane	81		84		41-144	4		20
Hexachlorobutadiene	99		90		63-130	10		20
Isopropylbenzene	80		79		70-130	1		20
p-Isopropyltoluene	80		79		70-130	1		20
Naphthalene	80		76		70-130	5		20
n-Propylbenzene	84		84		69-130	0		20
1,2,3-Trichlorobenzene	86		84		70-130	2		20
1,2,4-Trichlorobenzene	85		82		70-130	4		20
1,3,5-Trimethylbenzene	82		80		64-130	2		20
1,2,4-Trimethylbenzene	81		80		70-130	1		20
1,4-Dioxane	92		100		56-162	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941513

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1284002-3 WG1284002-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		104		70-130
Toluene-d8	89		91		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	96		94		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: DPT-52-GW-12-14-20190911												
Methylene chloride	ND	10	11	110		11	110		70-130	0		20
1,1-Dichloroethane	ND	10	12	120		12	120		70-130	0		20
Chloroform	ND	10	11	110		11	110		70-130	0		20
Carbon tetrachloride	ND	10	10	100		10	100		63-132	0		20
1,2-Dichloropropane	ND	10	11	110		11	110		70-130	0		20
Dibromochloromethane	ND	10	9.4	94		9.2	92		63-130	2		20
1,1,2-Trichloroethane	ND	10	11	110		12	120		70-130	9		20
Tetrachloroethene	ND	10	8.8	88		9.0	90		70-130	2		20
Chlorobenzene	ND	10	9.4	94		9.4	94		75-130	0		20
Trichlorofluoromethane	ND	10	11	110		10	100		62-150	10		20
1,2-Dichloroethane	ND	10	11	110		11	110		70-130	0		20
1,1,1-Trichloroethane	ND	10	10	100		10	100		67-130	0		20
Bromodichloromethane	ND	10	11	110		10	100		67-130	10		20
trans-1,3-Dichloropropene	ND	10	8.9	89		8.7	87		70-130	2		20
cis-1,3-Dichloropropene	ND	10	9.3	93		9.2	92		70-130	1		20
1,1-Dichloropropene	ND	10	9.5	95		9.9	99		70-130	4		20
Bromoform	ND	10	9.5	95		9.6	96		54-136	1		20
1,1,2,2-Tetrachloroethane	ND	10	10	100		10	100		67-130	0		20
Benzene	2.4	10	14	116		14	116		70-130	0		20
Toluene	ND	10	9.5	95		9.9	99		70-130	4		20
Ethylbenzene	2.4J	10	11	110		12	120		70-130	9		20
Chloromethane	ND	10	14	140	Q	15	150	Q	64-130	7		20
Bromomethane	ND	10	3.0	30	Q	3.8	38	Q	39-139	24	Q	20

Matrix Spike Analysis **Batch Quality Control**

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: DPT-52-GW-12-14-20190911												
Vinyl chloride	ND	10	10	100		10	100		55-140	0		20
Chloroethane	ND	10	9.9	99		9.5	95		55-138	4		20
1,1-Dichloroethene	ND	10	11	110		11	110		61-145	0		20
trans-1,2-Dichloroethene	ND	10	11	110		11	110		70-130	0		20
Trichloroethene	ND	10	10	100		11	110		70-130	10		20
1,2-Dichlorobenzene	ND	10	9.0	90		9.2	92		70-130	2		20
1,3-Dichlorobenzene	ND	10	9.2	92		9.4	94		70-130	2		20
1,4-Dichlorobenzene	ND	10	8.8	88		8.9	89		70-130	1		20
Methyl tert butyl ether	ND	10	9.3	93		9.2	92		63-130	1		20
p/m-Xylene	6.6	20	24	87		25	92		70-130	4		20
o-Xylene	ND	20	18	90		18	90		70-130	0		20
cis-1,2-Dichloroethene	0.73J	10	11	110		12	120		70-130	9		20
Dibromomethane	ND	10	10	100		10	100		70-130	0		20
1,2,3-Trichloropropane	ND	10	9.3	93		9.4	94		64-130	1		20
Styrene	ND	20	18	90		18	90		70-130	0		20
Dichlorodifluoromethane	ND	10	14	140		14	140		36-147	0		20
Acetone	10	10	29	190	Q	30	200	Q	58-148	3		20
Carbon disulfide	ND	10	13	130		13	130		51-130	0		20
2-Butanone	ND	10	13	130		14	140	Q	63-138	7		20
Vinyl acetate	ND	10	14	140	Q	14	140	Q	70-130	0		20
4-Methyl-2-pentanone	ND	10	9.9	99		9.7	97		59-130	2		20
2-Hexanone	ND	10	8.7	87		9.2	92		57-130	6		20
Bromochloromethane	ND	10	11	110		11	110		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab DPT-52-GW-12-14-20190911 Associated sample(s): 01-05 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID:												
2,2-Dichloropropane	ND	10	9.3	93		8.5	85		63-133	9		20
1,2-Dibromoethane	ND	10	9.3	93		9.3	93		70-130	0		20
1,3-Dichloropropane	ND	10	9.7	97		9.7	97		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	10	9.8	98		9.6	96		64-130	2		20
Bromobenzene	ND	10	8.6	86		8.7	87		70-130	1		20
n-Butylbenzene	ND	10	8.5	85		9.3	93		53-136	9		20
sec-Butylbenzene	ND	10	8.6	86		9.8	98		70-130	13		20
tert-Butylbenzene	ND	10	8.1	81		8.7	87		70-130	7		20
o-Chlorotoluene	ND	10	10	100		10	100		70-130	0		20
p-Chlorotoluene	ND	10	8.4	84		8.8	88		70-130	5		20
1,2-Dibromo-3-chloropropane	ND	10	9.1	91		9.1	91		41-144	0		20
Hexachlorobutadiene	ND	10	8.6	86		9.1	91		63-130	6		20
Isopropylbenzene	ND	10	8.3	83		8.8	88		70-130	6		20
p-Isopropyltoluene	ND	10	7.6	76		8.2	82		70-130	8		20
Naphthalene	ND	10	8.3	83		8.8	88		70-130	6		20
n-Propylbenzene	ND	10	8.6	86		9.1	91		69-130	6		20
1,2,3-Trichlorobenzene	ND	10	8.4	84		8.7	87		70-130	4		20
1,2,4-Trichlorobenzene	ND	10	8.6	86		8.8	88		70-130	2		20
1,3,5-Trimethylbenzene	ND	10	8.2	82		8.6	86		64-130	5		20
1,2,4-Trimethylbenzene	ND	10	8.7	87		8.9	89		70-130	2		20
1,4-Dioxane	ND	500	400	80		490	98		56-162	20		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1941513**Report Date:** 09/18/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1284002-6 WG1284002-7 QC Sample: L1941513-02 Client ID: DPT-52-GW-12-14-20190911

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		101		70-130
4-Bromofluorobenzene	81		84		70-130
Dibromofluoromethane	98		97		70-130
Toluene-d8	86		88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941513**Project Number:** DWJMS004**Report Date:** 09/18/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1941513-01A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-01B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-01C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02A1	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02A2	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02B1	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02B2	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02C1	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-02C2	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-03A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-03B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-03C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-04A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-04B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-04C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-05A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1941513-05B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941513
Report Date: 09/18/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab <div style="font-size: 1.5em; font-family: cursive;">9/12/19</div>		ALPHA Job # <div style="font-size: 1.5em; font-family: cursive;">L1941513</div>				
Westborough, MA 01581 8 Walkup Dr. TEL: 508-896-9220 FAX: 508-898-9193		Mansfield, MA 02048 120 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information				Deliverables		Billing Information		
Client Information Client: <i>Jarobs</i> Address: <i>125 Blackstone Ave Jamestown, NY</i> Phone: <i>508-397-1904</i> Fax: <i></i> Email: <i>Dave.Kortjohn@jarobs.com</i>				Project Name: <i>Essex Hox</i> Project Location: <i>Jamestown, NY</i> Project # <i>DWJMS004</i> (Use Project name as Project #) <input type="checkbox"/>				<input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other - <i>See PO</i>		<input checked="" type="checkbox"/> Same as Client Info PO #		
				Project Manager: <i>Shamus Krehane</i> ALPHAQuote #: <i>PO 148007814</i> Turn-Around Time Standard <input type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:				Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <i>per PO</i> <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:		
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <div style="font-size: 1.2em; font-family: cursive;">See Program QA/QC assoc'd w/ PO</div> Please specify Metals or TAL.						ANALYSIS				Sample Filtration		
						<div style="writing-mode: vertical-rl; transform: rotate(180deg); font-family: cursive;">VOCs (SW8260)</div>				<input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)		T O T A L B O T T L E
										Sample Specific Comments		
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection		Sample Matrix		Sampler's Initials				
				Date	Time							
41513 - 01		DPT-51-GW-12-14-20190911		9/11/19	950	GW		DK		X	3	
02		DPT-52-GW-12-14-20190911		9/11/19	1120	GW		DK		X	3	
02		DPT-52-GW-12-14-20190911MS		9/11/19	1120	GW		DK		X	3	
02		DPT-52-GW-12-14-20190911MSD		9/11/19	1120	GW		DK		X	3	
03		DPT-65-GW-10-12-20190911		9/11/19	1320	GW		DK		X	3	
04		DPT-53-GW-10-12-20190911		9/11/19	1418	GW		JG		X	3	
05		TB-002-091120190911		9/11/19	-	W		Lab		X	2	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type <input checked="" type="checkbox"/>		Preservative <i>B</i>		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)		
				Relinquished By: <i>[Signature]</i> Date/Time: <i>9/11/19 2:40</i> <i>9/11/19 17:05</i>		Received By: <i>[Signature]</i> Date/Time: <i>9/11/19 1445</i> <i>9/12/19 00:55</i>						



ANALYTICAL REPORT

Lab Number:	L1941835
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/18/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1941835-01	DPT-58-GW-10-12-20190912	WATER	JAMESTOWN, NY	09/12/19 09:00	09/12/19
L1941835-02	EB-001-20190912	WATER	JAMESTOWN, NY	09/12/19 09:50	09/12/19
L1941835-03	DPT-59-GW-10-12-20190912	WATER	JAMESTOWN, NY	09/12/19 10:30	09/12/19
L1941835-04	DPT-60-GW-10-12-20190912	WATER	JAMESTOWN, NY	09/12/19 11:40	09/12/19
L1941835-05	DPT-60-GW-10-12-20190912 FD	WATER	JAMESTOWN, NY	09/12/19 11:45	09/12/19
L1941835-06	DPT-63-GW-10-12-20190911	WATER	JAMESTOWN, NY	09/11/19 15:20	09/12/19
L1941835-07	DPT-64-GW-10-12-20190911	WATER	JAMESTOWN, NY	09/11/19 16:20	09/12/19
L1941835-08	DPT-61-GW-10-12-20190912	WATER	JAMESTOWN, NY	09/12/19 13:25	09/12/19
L1941835-09	TB-003-20190912	WATER	JAMESTOWN, NY	09/12/19 00:00	09/12/19
L1941835-10	DPT-57-GW-10-12-20190912	WATER	JAMESTOWN, NY	09/12/19 14:40	09/12/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1941835-06, -07, and -10: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1941835-09: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1941835-01 through -10, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 1,4-dioxane, cis-1,3-Dichloropropene, and 4-methyl-2-pentanone.


The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (47%D) and bromomethane (41%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1941835-01 through -10, did not meet the method required minimum response factor for 2-butanone, Bromochloromethane, 1,4-dioxane, and 4-methyl-2-pentanone.

The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (34%D), chloromethane (25%D), bromomethane (37%D), chloroethane (21%D), and vinyl acetate (40%D) above the 20% CCV criteria but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 09/18/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1941835

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941835-01
 Client ID: DPT-58-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 09:00
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 12:00
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-01
 Client ID: DPT-58-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 09:00
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	5.3		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-01**Date Collected:** 09/12/19 09:00**Client ID:** DPT-58-GW-10-12-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-02
 Client ID: EB-001-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 09:50
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 12:25
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1941835

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941835-02
 Client ID: EB-001-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 09:50
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.9	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-02**Date Collected:** 09/12/19 09:50**Client ID:** EB-001-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-03
 Client ID: DPT-59-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 10:30
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 13:16
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-03
 Client ID: DPT-59-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 10:30
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	14		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-03**Date Collected:** 09/12/19 10:30**Client ID:** DPT-59-GW-10-12-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	106		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-04
 Client ID: DPT-60-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 11:40
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 13:42
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1941835

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941835-04
 Client ID: DPT-60-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 11:40
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.4		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-04**Date Collected:** 09/12/19 11:40**Client ID:** DPT-60-GW-10-12-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-05
 Client ID: DPT-60-GW-10-12-20190912 FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 11:45
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 14:08
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-05
 Client ID: DPT-60-GW-10-12-20190912 FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 11:45
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.6		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-05**Date Collected:** 09/12/19 11:45**Client ID:** DPT-60-GW-10-12-20190912 FD**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	106		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-06 D
 Client ID: DPT-63-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 15:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 14:59
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	10	2.8	4
1,1-Dichloroethane	ND		ug/l	10	2.8	4
Chloroform	ND		ug/l	10	2.8	4
Carbon tetrachloride	ND		ug/l	2.0	0.54	4
1,2-Dichloropropane	ND		ug/l	4.0	0.55	4
Dibromochloromethane	ND		ug/l	2.0	0.60	4
1,1,2-Trichloroethane	ND		ug/l	6.0	2.0	4
Tetrachloroethene	ND		ug/l	2.0	0.72	4
Chlorobenzene	ND		ug/l	10	2.8	4
Trichlorofluoromethane	ND		ug/l	10	2.8	4
1,2-Dichloroethane	ND		ug/l	2.0	0.53	4
1,1,1-Trichloroethane	ND		ug/l	10	2.8	4
Bromodichloromethane	ND		ug/l	2.0	0.77	4
trans-1,3-Dichloropropene	ND		ug/l	2.0	0.66	4
cis-1,3-Dichloropropene	ND		ug/l	2.0	0.58	4
1,3-Dichloropropene, Total	ND		ug/l	2.0	0.58	4
1,1-Dichloropropene	ND		ug/l	10	2.8	4
Bromoform	ND		ug/l	8.0	2.6	4
1,1,2,2-Tetrachloroethane	ND		ug/l	2.0	0.67	4
Benzene	0.78	J	ug/l	2.0	0.64	4
Toluene	ND		ug/l	10	2.8	4
Ethylbenzene	110		ug/l	10	2.8	4
Chloromethane	ND		ug/l	10	2.8	4
Bromomethane	ND		ug/l	10	2.8	4
Vinyl chloride	ND		ug/l	4.0	0.28	4
Chloroethane	ND		ug/l	10	2.8	4
1,1-Dichloroethene	ND		ug/l	2.0	0.68	4
trans-1,2-Dichloroethene	ND		ug/l	10	2.8	4

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-06 D
 Client ID: DPT-63-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 15:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	2.0	0.70	4
1,2-Dichlorobenzene	ND		ug/l	10	2.8	4
1,3-Dichlorobenzene	ND		ug/l	10	2.8	4
1,4-Dichlorobenzene	ND		ug/l	10	2.8	4
Methyl tert butyl ether	ND		ug/l	10	2.8	4
p/m-Xylene	740		ug/l	10	2.8	4
o-Xylene	23		ug/l	10	2.8	4
Xylenes, Total	760		ug/l	10	2.8	4
cis-1,2-Dichloroethene	ND		ug/l	10	2.8	4
1,2-Dichloroethene, Total	ND		ug/l	10	2.8	4
Dibromomethane	ND		ug/l	20	4.0	4
1,2,3-Trichloropropane	ND		ug/l	10	2.8	4
Styrene	ND		ug/l	10	2.8	4
Dichlorodifluoromethane	ND		ug/l	20	4.0	4
Acetone	10	J	ug/l	20	5.8	4
Carbon disulfide	ND		ug/l	20	4.0	4
2-Butanone	ND		ug/l	20	7.8	4
Vinyl acetate	ND		ug/l	20	4.0	4
4-Methyl-2-pentanone	ND		ug/l	20	4.0	4
2-Hexanone	ND		ug/l	20	4.0	4
Bromochloromethane	ND		ug/l	10	2.8	4
2,2-Dichloropropane	ND		ug/l	10	2.8	4
1,2-Dibromoethane	ND		ug/l	8.0	2.6	4
1,3-Dichloropropane	ND		ug/l	10	2.8	4
1,1,1,2-Tetrachloroethane	ND		ug/l	10	2.8	4
Bromobenzene	ND		ug/l	10	2.8	4
n-Butylbenzene	ND		ug/l	10	2.8	4
sec-Butylbenzene	ND		ug/l	10	2.8	4
tert-Butylbenzene	ND		ug/l	10	2.8	4
o-Chlorotoluene	ND		ug/l	10	2.8	4
p-Chlorotoluene	ND		ug/l	10	2.8	4
1,2-Dibromo-3-chloropropane	ND		ug/l	10	2.8	4
Hexachlorobutadiene	ND		ug/l	10	2.8	4
Isopropylbenzene	90		ug/l	10	2.8	4
p-Isopropyltoluene	ND		ug/l	10	2.8	4
Naphthalene	4.5	J	ug/l	10	2.8	4
n-Propylbenzene	40		ug/l	10	2.8	4

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-06 D
 Client ID: DPT-63-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 15:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	10	2.8	4
1,2,4-Trichlorobenzene	ND		ug/l	10	2.8	4
1,3,5-Trimethylbenzene	5.8	J	ug/l	10	2.8	4
1,2,4-Trimethylbenzene	72		ug/l	10	2.8	4
1,4-Dioxane	ND		ug/l	1000	240	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-07 D
 Client ID: DPT-64-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 16:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 15:51
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	50	14.	20
1,1-Dichloroethane	ND		ug/l	50	14.	20
Chloroform	ND		ug/l	50	14.	20
Carbon tetrachloride	ND		ug/l	10	2.7	20
1,2-Dichloropropane	ND		ug/l	20	2.7	20
Dibromochloromethane	ND		ug/l	10	3.0	20
1,1,2-Trichloroethane	ND		ug/l	30	10.	20
Tetrachloroethene	ND		ug/l	10	3.6	20
Chlorobenzene	ND		ug/l	50	14.	20
Trichlorofluoromethane	ND		ug/l	50	14.	20
1,2-Dichloroethane	ND		ug/l	10	2.6	20
1,1,1-Trichloroethane	ND		ug/l	50	14.	20
Bromodichloromethane	ND		ug/l	10	3.8	20
trans-1,3-Dichloropropene	ND		ug/l	10	3.3	20
cis-1,3-Dichloropropene	ND		ug/l	10	2.9	20
1,3-Dichloropropene, Total	ND		ug/l	10	2.9	20
1,1-Dichloropropene	ND		ug/l	50	14.	20
Bromoform	ND		ug/l	40	13.	20
1,1,2,2-Tetrachloroethane	ND		ug/l	10	3.3	20
Benzene	ND		ug/l	10	3.2	20
Toluene	ND		ug/l	50	14.	20
Ethylbenzene	960		ug/l	50	14.	20
Chloromethane	ND		ug/l	50	14.	20
Bromomethane	ND		ug/l	50	14.	20
Vinyl chloride	ND		ug/l	20	1.4	20
Chloroethane	ND		ug/l	50	14.	20
1,1-Dichloroethene	ND		ug/l	10	3.4	20
trans-1,2-Dichloroethene	ND		ug/l	50	14.	20

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-07 D
 Client ID: DPT-64-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 16:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	10	3.5	20
1,2-Dichlorobenzene	ND		ug/l	50	14.	20
1,3-Dichlorobenzene	ND		ug/l	50	14.	20
1,4-Dichlorobenzene	ND		ug/l	50	14.	20
Methyl tert butyl ether	ND		ug/l	50	14.	20
p/m-Xylene	5400		ug/l	50	14.	20
o-Xylene	210		ug/l	50	14.	20
Xylenes, Total	5600		ug/l	50	14.	20
cis-1,2-Dichloroethene	ND		ug/l	50	14.	20
1,2-Dichloroethene, Total	ND		ug/l	50	14.	20
Dibromomethane	ND		ug/l	100	20.	20
1,2,3-Trichloropropane	ND		ug/l	50	14.	20
Styrene	ND		ug/l	50	14.	20
Dichlorodifluoromethane	ND		ug/l	100	20.	20
Acetone	ND		ug/l	100	29.	20
Carbon disulfide	ND		ug/l	100	20.	20
2-Butanone	ND		ug/l	100	39.	20
Vinyl acetate	ND		ug/l	100	20.	20
4-Methyl-2-pentanone	ND		ug/l	100	20.	20
2-Hexanone	ND		ug/l	100	20.	20
Bromochloromethane	ND		ug/l	50	14.	20
2,2-Dichloropropane	ND		ug/l	50	14.	20
1,2-Dibromoethane	ND		ug/l	40	13.	20
1,3-Dichloropropane	ND		ug/l	50	14.	20
1,1,1,2-Tetrachloroethane	ND		ug/l	50	14.	20
Bromobenzene	ND		ug/l	50	14.	20
n-Butylbenzene	ND		ug/l	50	14.	20
sec-Butylbenzene	ND		ug/l	50	14.	20
tert-Butylbenzene	ND		ug/l	50	14.	20
o-Chlorotoluene	ND		ug/l	50	14.	20
p-Chlorotoluene	ND		ug/l	50	14.	20
1,2-Dibromo-3-chloropropane	ND		ug/l	50	14.	20
Hexachlorobutadiene	ND		ug/l	50	14.	20
Isopropylbenzene	72		ug/l	50	14.	20
p-Isopropyltoluene	ND		ug/l	50	14.	20
Naphthalene	18	J	ug/l	50	14.	20
n-Propylbenzene	31	J	ug/l	50	14.	20



Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-07 D
 Client ID: DPT-64-GW-10-12-20190911
 Sample Location: JAMESTOWN, NY

Date Collected: 09/11/19 16:20
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	50	14.	20
1,2,4-Trichlorobenzene	ND		ug/l	50	14.	20
1,3,5-Trimethylbenzene	15	J	ug/l	50	14.	20
1,2,4-Trimethylbenzene	45	J	ug/l	50	14.	20
1,4-Dioxane	ND		ug/l	5000	1200	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-08
 Client ID: DPT-61-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 13:25
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 14:33
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-08
 Client ID: DPT-61-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 13:25
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.3		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-08**Date Collected:** 09/12/19 13:25**Client ID:** DPT-61-GW-10-12-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	106		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-09
 Client ID: TB-003-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 00:00
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 12:51
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-09
 Client ID: TB-003-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 00:00
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	8.2		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS****Lab ID:** L1941835-09**Date Collected:** 09/12/19 00:00**Client ID:** TB-003-20190912**Date Received:** 09/12/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-10 D
 Client ID: DPT-57-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 14:40
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 15:25
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	50	14.	20
1,1-Dichloroethane	ND		ug/l	50	14.	20
Chloroform	ND		ug/l	50	14.	20
Carbon tetrachloride	ND		ug/l	10	2.7	20
1,2-Dichloropropane	ND		ug/l	20	2.7	20
Dibromochloromethane	ND		ug/l	10	3.0	20
1,1,2-Trichloroethane	ND		ug/l	30	10.	20
Tetrachloroethene	ND		ug/l	10	3.6	20
Chlorobenzene	ND		ug/l	50	14.	20
Trichlorofluoromethane	ND		ug/l	50	14.	20
1,2-Dichloroethane	ND		ug/l	10	2.6	20
1,1,1-Trichloroethane	ND		ug/l	50	14.	20
Bromodichloromethane	ND		ug/l	10	3.8	20
trans-1,3-Dichloropropene	ND		ug/l	10	3.3	20
cis-1,3-Dichloropropene	ND		ug/l	10	2.9	20
1,3-Dichloropropene, Total	ND		ug/l	10	2.9	20
1,1-Dichloropropene	ND		ug/l	50	14.	20
Bromoform	ND		ug/l	40	13.	20
1,1,2,2-Tetrachloroethane	ND		ug/l	10	3.3	20
Benzene	ND		ug/l	10	3.2	20
Toluene	ND		ug/l	50	14.	20
Ethylbenzene	55		ug/l	50	14.	20
Chloromethane	ND		ug/l	50	14.	20
Bromomethane	ND		ug/l	50	14.	20
Vinyl chloride	ND		ug/l	20	1.4	20
Chloroethane	ND		ug/l	50	14.	20
1,1-Dichloroethene	ND		ug/l	10	3.4	20
trans-1,2-Dichloroethene	ND		ug/l	50	14.	20

Project Name: ESSEX HOPE

Lab Number: L1941835

Project Number: DWJMS004

Report Date: 09/18/19

SAMPLE RESULTS

Lab ID: L1941835-10 D
 Client ID: DPT-57-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 14:40
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	10	3.5	20
1,2-Dichlorobenzene	ND		ug/l	50	14.	20
1,3-Dichlorobenzene	ND		ug/l	50	14.	20
1,4-Dichlorobenzene	ND		ug/l	50	14.	20
Methyl tert butyl ether	ND		ug/l	50	14.	20
p/m-Xylene	ND		ug/l	50	14.	20
o-Xylene	ND		ug/l	50	14.	20
Xylenes, Total	ND		ug/l	50	14.	20
cis-1,2-Dichloroethene	ND		ug/l	50	14.	20
1,2-Dichloroethene, Total	ND		ug/l	50	14.	20
Dibromomethane	ND		ug/l	100	20.	20
1,2,3-Trichloropropane	ND		ug/l	50	14.	20
Styrene	ND		ug/l	50	14.	20
Dichlorodifluoromethane	ND		ug/l	100	20.	20
Acetone	ND		ug/l	100	29.	20
Carbon disulfide	ND		ug/l	100	20.	20
2-Butanone	ND		ug/l	100	39.	20
Vinyl acetate	ND		ug/l	100	20.	20
4-Methyl-2-pentanone	ND		ug/l	100	20.	20
2-Hexanone	ND		ug/l	100	20.	20
Bromochloromethane	ND		ug/l	50	14.	20
2,2-Dichloropropane	ND		ug/l	50	14.	20
1,2-Dibromoethane	ND		ug/l	40	13.	20
1,3-Dichloropropane	ND		ug/l	50	14.	20
1,1,1,2-Tetrachloroethane	ND		ug/l	50	14.	20
Bromobenzene	ND		ug/l	50	14.	20
n-Butylbenzene	18	J	ug/l	50	14.	20
sec-Butylbenzene	ND		ug/l	50	14.	20
tert-Butylbenzene	ND		ug/l	50	14.	20
o-Chlorotoluene	ND		ug/l	50	14.	20
p-Chlorotoluene	ND		ug/l	50	14.	20
1,2-Dibromo-3-chloropropane	ND		ug/l	50	14.	20
Hexachlorobutadiene	ND		ug/l	50	14.	20
Isopropylbenzene	250		ug/l	50	14.	20
p-Isopropyltoluene	ND		ug/l	50	14.	20
Naphthalene	380		ug/l	50	14.	20
n-Propylbenzene	570		ug/l	50	14.	20

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**SAMPLE RESULTS**

Lab ID: L1941835-10 D
 Client ID: DPT-57-GW-10-12-20190912
 Sample Location: JAMESTOWN, NY

Date Collected: 09/12/19 14:40
 Date Received: 09/12/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	50	14.	20
1,2,4-Trichlorobenzene	ND		ug/l	50	14.	20
1,3,5-Trimethylbenzene	ND		ug/l	50	14.	20
1,2,4-Trimethylbenzene	1600		ug/l	50	14.	20
1,4-Dioxane	ND		ug/l	5000	1200	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-10 Batch: WG1285253-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-10 Batch: WG1285253-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-10 Batch: WG1285253-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941835

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10 Batch: WG1285253-3 WG1285253-4								
Methylene chloride	99		96		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	97		97		70-130	0		20
Carbon tetrachloride	86		88		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	93		94		63-130	1		20
1,1,2-Trichloroethane	99		100		70-130	1		20
Tetrachloroethene	86		92		70-130	7		20
Chlorobenzene	91		93		75-130	2		20
Trichlorofluoromethane	83		87		62-150	5		20
1,2-Dichloroethane	95		96		70-130	1		20
1,1,1-Trichloroethane	88		88		67-130	0		20
Bromodichloromethane	97		95		67-130	2		20
trans-1,3-Dichloropropene	91		94		70-130	3		20
cis-1,3-Dichloropropene	88		87		70-130	1		20
1,1-Dichloropropene	88		88		70-130	0		20
Bromoform	99		99		54-136	0		20
1,1,1,2-Tetrachloroethane	98		99		67-130	1		20
Benzene	100		100		70-130	0		20
Toluene	92		96		70-130	4		20
Ethylbenzene	91		94		70-130	3		20
Chloromethane	120		130		64-130	8		20
Bromomethane	42		40		39-139	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941835

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10 Batch: WG1285253-3 WG1285253-4								
Vinyl chloride	83		80		55-140	4		20
Chloroethane	69		70		55-138	1		20
1,1-Dichloroethene	95		94		61-145	1		20
trans-1,2-Dichloroethene	95		95		70-130	0		20
Trichloroethene	95		94		70-130	1		20
1,2-Dichlorobenzene	96		96		70-130	0		20
1,3-Dichlorobenzene	99		98		70-130	1		20
1,4-Dichlorobenzene	96		96		70-130	0		20
Methyl tert butyl ether	83		82		63-130	1		20
p/m-Xylene	85		90		70-130	6		20
o-Xylene	85		90		70-130	6		20
cis-1,2-Dichloroethene	96		97		70-130	1		20
Dibromomethane	89		90		70-130	1		20
1,2,3-Trichloropropane	92		93		64-130	1		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		110		58-148	0		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	130		130		70-130	0		20
4-Methyl-2-pentanone	90		94		59-130	4		20
2-Hexanone	88		89		57-130	1		20
Bromochloromethane	97		95		70-130	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1941835

Report Date: 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10 Batch: WG1285253-3 WG1285253-4								
2,2-Dichloropropane	91		92		63-133	1		20
1,2-Dibromoethane	90		93		70-130	3		20
1,3-Dichloropropane	95		98		70-130	3		20
1,1,1,2-Tetrachloroethane	96		97		64-130	1		20
Bromobenzene	92		90		70-130	2		20
n-Butylbenzene	99		97		53-136	2		20
sec-Butylbenzene	98		97		70-130	1		20
tert-Butylbenzene	85		86		70-130	1		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	93		94		70-130	1		20
1,2-Dibromo-3-chloropropane	92		88		41-144	4		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	85		86		70-130	1		20
p-Isopropyltoluene	87		86		70-130	1		20
Naphthalene	87		80		70-130	8		20
n-Propylbenzene	92		92		69-130	0		20
1,2,3-Trichlorobenzene	97		91		70-130	6		20
1,2,4-Trichlorobenzene	94		90		70-130	4		20
1,3,5-Trimethylbenzene	88		88		64-130	0		20
1,2,4-Trimethylbenzene	88		88		70-130	0		20
1,4-Dioxane	88		78		56-162	12		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1941835**Report Date:** 09/18/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10 Batch: WG1285253-3 WG1285253-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		102		70-130
Toluene-d8	95		97		70-130
4-Bromofluorobenzene	85		83		70-130
Dibromofluoromethane	96		93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1941835**Project Number:** DWJMS004**Report Date:** 09/18/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1941835-01A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-01B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-01C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-02A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-02B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-02C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-03A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-03B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-03C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-04A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-04B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-04C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-05A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-05B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-05C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-06A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-06B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-06C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-07A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-07B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-07C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-08A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-08B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:09181917:15
Lab Number: L1941835
Report Date: 09/18/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1941835-08C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-09A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-09B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-10A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-10B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1941835-10C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1941835
Report Date: 09/18/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

		NEW YORK CHAIN OF CUSTODY		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 9/13/19		ALPHA Job # L1941835	
Westborough, MA 01581 6 Walkup Dr. TEL: 508-896-9220 FAX: 508-896-8193		Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information Project Name: Essex Hope Project Location: Jamestown, NY Project # DWJMS004 (Use Project name as Project #) <input type="checkbox"/> Project Manager: Shamus Keohane ALPHAQuote #: PO 148007814 Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other see PO		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #			
Client Information Client: Jacobs Address: 125 Backus Ave Jamestown, NY Phone: 508-347-1904 Fax: Email: dave.kerlan@jacobs.com		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use see PO <input type="checkbox"/> NYC Sewer Discharge							
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: See Program QA/QC assoc'd w/ PO Please specify Metals or TAL.		ANALYSIS VOCs (SW8260)		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below) Sample Specific Comments							
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		TOTAL BOTTLES	
41835-01		DPT-58-GW-10-12-20190912		9/12/19 900		GW		JG		3	
02		EB-001-20190912		9/12/19 950		W		JG		3	
03		DPT-59-GW-10-12-20190912		9/12/19 1030		GW		JG		3	
04		DPT-60-GW-10-12-20190912		9/12/19 1140		GW		JG		3	
05		DPT-60-GW-10-12-20190912 FD		9/12/19 1145		GW		JG		3	
06		DPT-63-GW-10-12-20190911		9/11/19 1520		GW		JG		3	
07		DPT-64-GW-10-12-20190911		9/11/19 1620		GW		DK		3	
08		DPT-61-GW-10-12-20190912		9/12/19 1325		GW		JG		3	
09		TB-003-20190912		9/12/19 -		W		Lab		2	
10		DPT-57-GW-10-12-20190912		9/12/19 1440		GW		JG		3	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type V		Preservative B		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Relinquished By: Audrey Talley		Date/Time 9/12/19 03:01		Received By: Audrey Talley		Date/Time 9/13/19 15:01					
Relinquished By: Audrey Talley		Date/Time 9/12/19 16:30		Received By: JLL		Date/Time 9/13/19 01:30					
Form No: 01-25 HC (rev. 30-Sept-2013)											



ANALYTICAL REPORT

Lab Number:	L1942098
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/19/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942098-01	DPT-62-GW-10-12-20190913	WATER	JAMESTOWN, NY	09/13/19 08:10	09/13/19
L1942098-02	TB-004-20190913	WATER	JAMESTOWN, NY	09/13/19 00:00	09/13/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942098-02: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1942098-01 and -02, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 1,4-dioxane, cis-1,3-Dichloropropene, and 4-methyl-2-pentanone.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (47%D) and bromomethane (41%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1942098-01 and -02, did not meet the method required minimum response factor for 2-butanone, 1,4-dioxane and 4-methyl-2-pentanone.

WG1285253-2 The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (34%D), bromomethane (25%D), Bromomethane (37%D), Chloroethane (21%D) and vinyl acetate (40%D) above the 20% CCV criteria but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/19/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1942098

Project Number: DWJMS004

Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1942098-01
 Client ID: DPT-62-GW-10-12-20190913
 Sample Location: JAMESTOWN, NY

Date Collected: 09/13/19 08:10
 Date Received: 09/13/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 11:34
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.22	J	ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	140		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.09	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942098**Project Number:** DWJMS004**Report Date:** 09/19/19**SAMPLE RESULTS**

Lab ID: L1942098-01
 Client ID: DPT-62-GW-10-12-20190913
 Sample Location: JAMESTOWN, NY

Date Collected: 09/13/19 08:10
 Date Received: 09/13/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.49	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	110		ug/l	2.5	0.70	1
o-Xylene	5.1		ug/l	2.5	0.70	1
Xylenes, Total	120		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	4.2	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	5.4		ug/l	2.5	0.70	1
sec-Butylbenzene	2.8		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	31		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	35		ug/l	2.5	0.70	1
n-Propylbenzene	30		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942098**Project Number:** DWJMS004**Report Date:** 09/19/19**SAMPLE RESULTS****Lab ID:** L1942098-01**Date Collected:** 09/13/19 08:10**Client ID:** DPT-62-GW-10-12-20190913**Date Received:** 09/13/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	64		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942098**Project Number:** DWJMS004**Report Date:** 09/19/19**SAMPLE RESULTS**

Lab ID: L1942098-02
 Client ID: TB-004-20190913
 Sample Location: JAMESTOWN, NY

Date Collected: 09/13/19 00:00
 Date Received: 09/13/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 11:09
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1942098

Project Number: DWJMS004

Report Date: 09/19/19

SAMPLE RESULTS

Lab ID: L1942098-02
 Client ID: TB-004-20190913
 Sample Location: JAMESTOWN, NY

Date Collected: 09/13/19 00:00
 Date Received: 09/13/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.6		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942098**Project Number:** DWJMS004**Report Date:** 09/19/19**SAMPLE RESULTS**

Lab ID: L1942098-02

Date Collected: 09/13/19 00:00

Client ID: TB-004-20190913

Date Received: 09/13/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX HOPE

Lab Number: L1942098

Project Number: DWJMS004

Report Date: 09/19/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1285253-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1942098

Project Number: DWJMS004

Report Date: 09/19/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1285253-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1285253-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942098

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1285253-3 WG1285253-4								
Methylene chloride	99		96		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	97		97		70-130	0		20
Carbon tetrachloride	86		88		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	93		94		63-130	1		20
1,1,2-Trichloroethane	99		100		70-130	1		20
Tetrachloroethene	86		92		70-130	7		20
Chlorobenzene	91		93		75-130	2		20
Trichlorofluoromethane	83		87		62-150	5		20
1,2-Dichloroethane	95		96		70-130	1		20
1,1,1-Trichloroethane	88		88		67-130	0		20
Bromodichloromethane	97		95		67-130	2		20
trans-1,3-Dichloropropene	91		94		70-130	3		20
cis-1,3-Dichloropropene	88		87		70-130	1		20
1,1-Dichloropropene	88		88		70-130	0		20
Bromoform	99		99		54-136	0		20
1,1,1,2-Tetrachloroethane	98		99		67-130	1		20
Benzene	100		100		70-130	0		20
Toluene	92		96		70-130	4		20
Ethylbenzene	91		94		70-130	3		20
Chloromethane	120		130		64-130	8		20
Bromomethane	42		40		39-139	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942098

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1285253-3 WG1285253-4								
Vinyl chloride	83		80		55-140	4		20
Chloroethane	69		70		55-138	1		20
1,1-Dichloroethene	95		94		61-145	1		20
trans-1,2-Dichloroethene	95		95		70-130	0		20
Trichloroethene	95		94		70-130	1		20
1,2-Dichlorobenzene	96		96		70-130	0		20
1,3-Dichlorobenzene	99		98		70-130	1		20
1,4-Dichlorobenzene	96		96		70-130	0		20
Methyl tert butyl ether	83		82		63-130	1		20
p/m-Xylene	85		90		70-130	6		20
o-Xylene	85		90		70-130	6		20
cis-1,2-Dichloroethene	96		97		70-130	1		20
Dibromomethane	89		90		70-130	1		20
1,2,3-Trichloropropane	92		93		64-130	1		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		110		58-148	0		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	130		130		70-130	0		20
4-Methyl-2-pentanone	90		94		59-130	4		20
2-Hexanone	88		89		57-130	1		20
Bromochloromethane	97		95		70-130	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942098

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1285253-3 WG1285253-4								
2,2-Dichloropropane	91		92		63-133	1		20
1,2-Dibromoethane	90		93		70-130	3		20
1,3-Dichloropropane	95		98		70-130	3		20
1,1,1,2-Tetrachloroethane	96		97		64-130	1		20
Bromobenzene	92		90		70-130	2		20
n-Butylbenzene	99		97		53-136	2		20
sec-Butylbenzene	98		97		70-130	1		20
tert-Butylbenzene	85		86		70-130	1		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	93		94		70-130	1		20
1,2-Dibromo-3-chloropropane	92		88		41-144	4		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	85		86		70-130	1		20
p-Isopropyltoluene	87		86		70-130	1		20
Naphthalene	87		80		70-130	8		20
n-Propylbenzene	92		92		69-130	0		20
1,2,3-Trichlorobenzene	97		91		70-130	6		20
1,2,4-Trichlorobenzene	94		90		70-130	4		20
1,3,5-Trimethylbenzene	88		88		64-130	0		20
1,2,4-Trimethylbenzene	88		88		70-130	0		20
1,4-Dioxane	88		78		56-162	12		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942098

Report Date: 09/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1285253-3 WG1285253-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		102		70-130
Toluene-d8	95		97		70-130
4-Bromofluorobenzene	85		83		70-130
Dibromofluoromethane	96		93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942098**Project Number:** DWJMS004**Report Date:** 09/19/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942098-01A	Vial HCl preserved	A	NA		4.8	Y	Absent		NYTCL-8260(14)
L1942098-01B	Vial HCl preserved	A	NA		4.8	Y	Absent		NYTCL-8260(14)
L1942098-01C	Vial HCl preserved	A	NA		4.8	Y	Absent		NYTCL-8260(14)
L1942098-02A	Vial HCl preserved	A	NA		4.8	Y	Absent		NYTCL-8260(14)
L1942098-02B	Vial HCl preserved	A	NA		4.8	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942098
Report Date: 09/19/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

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Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Page 25 of 25



ANALYTICAL REPORT

Lab Number:	L1942450
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/20/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942450-01	DPT-55-GW-10-12-20190916	WATER	JAMESTOWN, NY	09/16/19 13:20	09/16/19
L1942450-02	DPT-55-GW-10-12- 20190916FD	WATER	JAMESTOWN, NY	09/16/19 13:25	09/16/19
L1942450-03	DPT-54-GW-10-12-20190916	WATER	JAMESTOWN, NY	09/16/19 14:30	09/16/19
L1942450-04	TB-005-20190916	WATER	JAMESTOWN, NY	09/16/19 00:00	09/16/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942450-03: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1942450-04: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1942450-01 through -04, did not meet the method required minimum response factor for the calibration standards for cis-1,3-dichloropropene, 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

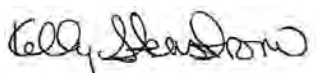
The initial calibration verification standard has the percent deviation for bromomethane (41%D) and dichlorodifluoromethane (47%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1942450-01 through -04, did not meet the method required minimum response factor for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

WG1285253-2 The continuing calibration verification standard has the percent deviation for bromomethane (37%D), chloroethane (21%D), dichlorodifluoromethane (34%D), and vinyl acetate (40%D) above the 20% CCV criteria but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/20/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1942450-01
 Client ID: DPT-55-GW-10-12-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 13:20
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 16:16
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1942450-01
 Client ID: DPT-55-GW-10-12-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 13:20
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.35	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.7	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS****Lab ID:** L1942450-01**Date Collected:** 09/16/19 13:20**Client ID:** DPT-55-GW-10-12-20190916**Date Received:** 09/16/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX HOPE

Lab Number: L1942450

Project Number: DWJMS004

Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1942450-02
 Client ID: DPT-55-GW-10-12-20190916FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 13:25
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 16:42
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1942450-02
 Client ID: DPT-55-GW-10-12-20190916FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 13:25
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.32	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.9	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS****Lab ID:** L1942450-02**Date Collected:** 09/16/19 13:25**Client ID:** DPT-55-GW-10-12-20190916FD**Date Received:** 09/16/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1942450-03 D
 Client ID: DPT-54-GW-10-12-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 14:30
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 17:33
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	1.4	2
1,1-Dichloroethane	ND		ug/l	5.0	1.4	2
Chloroform	ND		ug/l	5.0	1.4	2
Carbon tetrachloride	ND		ug/l	1.0	0.27	2
1,2-Dichloropropane	ND		ug/l	2.0	0.27	2
Dibromochloromethane	ND		ug/l	1.0	0.30	2
1,1,2-Trichloroethane	ND		ug/l	3.0	1.0	2
Tetrachloroethene	ND		ug/l	1.0	0.36	2
Chlorobenzene	ND		ug/l	5.0	1.4	2
Trichlorofluoromethane	ND		ug/l	5.0	1.4	2
1,2-Dichloroethane	ND		ug/l	1.0	0.26	2
1,1,1-Trichloroethane	ND		ug/l	5.0	1.4	2
Bromodichloromethane	ND		ug/l	1.0	0.38	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	0.33	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	0.29	2
1,3-Dichloropropene, Total	ND		ug/l	1.0	0.29	2
1,1-Dichloropropene	ND		ug/l	5.0	1.4	2
Bromoform	ND		ug/l	4.0	1.3	2
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.33	2
Benzene	ND		ug/l	1.0	0.32	2
Toluene	ND		ug/l	5.0	1.4	2
Ethylbenzene	ND		ug/l	5.0	1.4	2
Chloromethane	ND		ug/l	5.0	1.4	2
Bromomethane	ND		ug/l	5.0	1.4	2
Vinyl chloride	ND		ug/l	2.0	0.14	2
Chloroethane	ND		ug/l	5.0	1.4	2
1,1-Dichloroethene	ND		ug/l	1.0	0.34	2
trans-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2

Project Name: ESSEX HOPE

Lab Number: L1942450

Project Number: DWJMS004

Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1942450-03 D
 Client ID: DPT-54-GW-10-12-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 14:30
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.45	J	ug/l	1.0	0.35	2
1,2-Dichlorobenzene	ND		ug/l	5.0	1.4	2
1,3-Dichlorobenzene	ND		ug/l	5.0	1.4	2
1,4-Dichlorobenzene	ND		ug/l	5.0	1.4	2
Methyl tert butyl ether	ND		ug/l	5.0	1.4	2
p/m-Xylene	ND		ug/l	5.0	1.4	2
o-Xylene	ND		ug/l	5.0	1.4	2
Xylenes, Total	ND		ug/l	5.0	1.4	2
cis-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
1,2-Dichloroethene, Total	ND		ug/l	5.0	1.4	2
Dibromomethane	ND		ug/l	10	2.0	2
1,2,3-Trichloropropane	ND		ug/l	5.0	1.4	2
Styrene	ND		ug/l	5.0	1.4	2
Dichlorodifluoromethane	ND		ug/l	10	2.0	2
Acetone	3.2	J	ug/l	10	2.9	2
Carbon disulfide	ND		ug/l	10	2.0	2
2-Butanone	ND		ug/l	10	3.9	2
Vinyl acetate	ND		ug/l	10	2.0	2
4-Methyl-2-pentanone	ND		ug/l	10	2.0	2
2-Hexanone	ND		ug/l	10	2.0	2
Bromochloromethane	ND		ug/l	5.0	1.4	2
2,2-Dichloropropane	ND		ug/l	5.0	1.4	2
1,2-Dibromoethane	ND		ug/l	4.0	1.3	2
1,3-Dichloropropane	ND		ug/l	5.0	1.4	2
1,1,1,2-Tetrachloroethane	ND		ug/l	5.0	1.4	2
Bromobenzene	ND		ug/l	5.0	1.4	2
n-Butylbenzene	ND		ug/l	5.0	1.4	2
sec-Butylbenzene	ND		ug/l	5.0	1.4	2
tert-Butylbenzene	ND		ug/l	5.0	1.4	2
o-Chlorotoluene	ND		ug/l	5.0	1.4	2
p-Chlorotoluene	ND		ug/l	5.0	1.4	2
1,2-Dibromo-3-chloropropane	ND		ug/l	5.0	1.4	2
Hexachlorobutadiene	ND		ug/l	5.0	1.4	2
Isopropylbenzene	6.9		ug/l	5.0	1.4	2
p-Isopropyltoluene	ND		ug/l	5.0	1.4	2
Naphthalene	10		ug/l	5.0	1.4	2
n-Propylbenzene	30		ug/l	5.0	1.4	2



Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1942450-03 D
 Client ID: DPT-54-GW-10-12-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 14:30
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	5.0	1.4	2
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.4	2
1,3,5-Trimethylbenzene	ND		ug/l	5.0	1.4	2
1,2,4-Trimethylbenzene	330		ug/l	5.0	1.4	2
1,4-Dioxane	ND		ug/l	500	120	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	82		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE

Lab Number: L1942450

Project Number: DWJMS004

Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1942450-04
 Client ID: TB-005-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 00:00
 Date Received: 09/16/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/17/19 17:08
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS****Lab ID:** L1942450-04**Date Collected:** 09/16/19 00:00**Client ID:** TB-005-20190916**Date Received:** 09/16/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	11		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**SAMPLE RESULTS****Lab ID:** L1942450-04**Date Collected:** 09/16/19 00:00**Client ID:** TB-005-20190916**Date Received:** 09/16/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1285253-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1942450

Project Number: DWJMS004

Report Date: 09/20/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1285253-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1942450

Project Number: DWJMS004

Report Date: 09/20/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/17/19 10:43
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1285253-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942450

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1285253-3 WG1285253-4								
Methylene chloride	99		96		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	97		97		70-130	0		20
Carbon tetrachloride	86		88		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	93		94		63-130	1		20
1,1,2-Trichloroethane	99		100		70-130	1		20
Tetrachloroethene	86		92		70-130	7		20
Chlorobenzene	91		93		75-130	2		20
Trichlorofluoromethane	83		87		62-150	5		20
1,2-Dichloroethane	95		96		70-130	1		20
1,1,1-Trichloroethane	88		88		67-130	0		20
Bromodichloromethane	97		95		67-130	2		20
trans-1,3-Dichloropropene	91		94		70-130	3		20
cis-1,3-Dichloropropene	88		87		70-130	1		20
1,1-Dichloropropene	88		88		70-130	0		20
Bromoform	99		99		54-136	0		20
1,1,1,2-Tetrachloroethane	98		99		67-130	1		20
Benzene	100		100		70-130	0		20
Toluene	92		96		70-130	4		20
Ethylbenzene	91		94		70-130	3		20
Chloromethane	120		130		64-130	8		20
Bromomethane	42		40		39-139	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942450

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1285253-3 WG1285253-4								
Vinyl chloride	83		80		55-140	4		20
Chloroethane	69		70		55-138	1		20
1,1-Dichloroethene	95		94		61-145	1		20
trans-1,2-Dichloroethene	95		95		70-130	0		20
Trichloroethene	95		94		70-130	1		20
1,2-Dichlorobenzene	96		96		70-130	0		20
1,3-Dichlorobenzene	99		98		70-130	1		20
1,4-Dichlorobenzene	96		96		70-130	0		20
Methyl tert butyl ether	83		82		63-130	1		20
p/m-Xylene	85		90		70-130	6		20
o-Xylene	85		90		70-130	6		20
cis-1,2-Dichloroethene	96		97		70-130	1		20
Dibromomethane	89		90		70-130	1		20
1,2,3-Trichloropropane	92		93		64-130	1		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		110		58-148	0		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	130		130		70-130	0		20
4-Methyl-2-pentanone	90		94		59-130	4		20
2-Hexanone	88		89		57-130	1		20
Bromochloromethane	97		95		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942450

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1285253-3 WG1285253-4								
2,2-Dichloropropane	91		92		63-133	1		20
1,2-Dibromoethane	90		93		70-130	3		20
1,3-Dichloropropane	95		98		70-130	3		20
1,1,1,2-Tetrachloroethane	96		97		64-130	1		20
Bromobenzene	92		90		70-130	2		20
n-Butylbenzene	99		97		53-136	2		20
sec-Butylbenzene	98		97		70-130	1		20
tert-Butylbenzene	85		86		70-130	1		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	93		94		70-130	1		20
1,2-Dibromo-3-chloropropane	92		88		41-144	4		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	85		86		70-130	1		20
p-Isopropyltoluene	87		86		70-130	1		20
Naphthalene	87		80		70-130	8		20
n-Propylbenzene	92		92		69-130	0		20
1,2,3-Trichlorobenzene	97		91		70-130	6		20
1,2,4-Trichlorobenzene	94		90		70-130	4		20
1,3,5-Trimethylbenzene	88		88		64-130	0		20
1,2,4-Trimethylbenzene	88		88		70-130	0		20
1,4-Dioxane	88		78		56-162	12		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942450**Report Date:** 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
------------------	--------------------------	-------------	---------------------------	-------------	-----------------------------	------------	-------------	-----------------------

Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1285253-3 WG1285253-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		102		70-130
Toluene-d8	95		97		70-130
4-Bromofluorobenzene	85		83		70-130
Dibromofluoromethane	96		93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942450-01A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-01B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-01C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-02A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-02B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-02C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-03A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-03B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-03C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-04A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1942450-04B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942450
Report Date: 09/20/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1942450**Project Number:** DWJMS004**Report Date:** 09/20/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd In Lab 9/17/19		ALPHA Job # 1942450			
		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jameson, NY</u> Project # <u>DWJMS 004</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per PO</u>		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #					
Client Information Client: <u>Jacobs</u> Address: <u>125 Bladestown Ave</u> <u>Jameson, NY</u> Phone: <u>508-317-1924</u> Fax: <u>508-317-1924</u> Email: <u>Dave.Kortjohn@jacobs.com</u>		Project Manager: <u>Shamus Keohane</u> ALPHAQuote #: <u>PO # 148007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per PO</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:					
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>Sec Program QA/QC assoc'd w/ PO</u> Please specify Metals or TAL.						ANALYSIS VOCs (SWB60)		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do (Please Specify below)			
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Sample Specific Comments	
42450-01		DPT-55-GW-10-12-20190916		9/16/19 1320		GW		DK		3	
02		DPT-55-GW-10-12-20190916 FD		9/16/19 1325		GW		DK		3	
03		DPT-54-GW-10-12-20190916		9/16/19 1430		GW		DK		3	
04		TB-005-20190916		9/16/19 -		w		Lab		2	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		V N B		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Relinquished By: <u>[Signature]</u>		Date/Time: <u>9/16/19 1455</u>		Received By: <u>[Signature]</u>		Date/Time: <u>9/16/19 1457</u>					
Relinquished By: <u>[Signature]</u>		Date/Time: <u>9/16/19 1735</u>		Received By: <u>[Signature]</u>		Date/Time: <u>9/17/19 0630</u>					



ANALYTICAL REPORT

Lab Number:	L1942777
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/24/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942777-01	MW-27S-20190916	WATER	JAMESTOWN, NY	09/16/19 15:40	09/17/19
L1942777-02	MW-28S-20190917	WATER	JAMESTOWN, NY	09/17/19 09:15	09/17/19
L1942777-03	MW-124S-20190917	WATER	JAMESTOWN, NY	09/17/19 10:35	09/17/19
L1942777-04	MW-31S-20190917	WATER	JAMESTOWN, NY	09/17/19 11:50	09/17/19
L1942777-05	MW-30S-20190917	WATER	JAMESTOWN, NY	09/17/19 14:05	09/17/19
L1942777-06	TB-006-20190917	WATER	JAMESTOWN, NY	09/17/19 00:00	09/17/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942777-03, -04, and -05: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1942777-06: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1942777-01 through -06, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), 1,2,4-Trichlorobenzene (30%D), above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1942777-01 through -06, did not meet the method required minimum response factor for bromomethane, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane (31%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/24/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

SAMPLE RESULTS

Lab ID: L1942777-01
 Client ID: MW-27S-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 15:40
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 14:04
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-01
 Client ID: MW-27S-20190916
 Sample Location: JAMESTOWN, NY

Date Collected: 09/16/19 15:40
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.8	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	1.2	J	ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	0.71	J	ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS****Lab ID:** L1942777-01**Date Collected:** 09/16/19 15:40**Client ID:** MW-27S-20190916**Date Received:** 09/17/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	0.98	J	ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-02
 Client ID: MW-28S-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 09:15
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 14:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

SAMPLE RESULTS

Lab ID: L1942777-02
 Client ID: MW-28S-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 09:15
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.44	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.3	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	3.3		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	2.0	J	ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-02
 Client ID: MW-28S-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 09:15
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	2.0	J	ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-03 D

Date Collected: 09/17/19 10:35

Client ID: MW-124S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 14:55

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	0.36	2.5
1,1-Dichloropropene	ND		ug/l	6.2	1.8	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	ND		ug/l	1.2	0.40	2.5
Toluene	ND		ug/l	6.2	1.8	2.5
Ethylbenzene	5.0	J	ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-03 D

Date Collected: 09/17/19 10:35

Client ID: MW-124S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	ND		ug/l	6.2	1.8	2.5
o-Xylene	ND		ug/l	6.2	1.8	2.5
Xylenes, Total	ND		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethene, Total	ND		ug/l	6.2	1.8	2.5
Dibromomethane	ND		ug/l	12	2.5	2.5
1,2,3-Trichloropropane	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	ND		ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
Vinyl acetate	ND		ug/l	12	2.5	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
2,2-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,3-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	6.2	1.8	2.5
Bromobenzene	ND		ug/l	6.2	1.8	2.5
n-Butylbenzene	3.0	J	ug/l	6.2	1.8	2.5
sec-Butylbenzene	5.1	J	ug/l	6.2	1.8	2.5
tert-Butylbenzene	2.0	J	ug/l	6.2	1.8	2.5
o-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
p-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Hexachlorobutadiene	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	33		ug/l	6.2	1.8	2.5
p-Isopropyltoluene	2.0	J	ug/l	6.2	1.8	2.5
Naphthalene	60		ug/l	6.2	1.8	2.5
n-Propylbenzene	76		ug/l	6.2	1.8	2.5



Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-03 D

Date Collected: 09/17/19 10:35

Client ID: MW-124S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3,5-Trimethylbenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trimethylbenzene	390		ug/l	6.2	1.8	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-04 D

Date Collected: 09/17/19 11:50

Client ID: MW-31S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 15:21

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	12	3.5	5
1,1-Dichloroethane	ND		ug/l	12	3.5	5
Chloroform	ND		ug/l	12	3.5	5
Carbon tetrachloride	ND		ug/l	2.5	0.67	5
1,2-Dichloropropane	ND		ug/l	5.0	0.68	5
Dibromochloromethane	ND		ug/l	2.5	0.74	5
1,1,2-Trichloroethane	ND		ug/l	7.5	2.5	5
Tetrachloroethene	ND		ug/l	2.5	0.90	5
Chlorobenzene	ND		ug/l	12	3.5	5
Trichlorofluoromethane	ND		ug/l	12	3.5	5
1,2-Dichloroethane	ND		ug/l	2.5	0.66	5
1,1,1-Trichloroethane	ND		ug/l	12	3.5	5
Bromodichloromethane	ND		ug/l	2.5	0.96	5
trans-1,3-Dichloropropene	ND		ug/l	2.5	0.82	5
cis-1,3-Dichloropropene	ND		ug/l	2.5	0.72	5
1,3-Dichloropropene, Total	ND		ug/l	2.5	0.72	5
1,1-Dichloropropene	ND		ug/l	12	3.5	5
Bromoform	ND		ug/l	10	3.2	5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	0.84	5
Benzene	3.6		ug/l	2.5	0.80	5
Toluene	ND		ug/l	12	3.5	5
Ethylbenzene	870		ug/l	12	3.5	5
Chloromethane	ND		ug/l	12	3.5	5
Bromomethane	ND		ug/l	12	3.5	5
Vinyl chloride	ND		ug/l	5.0	0.36	5
Chloroethane	ND		ug/l	12	3.5	5
1,1-Dichloroethene	ND		ug/l	2.5	0.84	5
trans-1,2-Dichloroethene	ND		ug/l	12	3.5	5

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-04 D

Date Collected: 09/17/19 11:50

Client ID: MW-31S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	2.5	0.88	5
1,2-Dichlorobenzene	ND		ug/l	12	3.5	5
1,3-Dichlorobenzene	ND		ug/l	12	3.5	5
1,4-Dichlorobenzene	ND		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	1500		ug/l	12	3.5	5
o-Xylene	4.2	J	ug/l	12	3.5	5
Xylenes, Total	1500	J	ug/l	12	3.5	5
cis-1,2-Dichloroethene	ND		ug/l	12	3.5	5
1,2-Dichloroethene, Total	ND		ug/l	12	3.5	5
Dibromomethane	ND		ug/l	25	5.0	5
1,2,3-Trichloropropane	ND		ug/l	12	3.5	5
Styrene	ND		ug/l	12	3.5	5
Dichlorodifluoromethane	ND		ug/l	25	5.0	5
Acetone	ND		ug/l	25	7.3	5
Carbon disulfide	ND		ug/l	25	5.0	5
2-Butanone	ND		ug/l	25	9.7	5
Vinyl acetate	ND		ug/l	25	5.0	5
4-Methyl-2-pentanone	ND		ug/l	25	5.0	5
2-Hexanone	ND		ug/l	25	5.0	5
Bromochloromethane	ND		ug/l	12	3.5	5
2,2-Dichloropropane	ND		ug/l	12	3.5	5
1,2-Dibromoethane	ND		ug/l	10	3.2	5
1,3-Dichloropropane	ND		ug/l	12	3.5	5
1,1,1,2-Tetrachloroethane	ND		ug/l	12	3.5	5
Bromobenzene	ND		ug/l	12	3.5	5
n-Butylbenzene	ND		ug/l	12	3.5	5
sec-Butylbenzene	ND		ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
o-Chlorotoluene	ND		ug/l	12	3.5	5
p-Chlorotoluene	ND		ug/l	12	3.5	5
1,2-Dibromo-3-chloropropane	ND		ug/l	12	3.5	5
Hexachlorobutadiene	ND		ug/l	12	3.5	5
Isopropylbenzene	32		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	48		ug/l	12	3.5	5
n-Propylbenzene	16		ug/l	12	3.5	5



Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-04 D

Date Collected: 09/17/19 11:50

Client ID: MW-31S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	12	3.5	5
1,2,4-Trichlorobenzene	ND		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	11	J	ug/l	12	3.5	5
1,2,4-Trimethylbenzene	48		ug/l	12	3.5	5
1,4-Dioxane	ND		ug/l	1200	300	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-05 D

Date Collected: 09/17/19 14:05

Client ID: MW-30S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 15:46

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	0.36	2.5
1,1-Dichloropropene	ND		ug/l	6.2	1.8	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	3.6		ug/l	1.2	0.40	2.5
Toluene	ND		ug/l	6.2	1.8	2.5
Ethylbenzene	440		ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-05 D

Date Collected: 09/17/19 14:05

Client ID: MW-30S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	390		ug/l	6.2	1.8	2.5
o-Xylene	18		ug/l	6.2	1.8	2.5
Xylenes, Total	410		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethene, Total	ND		ug/l	6.2	1.8	2.5
Dibromomethane	ND		ug/l	12	2.5	2.5
1,2,3-Trichloropropane	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	ND		ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
Vinyl acetate	ND		ug/l	12	2.5	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
2,2-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,3-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	6.2	1.8	2.5
Bromobenzene	ND		ug/l	6.2	1.8	2.5
n-Butylbenzene	2.3	J	ug/l	6.2	1.8	2.5
sec-Butylbenzene	3.4	J	ug/l	6.2	1.8	2.5
tert-Butylbenzene	ND		ug/l	6.2	1.8	2.5
o-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
p-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Hexachlorobutadiene	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	48		ug/l	6.2	1.8	2.5
p-Isopropyltoluene	ND		ug/l	6.2	1.8	2.5
Naphthalene	77		ug/l	6.2	1.8	2.5
n-Propylbenzene	29		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-05 D

Date Collected: 09/17/19 14:05

Client ID: MW-30S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3,5-Trimethylbenzene	8.5		ug/l	6.2	1.8	2.5
1,2,4-Trimethylbenzene	120		ug/l	6.2	1.8	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-06
 Client ID: TB-006-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 00:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 11:06
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

SAMPLE RESULTS

Lab ID: L1942777-06
 Client ID: TB-006-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 00:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.25	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.5		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS****Lab ID:** L1942777-06**Date Collected:** 09/17/19 00:00**Client ID:** TB-006-20190917**Date Received:** 09/17/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1287267-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1287267-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1287267-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1287267-3 WG1287267-4								
Methylene chloride	94		90		70-130	4		20
1,1-Dichloroethane	99		97		70-130	2		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	92		93		70-130	1		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	97		93		75-130	4		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	100		95		67-130	5		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	98		96		70-130	2		20
1,1-Dichloropropene	100		97		70-130	3		20
Bromoform	89		89		54-136	0		20
1,1,2,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	95		92		70-130	3		20
Toluene	95		91		70-130	4		20
Ethylbenzene	95		92		70-130	3		20
Chloromethane	88		85		64-130	3		20
Bromomethane	67		62		39-139	8		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1287267-3 WG1287267-4								
Vinyl chloride	100		92		55-140	8		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	100		99		63-130	1		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	97		91		70-130	6		20
Dibromomethane	97		96		70-130	1		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	93		90		36-147	3		20
Acetone	94		97		58-148	3		20
Carbon disulfide	94		89		51-130	5		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	96		96		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1287267-3 WG1287267-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	90		91		70-130	1		20
1,3-Dichloropropane	94		91		70-130	3		20
1,1,1,2-Tetrachloroethane	95		93		64-130	2		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		98		70-130	2		20
tert-Butylbenzene	97		92		70-130	5		20
o-Chlorotoluene	98		94		70-130	4		20
p-Chlorotoluene	97		95		70-130	2		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	82		80		63-130	2		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	96		93		70-130	3		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	96		93		69-130	3		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		96		64-130	4		20
1,2,4-Trimethylbenzene	100		97		70-130	3		20
1,4-Dioxane	98		98		56-162	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1287267-3 WG1287267-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	98		98		70-130

METALS

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-01

Date Collected: 09/16/19 15:40

Client ID: MW-27S-20190916

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	3.78		mg/l	0.0500	0.0191	1	09/19/19 09:42	09/20/19 12:18	EPA 3005A	1,6020B	AM
Manganese, Total	3.405		mg/l	0.00100	0.00044	1	09/19/19 09:42	09/20/19 12:18	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-03

Date Collected: 09/17/19 10:35

Client ID: MW-124S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	12.7		mg/l	0.0500	0.0191	1	09/19/19 09:42	09/20/19 12:23	EPA 3005A	1,6020B	AM
Manganese, Total	9.626		mg/l	0.00100	0.00044	1	09/19/19 09:42	09/20/19 12:23	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-04

Date Collected: 09/17/19 11:50

Client ID: MW-31S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	10.7		mg/l	0.0500	0.0191	1	09/19/19 09:42	09/20/19 12:27	EPA 3005A	1,6020B	AM
Manganese, Total	9.906		mg/l	0.00100	0.00044	1	09/19/19 09:42	09/20/19 12:27	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**SAMPLE RESULTS**

Lab ID: L1942777-05

Date Collected: 09/17/19 14:05

Client ID: MW-30S-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	11.6		mg/l	0.0500	0.0191	1	09/19/19 09:42	09/20/19 12:32	EPA 3005A	1,6020B	AM
Manganese, Total	8.421		mg/l	0.00100	0.00044	1	09/19/19 09:42	09/20/19 12:32	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01,03-05 Batch: WG1285835-1										
Iron, Total	ND		mg/l	0.0500	0.0191	1	09/19/19 09:42	09/20/19 09:18	1,6020B	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	09/19/19 09:42	09/20/19 09:18	1,6020B	AM

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01,03-05 Batch: WG1285835-2								
Iron, Total	109		-		80-120	-		
Manganese, Total	98		-		80-120	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01,03-05 QC Batch ID: WG1285835-3 WG1285835-4 QC Sample: L1942454-01 Client ID: MS Sample												
Iron, Total	5.18	1	6.32	114		6.58	140	Q	75-125	4		20
Manganese, Total	5.915	0.5	5.957	8	Q	6.314	80		75-125	6		20

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942777**Report Date:** 09/24/19**SAMPLE RESULTS****Lab ID:** L1942777-01**Client ID:** MW-27S-20190916**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/16/19 15:40**Date Received:** 09/17/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	95.7		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	11.8		mg/l	0.500	0.083	1	-	09/19/19 20:40	44,300.0	AT



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

SAMPLE RESULTS

Lab ID: L1942777-03

Client ID: MW-124S-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:35

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	219.		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	4.40		mg/l	0.500	0.083	1	-	09/19/19 20:50	44,300.0	AT



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

SAMPLE RESULTS

Lab ID: L1942777-04

Client ID: MW-31S-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 11:50

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	454.		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	23.7		mg/l	0.500	0.083	1	-	09/19/19 20:59	44,300.0	AT



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942777**Report Date:** 09/24/19**SAMPLE RESULTS****Lab ID:** L1942777-05**Client ID:** MW-30S-20190917**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/17/19 14:05**Date Received:** 09/17/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	560.		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	14.1		mg/l	0.500	0.083	1	-	09/19/19 21:09	44,300.0	AT



Project Name: ESSEX HOPE

Lab Number: L1942777

Project Number: DWJMS004

Report Date: 09/24/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01,03-05 Batch: WG1286433-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab for sample(s): 01,03-05 Batch: WG1286445-1										
Chloride	ND		mg/l	0.500	0.083	1	-	09/19/19 19:34	44,300.0	AT



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942777

Report Date: 09/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-05 Batch: WG1286433-2								
Alkalinity, Total	101		-		90-110	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03-05 Batch: WG1286445-2								
Chloride	102		-		90-110	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-05 QC Batch ID: WG1286433-4 QC Sample: L1942777-01 Client ID: MW-27S-20190916												
Alkalinity, Total	95.7	100	196	100		-	-		86-116	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03-05 QC Batch ID: WG1286445-3 QC Sample: L1942777-03 Client ID: MW-124S-20190917												
Chloride	4.40	4	8.68	107		-	-		90-110	-		18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1942777
Report Date: 09/24/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-05 QC Batch ID: WG1286433-3 QC Sample: L1942777-01 Client ID: MW-27S-20190916						
Alkalinity, Total	95.7	97.7	mg CaCO3/L	2		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03-05 QC Batch ID: WG1286445-4 QC Sample: L1942777-03 Client ID: MW-124S-20190917						
Chloride	4.40	4.51	mg/l	2		18

Project Name: ESSEX HOPE**Lab Number:** L1942777**Project Number:** DWJMS004**Report Date:** 09/24/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942777-01A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-01B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-01C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-01D	Plastic 60ml unpreserved	A	7	7	4.4	Y	Absent		CL-300(28)
L1942777-01E	Plastic 250ml HNO3 preserved	A	<2	<2	4.4	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942777-01F	Plastic 250ml unpreserved/No Headspace	A	NA		4.4	Y	Absent		ALK-T-2320(14)
L1942777-02A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-02B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-02C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-03A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-03B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-03C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-03D	Plastic 60ml unpreserved	A	7	7	4.4	Y	Absent		CL-300(28)
L1942777-03E	Plastic 250ml HNO3 preserved	A	<2	<2	4.4	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942777-03F	Plastic 250ml unpreserved/No Headspace	A	NA		4.4	Y	Absent		ALK-T-2320(14)
L1942777-04A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-04B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-04C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-04D	Plastic 60ml unpreserved	A	7	7	4.4	Y	Absent		CL-300(28)
L1942777-04E	Plastic 250ml HNO3 preserved	A	<2	<2	4.4	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942777-04F	Plastic 250ml unpreserved/No Headspace	A	NA		4.4	Y	Absent		ALK-T-2320(14)
L1942777-05A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-05B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:09241910:51
Lab Number: L1942777
Report Date: 09/24/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942777-05C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942777-05D	Plastic 60ml unpreserved	A	7	7	4.4	Y	Absent		CL-300(28)
L1942777-05E	Plastic 250ml HNO3 preserved	A	<2	<2	4.4	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942777-05F	Plastic 250ml unpreserved/No Headspace	A	NA		4.4	Y	Absent		ALK-T-2320(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942777
Report Date: 09/24/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

						NEW YORK CHAIN OF CUSTODY								Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105									Page <u>1</u> of <u>1</u>		Date Rec'd in Lab <u>9/18/19</u>				ALPHA Job # <u>L1942777</u>			
Westborough, MA 01581 8 Walkup Dr. TEL: 508-890-9220 FAX: 508-898-0193						Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288						Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jamestown NY</u> Project #: <u>DWJMS004</u> (Use Project name as Project #) <input type="checkbox"/> Project Manager: <u>Shamus Keohane</u> ALPHAQuote #: <u>Po 148067814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:											Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per PO</u>						Billing Information <input checked="" type="checkbox"/> Same as Client Info PO#			
Client Information Client: <u>JACOBS</u> Address: <u>125 Blackstone Ave Jamestown NY</u> Phone: <u>519-497-2011</u> Fax: Email: <u>Shamus.Keohane@Jacobs.com</u>																	Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per PO</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge						Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:									
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>See Program QA/QC associated w/ PO</u> Please specify Metals or TAL.																	ANALYSIS <u>VOC Alkalinity Chloride Iron Total Manganese</u>						Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)				T O T A L B O T T L E S					
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix	Sampler's Initials													Sample Specific Comments												
<u>42777-01</u>		<u>MW-27S-20190915</u>		<u>09/16/19 @1540</u>		<u>GW</u>	<u>JRG</u>	X	X	X	X																					
<u>-02</u>		<u>MW-28S-20190917</u>		<u>09/17/19 @0915</u>		"	"	X																								
<u>-03</u>		<u>MW-124S-20190917</u>		<u>" @1035</u>		"	"	X	X	X	X																					
<u>-04</u>		<u>MW-31S-20190917</u>		<u>" @1150</u>		"	"	X	X	X	X																					
<u>-05</u>		<u>MW-30S-20190917</u>		<u>" @1405</u>		"	"	X	X	X	X																					
<u>-06</u>		<u>TB-006-20190917</u>		<u>" -</u>		<u>water</u>	<u>-</u>	X											<u>(Stored Per 2 COCs)</u>													
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other						Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle						Westboro: Certification No: MA935 Mansfield: Certification No: MA015						Container Type <u>V P P P</u> Preservative <u>B A A C</u>				Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)										
Relinquished By: <u>[Signature]</u>						Date/Time: <u>9/17/19 14:50</u>						Received By: <u>Audrey Riley AA</u>						Date/Time: <u>9/17/19 14:50</u>														
Revised By: <u>Audrey Riley AA</u>						Date/Time: <u>9/17/19 16:30</u>						[Signature]						Date/Time: <u>9/18/19 2:15</u>														
Form No: 01-25 HC (rev. 30-Sept-2013)																																



ANALYTICAL REPORT

Lab Number:	L1942778
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX-HOPE
Project Number:	DWJMS004
Report Date:	09/30/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942778-01	DPT-48-10-12-20190917	SOIL	JAMESTOWN, NY	09/17/19 10:00	09/17/19
L1942778-02	DPT-48-18-20-20190917	SOIL	JAMESTOWN, NY	09/17/19 10:10	09/17/19
L1942778-03	DPT-48-20-22-20190917	SOIL	JAMESTOWN, NY	09/17/19 10:20	09/17/19
L1942778-04	DPT-48-27-29-20190917	SOIL	JAMESTOWN, NY	09/17/19 10:30	09/17/19
L1942778-05	DPT-44-10-12-20190917	SOIL	JAMESTOWN, NY	09/17/19 13:00	09/17/19
L1942778-06	DPT-44-14-16-20190917	SOIL	JAMESTOWN, NY	09/17/19 13:10	09/17/19
L1942778-07	DPT-44-16-18-20190917	SOIL	JAMESTOWN, NY	09/17/19 13:20	09/17/19
L1942778-08	DPT-44-16-18-20190917FD	SOIL	JAMESTOWN, NY	09/17/19 13:25	09/17/19
L1942778-09	EB-002-20190917	WATER	JAMESTOWN, NY	09/17/19 14:10	09/17/19
L1942778-10	TB-006-20190917	WATER	JAMESTOWN, NY	09/17/19 00:00	09/17/19

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Case Narrative (continued)

Report Submission

September 30, 2019: This final report includes the results of the Volatile Organics analysis performed on L1942778-09 and -10.

September 23, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942778-02, -03, -07, and -08: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1942778-03: The sample was re-analyzed on dilution in order to quantify the results within the calibration range. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

L1942778-04: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of target compounds in the sample.

L1942778-06: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L1942778-10: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1287355-3/-4 LCS/LCSD recoveries, associated with L1942778-02, -03, -06, -07, and -08, are below the individual acceptance criteria for 2-butanone (65%/68%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1942778-01, -03, -04, and -05 did not meet the method required minimum response factor for the calibration standards for 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The initial calibration, associated with L1942778-02, -03, -06, -07, and -08, did not meet the method required

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Case Narrative (continued)

minimum response factor for the calibration standards for 1,2-dibromo-3-chloropropane and 1,4-dioxane. The initial calibration, associated with L1942778-09 and -10, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), and 1,2,4-trichlorobenzene (30%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1942778-01, -03, -04, and -05, did not meet the method required minimum response factor for 2-butanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The continuing calibration, associated with L1942778-02, -03, -06, -07, and -08, did not meet the method required minimum response factor for 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The continuing calibration, associated with L1942778-09 and -10, did not meet the method required minimum response factor for bromomethane, 2-butanone, 4-methyl-2-pentanone, bromochloromethane, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

WG1287030-3 and WG1287031-3: The continuing calibration verification standard has the percent deviation for carbon tetrachloride (22%D) and dichlorodifluoromethane (21%D) above the 20% CCV criteria, but within overall method allowances.

WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane (31%D) above the 20% CCV criteria, but within overall method allowances.

WG1287355-2 The continuing calibration verification standard has the percent deviation for 1,1,2,2-tetrachloroethane (22%D), chloromethane (25%D), vinyl chloride (26%), chloroethane (28%D), dichlorodifluoromethane (22%D), and 1,2,3-trichloropropane (24%D) above the 20% CCV criteria, but within overall method allowances.

Grain Size Analysis

The WG1286007-1 Laboratory Duplicate RPDs for % coarse gravel (25%), % total gravel (21%), % medium sand (24%), % fine sand (24%), and % total fines (40%), performed on L1942778-01, are outside the

Project Name: ESSEX-HOPE
Project Number: DWJMS004

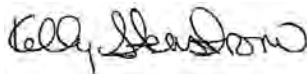
Lab Number: L1942778
Report Date: 09/30/19

Case Narrative (continued)

acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/30/19

ORGANICS

VOLATILES

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-01
 Client ID: DPT-48-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/20/19 17:54
 Analyst: MKS
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	0.32	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.20	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.72	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.17	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.16	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.57	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.97	1
Bromomethane	ND		ug/kg	2.1	0.61	1
Vinyl chloride	ND		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.47	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-01
 Client ID: DPT-48-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	1.7		ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	2.4		ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	1.0		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	1.0		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.95	1
Acetone	180		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.7	1
2-Butanone	4.0	J	ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-01
 Client ID: DPT-48-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	83	37.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-02 D
 Client ID: DPT-48-18-20-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 13:45
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	36000	16000	100
1,1-Dichloroethane	ND		ug/kg	7100	1000	100
Chloroform	ND		ug/kg	11000	1000	100
Carbon tetrachloride	ND		ug/kg	7100	1600	100
1,2-Dichloropropane	ND		ug/kg	7100	890	100
Dibromochloromethane	ND		ug/kg	7100	1000	100
1,1,2-Trichloroethane	ND		ug/kg	7100	1900	100
Tetrachloroethene	ND		ug/kg	3600	1400	100
Chlorobenzene	ND		ug/kg	3600	900	100
Trichlorofluoromethane	ND		ug/kg	28000	4900	100
1,2-Dichloroethane	ND		ug/kg	7100	1800	100
1,1,1-Trichloroethane	ND		ug/kg	3600	1200	100
Bromodichloromethane	ND		ug/kg	3600	780	100
trans-1,3-Dichloropropene	ND		ug/kg	7100	1900	100
cis-1,3-Dichloropropene	ND		ug/kg	3600	1100	100
1,3-Dichloropropene, Total	ND		ug/kg	3600	1100	100
1,1-Dichloropropene	ND		ug/kg	3600	1100	100
Bromoform	ND		ug/kg	28000	1800	100
1,1,2,2-Tetrachloroethane	ND		ug/kg	3600	1200	100
Benzene	ND		ug/kg	3600	1200	100
Toluene	ND		ug/kg	7100	3900	100
Ethylbenzene	ND		ug/kg	7100	1000	100
Chloromethane	ND		ug/kg	28000	6600	100
Bromomethane	ND		ug/kg	14000	4100	100
Vinyl chloride	ND		ug/kg	7100	2400	100
Chloroethane	ND		ug/kg	14000	3200	100
1,1-Dichloroethene	ND		ug/kg	7100	1700	100
trans-1,2-Dichloroethene	ND		ug/kg	11000	980	100

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-02 D
 Client ID: DPT-48-18-20-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	1300000		ug/kg	3600	980	100
1,2-Dichlorobenzene	ND		ug/kg	14000	1000	100
1,3-Dichlorobenzene	ND		ug/kg	14000	1000	100
1,4-Dichlorobenzene	ND		ug/kg	14000	1200	100
Methyl tert butyl ether	ND		ug/kg	14000	1400	100
p/m-Xylene	ND		ug/kg	14000	4000	100
o-Xylene	ND		ug/kg	7100	2100	100
Xylenes, Total	ND		ug/kg	7100	2100	100
cis-1,2-Dichloroethene	26000		ug/kg	7100	1200	100
1,2-Dichloroethene, Total	26000		ug/kg	7100	980	100
Dibromomethane	ND		ug/kg	14000	1700	100
Styrene	ND		ug/kg	7100	1400	100
Dichlorodifluoromethane	ND		ug/kg	71000	6500	100
Acetone	ND		ug/kg	71000	34000	100
Carbon disulfide	ND		ug/kg	71000	32000	100
2-Butanone	ND		ug/kg	71000	16000	100
Vinyl acetate	ND		ug/kg	71000	15000	100
4-Methyl-2-pentanone	ND		ug/kg	71000	9100	100
1,2,3-Trichloropropane	ND		ug/kg	14000	900	100
2-Hexanone	ND		ug/kg	71000	8400	100
Bromochloromethane	ND		ug/kg	14000	1400	100
2,2-Dichloropropane	ND		ug/kg	14000	1400	100
1,2-Dibromoethane	ND		ug/kg	7100	2000	100
1,3-Dichloropropane	ND		ug/kg	14000	1200	100
1,1,1,2-Tetrachloroethane	ND		ug/kg	3600	940	100
Bromobenzene	ND		ug/kg	14000	1000	100
n-Butylbenzene	ND		ug/kg	7100	1200	100
sec-Butylbenzene	ND		ug/kg	7100	1000	100
tert-Butylbenzene	ND		ug/kg	14000	840	100
o-Chlorotoluene	ND		ug/kg	14000	1400	100
p-Chlorotoluene	ND		ug/kg	14000	770	100
1,2-Dibromo-3-chloropropane	ND		ug/kg	21000	7100	100
Hexachlorobutadiene	ND		ug/kg	28000	1200	100
Isopropylbenzene	ND		ug/kg	7100	780	100
p-Isopropyltoluene	ND		ug/kg	7100	780	100
Naphthalene	ND		ug/kg	28000	4600	100
n-Propylbenzene	ND		ug/kg	7100	1200	100

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-02 D
 Client ID: DPT-48-18-20-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	14000	2300	100
1,2,4-Trichlorobenzene	ND		ug/kg	14000	1900	100
1,3,5-Trimethylbenzene	ND		ug/kg	14000	1400	100
1,2,4-Trimethylbenzene	3700	J	ug/kg	14000	2400	100
1,4-Dioxane	ND		ug/kg	570000	250000	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-03 D2

Date Collected: 09/17/19 10:20

Client ID: DPT-48-20-22-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/21/19 14:36

Analyst: JC

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab

Trichloroethene	500000		ug/kg	3800	1000	100
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-03 D
 Client ID: DPT-48-20-22-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/20/19 16:38
 Analyst: MKS
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	360	J	ug/kg	760	350	2
1,1-Dichloroethane	ND		ug/kg	150	22.	2
Chloroform	46	J	ug/kg	230	21.	2
Carbon tetrachloride	ND		ug/kg	150	35.	2
1,2-Dichloropropane	ND		ug/kg	150	19.	2
Dibromochloromethane	ND		ug/kg	150	21.	2
1,1,2-Trichloroethane	ND		ug/kg	150	41.	2
Tetrachloroethene	1100		ug/kg	76	30.	2
Chlorobenzene	ND		ug/kg	76	19.	2
Trichlorofluoromethane	ND		ug/kg	610	110	2
1,2-Dichloroethane	ND		ug/kg	150	39.	2
1,1,1-Trichloroethane	ND		ug/kg	76	26.	2
Bromodichloromethane	ND		ug/kg	76	17.	2
trans-1,3-Dichloropropene	ND		ug/kg	150	42.	2
cis-1,3-Dichloropropene	ND		ug/kg	76	24.	2
1,3-Dichloropropene, Total	ND		ug/kg	76	24.	2
1,1-Dichloropropene	ND		ug/kg	76	24.	2
Bromoform	ND		ug/kg	610	38.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	76	25.	2
Benzene	ND		ug/kg	76	25.	2
Toluene	130	J	ug/kg	150	83.	2
Ethylbenzene	82	J	ug/kg	150	22.	2
Chloromethane	ND		ug/kg	610	140	2
Bromomethane	ND		ug/kg	300	89.	2
Vinyl chloride	640		ug/kg	150	51.	2
Chloroethane	ND		ug/kg	300	69.	2
1,1-Dichloroethene	72	J	ug/kg	150	36.	2
trans-1,2-Dichloroethene	49	J	ug/kg	230	21.	2

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-03 D
 Client ID: DPT-48-20-22-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2-Dichlorobenzene	ND		ug/kg	300	22.	2
1,3-Dichlorobenzene	ND		ug/kg	300	23.	2
1,4-Dichlorobenzene	ND		ug/kg	300	26.	2
Methyl tert butyl ether	ND		ug/kg	300	31.	2
p/m-Xylene	430		ug/kg	300	86.	2
o-Xylene	200		ug/kg	150	44.	2
Xylenes, Total	630		ug/kg	150	44.	2
cis-1,2-Dichloroethene	14000		ug/kg	150	27.	2
1,2-Dichloroethene, Total	14000	J	ug/kg	150	21.	2
Dibromomethane	ND		ug/kg	300	36.	2
Styrene	ND		ug/kg	150	30.	2
Dichlorodifluoromethane	ND		ug/kg	1500	140	2
Acetone	ND		ug/kg	1500	730	2
Carbon disulfide	ND		ug/kg	1500	700	2
2-Butanone	ND		ug/kg	1500	340	2
Vinyl acetate	ND		ug/kg	1500	330	2
4-Methyl-2-pentanone	ND		ug/kg	1500	200	2
1,2,3-Trichloropropane	ND		ug/kg	300	19.	2
2-Hexanone	ND		ug/kg	1500	180	2
Bromochloromethane	ND		ug/kg	300	31.	2
2,2-Dichloropropane	ND		ug/kg	300	31.	2
1,2-Dibromoethane	ND		ug/kg	150	43.	2
1,3-Dichloropropane	ND		ug/kg	300	26.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	76	20.	2
Bromobenzene	ND		ug/kg	300	22.	2
n-Butylbenzene	ND		ug/kg	150	26.	2
sec-Butylbenzene	ND		ug/kg	150	22.	2
tert-Butylbenzene	ND		ug/kg	300	18.	2
o-Chlorotoluene	ND		ug/kg	300	29.	2
p-Chlorotoluene	ND		ug/kg	300	16.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	460	150	2
Hexachlorobutadiene	ND		ug/kg	610	26.	2
Isopropylbenzene	27	J	ug/kg	150	17.	2
p-Isopropyltoluene	17	J	ug/kg	150	17.	2
Naphthalene	ND		ug/kg	610	99.	2
n-Propylbenzene	240		ug/kg	150	26.	2
1,2,3-Trichlorobenzene	ND		ug/kg	300	49.	2

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-03 D
 Client ID: DPT-48-20-22-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/kg	300	42.	2
1,3,5-Trimethylbenzene	560		ug/kg	300	29.	2
1,2,4-Trimethylbenzene	2400		ug/kg	300	51.	2
1,4-Dioxane	ND		ug/kg	12000	5400	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-04
 Client ID: DPT-48-27-29-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:30
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/20/19 17:28
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	290	J	ug/kg	640	290	1
1,1-Dichloroethane	ND		ug/kg	130	19.	1
Chloroform	37	J	ug/kg	190	18.	1
Carbon tetrachloride	ND		ug/kg	130	30.	1
1,2-Dichloropropane	ND		ug/kg	130	16.	1
Dibromochloromethane	ND		ug/kg	130	18.	1
1,1,2-Trichloroethane	ND		ug/kg	130	34.	1
Tetrachloroethene	ND		ug/kg	64	25.	1
Chlorobenzene	ND		ug/kg	64	16.	1
Trichlorofluoromethane	ND		ug/kg	510	89.	1
1,2-Dichloroethane	37	J	ug/kg	130	33.	1
1,1,1-Trichloroethane	ND		ug/kg	64	21.	1
Bromodichloromethane	ND		ug/kg	64	14.	1
trans-1,3-Dichloropropene	ND		ug/kg	130	35.	1
cis-1,3-Dichloropropene	ND		ug/kg	64	20.	1
1,3-Dichloropropene, Total	ND		ug/kg	64	20.	1
1,1-Dichloropropene	ND		ug/kg	64	20.	1
Bromoform	ND		ug/kg	510	32.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	64	21.	1
Benzene	210		ug/kg	64	21.	1
Toluene	ND		ug/kg	130	70.	1
Ethylbenzene	ND		ug/kg	130	18.	1
Chloromethane	ND		ug/kg	510	120	1
Bromomethane	ND		ug/kg	260	75.	1
Vinyl chloride	ND		ug/kg	130	43.	1
Chloroethane	ND		ug/kg	260	58.	1
1,1-Dichloroethene	49	J	ug/kg	130	30.	1
trans-1,2-Dichloroethene	52	J	ug/kg	190	18.	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-04
 Client ID: DPT-48-27-29-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:30
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	990		ug/kg	64	18.	1
1,2-Dichlorobenzene	ND		ug/kg	260	18.	1
1,3-Dichlorobenzene	ND		ug/kg	260	19.	1
1,4-Dichlorobenzene	ND		ug/kg	260	22.	1
Methyl tert butyl ether	ND		ug/kg	260	26.	1
p/m-Xylene	ND		ug/kg	260	72.	1
o-Xylene	ND		ug/kg	130	37.	1
Xylenes, Total	ND		ug/kg	130	37.	1
cis-1,2-Dichloroethene	560		ug/kg	130	22.	1
1,2-Dichloroethene, Total	610	J	ug/kg	130	18.	1
Dibromomethane	ND		ug/kg	260	30.	1
Styrene	ND		ug/kg	130	25.	1
Dichlorodifluoromethane	ND		ug/kg	1300	120	1
Acetone	ND		ug/kg	1300	620	1
Carbon disulfide	ND		ug/kg	1300	580	1
2-Butanone	ND		ug/kg	1300	280	1
Vinyl acetate	ND		ug/kg	1300	280	1
4-Methyl-2-pentanone	ND		ug/kg	1300	160	1
1,2,3-Trichloropropane	ND		ug/kg	260	16.	1
2-Hexanone	ND		ug/kg	1300	150	1
Bromochloromethane	ND		ug/kg	260	26.	1
2,2-Dichloropropane	ND		ug/kg	260	26.	1
1,2-Dibromoethane	ND		ug/kg	130	36.	1
1,3-Dichloropropane	ND		ug/kg	260	21.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	64	17.	1
Bromobenzene	ND		ug/kg	260	19.	1
n-Butylbenzene	ND		ug/kg	130	21.	1
sec-Butylbenzene	ND		ug/kg	130	19.	1
tert-Butylbenzene	ND		ug/kg	260	15.	1
o-Chlorotoluene	ND		ug/kg	260	24.	1
p-Chlorotoluene	ND		ug/kg	260	14.	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	380	130	1
Hexachlorobutadiene	ND		ug/kg	510	22.	1
Isopropylbenzene	ND		ug/kg	130	14.	1
p-Isopropyltoluene	ND		ug/kg	130	14.	1
Naphthalene	ND		ug/kg	510	83.	1
n-Propylbenzene	ND		ug/kg	130	22.	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-04

Date Collected: 09/17/19 10:30

Client ID: DPT-48-27-29-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	260	41.	1
1,2,4-Trichlorobenzene	ND		ug/kg	260	35.	1
1,3,5-Trimethylbenzene	ND		ug/kg	260	25.	1
1,2,4-Trimethylbenzene	ND		ug/kg	260	43.	1
1,4-Dioxane	ND		ug/kg	10000	4500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-05
 Client ID: DPT-44-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/20/19 18:20
 Analyst: MKS
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.4	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	0.31	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.13	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.28	1
Tetrachloroethene	ND		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.3	0.74	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.3	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.58	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.3	1.0	1
Bromomethane	ND		ug/kg	2.1	0.62	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.1	0.48	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-05
 Client ID: DPT-44-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	5.8		ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	2.5		ug/kg	2.1	0.22	1
p/m-Xylene	ND		ug/kg	2.1	0.60	1
o-Xylene	ND		ug/kg	1.1	0.31	1
Xylenes, Total	ND		ug/kg	1.1	0.31	1
cis-1,2-Dichloroethene	3.3		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	3.3		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	0.98	1
Acetone	260		ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	4.9	1
2-Butanone	4.5	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.1	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.1	0.13	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.3	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.3	0.70	1
n-Propylbenzene	ND		ug/kg	1.1	0.18	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-05
 Client ID: DPT-44-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.36	1
1,4-Dioxane	ND		ug/kg	86	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-06
 Client ID: DPT-44-14-16-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 15:27
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	350	160	1
1,1-Dichloroethane	ND		ug/kg	70	10.	1
Chloroform	ND		ug/kg	100	9.8	1
Carbon tetrachloride	ND		ug/kg	70	16.	1
1,2-Dichloropropane	ND		ug/kg	70	8.8	1
Dibromochloromethane	ND		ug/kg	70	9.8	1
1,1,2-Trichloroethane	ND		ug/kg	70	19.	1
Tetrachloroethene	ND		ug/kg	35	14.	1
Chlorobenzene	ND		ug/kg	35	8.9	1
Trichlorofluoromethane	ND		ug/kg	280	49.	1
1,2-Dichloroethane	ND		ug/kg	70	18.	1
1,1,1-Trichloroethane	ND		ug/kg	35	12.	1
Bromodichloromethane	ND		ug/kg	35	7.7	1
trans-1,3-Dichloropropene	ND		ug/kg	70	19.	1
cis-1,3-Dichloropropene	ND		ug/kg	35	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	35	11.	1
1,1-Dichloropropene	ND		ug/kg	35	11.	1
Bromoform	ND		ug/kg	280	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	35	12.	1
Benzene	ND		ug/kg	35	12.	1
Toluene	ND		ug/kg	70	38.	1
Ethylbenzene	ND		ug/kg	70	9.9	1
Chloromethane	ND		ug/kg	280	66.	1
Bromomethane	ND		ug/kg	140	41.	1
Vinyl chloride	ND		ug/kg	70	24.	1
Chloroethane	ND		ug/kg	140	32.	1
1,1-Dichloroethene	ND		ug/kg	70	17.	1
trans-1,2-Dichloroethene	ND		ug/kg	100	9.6	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-06
 Client ID: DPT-44-14-16-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	35	9.6	1
1,2-Dichlorobenzene	ND		ug/kg	140	10.	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	39.	1
o-Xylene	ND		ug/kg	70	20.	1
Xylenes, Total	ND		ug/kg	70	20.	1
cis-1,2-Dichloroethene	350		ug/kg	70	12.	1
1,2-Dichloroethene, Total	350		ug/kg	70	9.6	1
Dibromomethane	ND		ug/kg	140	17.	1
Styrene	ND		ug/kg	70	14.	1
Dichlorodifluoromethane	ND		ug/kg	700	64.	1
Acetone	ND		ug/kg	700	340	1
Carbon disulfide	ND		ug/kg	700	320	1
2-Butanone	ND		ug/kg	700	160	1
Vinyl acetate	ND		ug/kg	700	150	1
4-Methyl-2-pentanone	ND		ug/kg	700	90.	1
1,2,3-Trichloropropane	ND		ug/kg	140	8.9	1
2-Hexanone	ND		ug/kg	700	83.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	70	20.	1
1,3-Dichloropropane	ND		ug/kg	140	12.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	35	9.3	1
Bromobenzene	ND		ug/kg	140	10.	1
n-Butylbenzene	63	J	ug/kg	70	12.	1
sec-Butylbenzene	140		ug/kg	70	10.	1
tert-Butylbenzene	9.6	J	ug/kg	140	8.3	1
o-Chlorotoluene	ND		ug/kg	140	13.	1
p-Chlorotoluene	ND		ug/kg	140	7.6	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	210	70.	1
Hexachlorobutadiene	ND		ug/kg	280	12.	1
Isopropylbenzene	180		ug/kg	70	7.7	1
p-Isopropyltoluene	ND		ug/kg	70	7.7	1
Naphthalene	ND		ug/kg	280	46.	1
n-Propylbenzene	18	J	ug/kg	70	12.	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-06

Date Collected: 09/17/19 13:10

Client ID: DPT-44-14-16-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	23.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	19.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	14.	1
1,2,4-Trimethylbenzene	32	J	ug/kg	140	24.	1
1,4-Dioxane	ND		ug/kg	5600	2500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-07 D
 Client ID: DPT-44-16-18-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 14:10
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	630	290	2
1,1-Dichloroethane	ND		ug/kg	130	18.	2
Chloroform	ND		ug/kg	190	18.	2
Carbon tetrachloride	ND		ug/kg	130	29.	2
1,2-Dichloropropane	ND		ug/kg	130	16.	2
Dibromochloromethane	ND		ug/kg	130	18.	2
1,1,2-Trichloroethane	ND		ug/kg	130	34.	2
Tetrachloroethene	120		ug/kg	63	25.	2
Chlorobenzene	ND		ug/kg	63	16.	2
Trichlorofluoromethane	ND		ug/kg	510	88.	2
1,2-Dichloroethane	ND		ug/kg	130	33.	2
1,1,1-Trichloroethane	ND		ug/kg	63	21.	2
Bromodichloromethane	ND		ug/kg	63	14.	2
trans-1,3-Dichloropropene	ND		ug/kg	130	35.	2
cis-1,3-Dichloropropene	ND		ug/kg	63	20.	2
1,3-Dichloropropene, Total	ND		ug/kg	63	20.	2
1,1-Dichloropropene	ND		ug/kg	63	20.	2
Bromoform	ND		ug/kg	510	31.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	63	21.	2
Benzene	ND		ug/kg	63	21.	2
Toluene	ND		ug/kg	130	69.	2
Ethylbenzene	48	J	ug/kg	130	18.	2
Chloromethane	ND		ug/kg	510	120	2
Bromomethane	ND		ug/kg	250	74.	2
Vinyl chloride	78	J	ug/kg	130	42.	2
Chloroethane	ND		ug/kg	250	57.	2
1,1-Dichloroethene	ND		ug/kg	130	30.	2
trans-1,2-Dichloroethene	56	J	ug/kg	190	17.	2

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-07 D
 Client ID: DPT-44-16-18-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	16000		ug/kg	63	17.	2
1,2-Dichlorobenzene	ND		ug/kg	250	18.	2
1,3-Dichlorobenzene	ND		ug/kg	250	19.	2
1,4-Dichlorobenzene	ND		ug/kg	250	22.	2
Methyl tert butyl ether	ND		ug/kg	250	26.	2
p/m-Xylene	97	J	ug/kg	250	71.	2
o-Xylene	ND		ug/kg	130	37.	2
Xylenes, Total	97	J	ug/kg	130	37.	2
cis-1,2-Dichloroethene	12000		ug/kg	130	22.	2
1,2-Dichloroethene, Total	12000	J	ug/kg	130	17.	2
Dibromomethane	ND		ug/kg	250	30.	2
Styrene	ND		ug/kg	130	25.	2
Dichlorodifluoromethane	ND		ug/kg	1300	120	2
Acetone	ND		ug/kg	1300	610	2
Carbon disulfide	ND		ug/kg	1300	580	2
2-Butanone	ND		ug/kg	1300	280	2
Vinyl acetate	ND		ug/kg	1300	270	2
4-Methyl-2-pentanone	ND		ug/kg	1300	160	2
1,2,3-Trichloropropane	ND		ug/kg	250	16.	2
2-Hexanone	ND		ug/kg	1300	150	2
Bromochloromethane	ND		ug/kg	250	26.	2
2,2-Dichloropropane	ND		ug/kg	250	26.	2
1,2-Dibromoethane	ND		ug/kg	130	35.	2
1,3-Dichloropropane	ND		ug/kg	250	21.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	63	17.	2
Bromobenzene	ND		ug/kg	250	18.	2
n-Butylbenzene	130		ug/kg	130	21.	2
sec-Butylbenzene	120	J	ug/kg	130	18.	2
tert-Butylbenzene	ND		ug/kg	250	15.	2
o-Chlorotoluene	ND		ug/kg	250	24.	2
p-Chlorotoluene	ND		ug/kg	250	14.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	380	130	2
Hexachlorobutadiene	ND		ug/kg	510	21.	2
Isopropylbenzene	110	J	ug/kg	130	14.	2
p-Isopropyltoluene	100	J	ug/kg	130	14.	2
Naphthalene	ND		ug/kg	510	82.	2
n-Propylbenzene	980		ug/kg	130	22.	2

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-07 D

Date Collected: 09/17/19 13:20

Client ID: DPT-44-16-18-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	250	41.	2
1,2,4-Trichlorobenzene	ND		ug/kg	250	34.	2
1,3,5-Trimethylbenzene	240	J	ug/kg	250	24.	2
1,2,4-Trimethylbenzene	4800		ug/kg	250	42.	2
1,4-Dioxane	ND		ug/kg	10000	4400	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-08 D
 Client ID: DPT-44-16-18-20190917FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:25
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 15:01
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	720	330	2
1,1-Dichloroethane	ND		ug/kg	140	21.	2
Chloroform	ND		ug/kg	210	20.	2
Carbon tetrachloride	ND		ug/kg	140	33.	2
1,2-Dichloropropane	ND		ug/kg	140	18.	2
Dibromochloromethane	ND		ug/kg	140	20.	2
1,1,2-Trichloroethane	ND		ug/kg	140	38.	2
Tetrachloroethene	79		ug/kg	72	28.	2
Chlorobenzene	ND		ug/kg	72	18.	2
Trichlorofluoromethane	ND		ug/kg	570	100	2
1,2-Dichloroethane	ND		ug/kg	140	37.	2
1,1,1-Trichloroethane	ND		ug/kg	72	24.	2
Bromodichloromethane	ND		ug/kg	72	16.	2
trans-1,3-Dichloropropene	ND		ug/kg	140	39.	2
cis-1,3-Dichloropropene	ND		ug/kg	72	23.	2
1,3-Dichloropropene, Total	ND		ug/kg	72	23.	2
1,1-Dichloropropene	ND		ug/kg	72	23.	2
Bromoform	ND		ug/kg	570	35.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	72	24.	2
Benzene	ND		ug/kg	72	24.	2
Toluene	ND		ug/kg	140	78.	2
Ethylbenzene	56	J	ug/kg	140	20.	2
Chloromethane	ND		ug/kg	570	130	2
Bromomethane	ND		ug/kg	290	83.	2
Vinyl chloride	73	J	ug/kg	140	48.	2
Chloroethane	ND		ug/kg	290	65.	2
1,1-Dichloroethene	ND		ug/kg	140	34.	2
trans-1,2-Dichloroethene	88	J	ug/kg	210	20.	2

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-08 D
 Client ID: DPT-44-16-18-20190917FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:25
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	12000		ug/kg	72	20.	2
1,2-Dichlorobenzene	ND		ug/kg	290	21.	2
1,3-Dichlorobenzene	ND		ug/kg	290	21.	2
1,4-Dichlorobenzene	ND		ug/kg	290	24.	2
Methyl tert butyl ether	ND		ug/kg	290	29.	2
p/m-Xylene	88	J	ug/kg	290	80.	2
o-Xylene	140		ug/kg	140	42.	2
Xylenes, Total	230	J	ug/kg	140	42.	2
cis-1,2-Dichloroethene	17000		ug/kg	140	25.	2
1,2-Dichloroethene, Total	17000	J	ug/kg	140	20.	2
Dibromomethane	ND		ug/kg	290	34.	2
Styrene	ND		ug/kg	140	28.	2
Dichlorodifluoromethane	ND		ug/kg	1400	130	2
Acetone	ND		ug/kg	1400	690	2
Carbon disulfide	ND		ug/kg	1400	650	2
2-Butanone	ND		ug/kg	1400	320	2
Vinyl acetate	ND		ug/kg	1400	310	2
4-Methyl-2-pentanone	ND		ug/kg	1400	180	2
1,2,3-Trichloropropane	ND		ug/kg	290	18.	2
2-Hexanone	ND		ug/kg	1400	170	2
Bromochloromethane	ND		ug/kg	290	29.	2
2,2-Dichloropropane	ND		ug/kg	290	29.	2
1,2-Dibromoethane	ND		ug/kg	140	40.	2
1,3-Dichloropropane	ND		ug/kg	290	24.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	72	19.	2
Bromobenzene	ND		ug/kg	290	21.	2
n-Butylbenzene	180		ug/kg	140	24.	2
sec-Butylbenzene	150		ug/kg	140	21.	2
tert-Butylbenzene	ND		ug/kg	290	17.	2
o-Chlorotoluene	ND		ug/kg	290	27.	2
p-Chlorotoluene	ND		ug/kg	290	15.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	430	140	2
Hexachlorobutadiene	ND		ug/kg	570	24.	2
Isopropylbenzene	120	J	ug/kg	140	16.	2
p-Isopropyltoluene	120	J	ug/kg	140	16.	2
Naphthalene	ND		ug/kg	570	93.	2
n-Propylbenzene	1800		ug/kg	140	24.	2

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-08 D
 Client ID: DPT-44-16-18-20190917FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:25
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	290	46.	2
1,2,4-Trichlorobenzene	ND		ug/kg	290	39.	2
1,3,5-Trimethylbenzene	220	J	ug/kg	290	28.	2
1,2,4-Trimethylbenzene	10000		ug/kg	290	48.	2
1,4-Dioxane	ND		ug/kg	11000	5000	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-09
 Client ID: EB-002-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 14:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 11:31
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-09
 Client ID: EB-002-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 14:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.8	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS****Lab ID:** L1942778-09**Date Collected:** 09/17/19 14:10**Client ID:** EB-002-20190917**Date Received:** 09/17/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-10
 Client ID: TB-006-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 00:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 11:06
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**SAMPLE RESULTS**

Lab ID: L1942778-10
 Client ID: TB-006-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 00:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.25	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.5		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-10

Date Collected: 09/17/19 00:00

Client ID: TB-006-20190917

Date Received: 09/17/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04 Batch: WG1287030-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	16	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04 Batch: WG1287030-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	14	J	ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04 Batch: WG1287030-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05 Batch: WG1287031-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.32	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05 Batch: WG1287031-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	0.27	J	ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/20/19 10:24
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05 Batch: WG1287031-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 09-10 Batch: WG1287267-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 09-10 Batch: WG1287267-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 09-10 Batch: WG1287267-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,06-08 Batch: WG1287355-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	ND		ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8



Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,06-08 Batch: WG1287355-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,06-08 Batch: WG1287355-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	8.4	J	ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	17	J	ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	94		70-130



Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04 Batch: WG1287030-3 WG1287030-4								
Methylene chloride	96		104		70-130	8		30
1,1-Dichloroethane	106		113		70-130	6		30
Chloroform	104		109		70-130	5		30
Carbon tetrachloride	109		116		70-130	6		30
1,2-Dichloropropane	110		115		70-130	4		30
Dibromochloromethane	100		103		70-130	3		30
1,1,2-Trichloroethane	98		100		70-130	2		30
Tetrachloroethene	98		104		70-130	6		30
Chlorobenzene	96		102		70-130	6		30
Trichlorofluoromethane	103		117		70-139	13		30
1,2-Dichloroethane	108		111		70-130	3		30
1,1,1-Trichloroethane	107		114		70-130	6		30
Bromodichloromethane	108		113		70-130	5		30
trans-1,3-Dichloropropene	103		106		70-130	3		30
cis-1,3-Dichloropropene	112		120		70-130	7		30
1,1-Dichloropropene	109		115		70-130	5		30
Bromoform	100		103		70-130	3		30
1,1,2,2-Tetrachloroethane	94		94		70-130	0		30
Benzene	105		110		70-130	5		30
Toluene	98		104		70-130	6		30
Ethylbenzene	98		105		70-130	7		30
Chloromethane	104		114		52-130	9		30
Bromomethane	93		98		57-147	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04 Batch: WG1287030-3 WG1287030-4								
Vinyl chloride	98		110		67-130	12		30
Chloroethane	85		96		50-151	12		30
1,1-Dichloroethene	96		113		65-135	16		30
trans-1,2-Dichloroethene	101		114		70-130	12		30
Trichloroethene	102		110		70-130	8		30
1,2-Dichlorobenzene	95		98		70-130	3		30
1,3-Dichlorobenzene	96		100		70-130	4		30
1,4-Dichlorobenzene	94		98		70-130	4		30
Methyl tert butyl ether	108		113		66-130	5		30
p/m-Xylene	100		106		70-130	6		30
o-Xylene	100		106		70-130	6		30
cis-1,2-Dichloroethene	106		112		70-130	6		30
Dibromomethane	106		110		70-130	4		30
Styrene	105		110		70-130	5		30
Dichlorodifluoromethane	98		109		30-146	11		30
Acetone	88		88		54-140	0		30
Carbon disulfide	86		104		59-130	19		30
2-Butanone	104		97		70-130	7		30
Vinyl acetate	107		107		70-130	0		30
4-Methyl-2-pentanone	109		108		70-130	1		30
1,2,3-Trichloropropane	96		96		68-130	0		30
2-Hexanone	96		93		70-130	3		30
Bromochloromethane	109		110		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04 Batch: WG1287030-3 WG1287030-4								
2,2-Dichloropropane	107		113		70-130	5		30
1,2-Dibromoethane	100		103		70-130	3		30
1,3-Dichloropropane	99		103		69-130	4		30
1,1,1,2-Tetrachloroethane	98		102		70-130	4		30
Bromobenzene	95		99		70-130	4		30
n-Butylbenzene	97		102		70-130	5		30
sec-Butylbenzene	96		103		70-130	7		30
tert-Butylbenzene	97		103		70-130	6		30
o-Chlorotoluene	94		100		70-130	6		30
p-Chlorotoluene	96		102		70-130	6		30
1,2-Dibromo-3-chloropropane	104		100		68-130	4		30
Hexachlorobutadiene	99		103		67-130	4		30
Isopropylbenzene	97		104		70-130	7		30
p-Isopropyltoluene	100		106		70-130	6		30
Naphthalene	109		103		70-130	6		30
n-Propylbenzene	93		100		70-130	7		30
1,2,3-Trichlorobenzene	107		102		70-130	5		30
1,2,4-Trichlorobenzene	104		101		70-130	3		30
1,3,5-Trimethylbenzene	98		105		70-130	7		30
1,2,4-Trimethylbenzene	101		105		70-130	4		30
1,4-Dioxane	111		97		65-136	13		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04 Batch: WG1287030-3 WG1287030-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		93		70-130
Toluene-d8	92		91		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05 Batch: WG1287031-3 WG1287031-4								
Methylene chloride	96		104		70-130	8		30
1,1-Dichloroethane	106		113		70-130	6		30
Chloroform	104		109		70-130	5		30
Carbon tetrachloride	109		116		70-130	6		30
1,2-Dichloropropane	110		115		70-130	4		30
Dibromochloromethane	100		103		70-130	3		30
1,1,2-Trichloroethane	98		100		70-130	2		30
Tetrachloroethene	98		104		70-130	6		30
Chlorobenzene	96		102		70-130	6		30
Trichlorofluoromethane	103		117		70-139	13		30
1,2-Dichloroethane	108		111		70-130	3		30
1,1,1-Trichloroethane	107		114		70-130	6		30
Bromodichloromethane	108		113		70-130	5		30
trans-1,3-Dichloropropene	103		106		70-130	3		30
cis-1,3-Dichloropropene	112		120		70-130	7		30
1,1-Dichloropropene	109		115		70-130	5		30
Bromoform	100		103		70-130	3		30
1,1,2,2-Tetrachloroethane	94		94		70-130	0		30
Benzene	105		110		70-130	5		30
Toluene	98		104		70-130	6		30
Ethylbenzene	98		105		70-130	7		30
Chloromethane	104		114		52-130	9		30
Bromomethane	93		98		57-147	5		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05 Batch: WG1287031-3 WG1287031-4								
Vinyl chloride	98		110		67-130	12		30
Chloroethane	85		96		50-151	12		30
1,1-Dichloroethene	96		113		65-135	16		30
trans-1,2-Dichloroethene	101		114		70-130	12		30
Trichloroethene	102		110		70-130	8		30
1,2-Dichlorobenzene	95		98		70-130	3		30
1,3-Dichlorobenzene	96		100		70-130	4		30
1,4-Dichlorobenzene	94		98		70-130	4		30
Methyl tert butyl ether	108		113		66-130	5		30
p/m-Xylene	100		106		70-130	6		30
o-Xylene	100		106		70-130	6		30
cis-1,2-Dichloroethene	106		112		70-130	6		30
Dibromomethane	106		110		70-130	4		30
Styrene	105		110		70-130	5		30
Dichlorodifluoromethane	98		109		30-146	11		30
Acetone	88		88		54-140	0		30
Carbon disulfide	86		104		59-130	19		30
2-Butanone	104		97		70-130	7		30
Vinyl acetate	107		107		70-130	0		30
4-Methyl-2-pentanone	109		108		70-130	1		30
1,2,3-Trichloropropane	96		96		68-130	0		30
2-Hexanone	96		93		70-130	3		30
Bromochloromethane	109		110		70-130	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05 Batch: WG1287031-3 WG1287031-4								
2,2-Dichloropropane	107		113		70-130	5		30
1,2-Dibromoethane	100		103		70-130	3		30
1,3-Dichloropropane	99		103		69-130	4		30
1,1,1,2-Tetrachloroethane	98		102		70-130	4		30
Bromobenzene	95		99		70-130	4		30
n-Butylbenzene	97		102		70-130	5		30
sec-Butylbenzene	96		103		70-130	7		30
tert-Butylbenzene	97		103		70-130	6		30
o-Chlorotoluene	94		100		70-130	6		30
p-Chlorotoluene	96		102		70-130	6		30
1,2-Dibromo-3-chloropropane	104		100		68-130	4		30
Hexachlorobutadiene	99		103		67-130	4		30
Isopropylbenzene	97		104		70-130	7		30
p-Isopropyltoluene	100		106		70-130	6		30
Naphthalene	109		103		70-130	6		30
n-Propylbenzene	93		100		70-130	7		30
1,2,3-Trichlorobenzene	107		102		70-130	5		30
1,2,4-Trichlorobenzene	104		101		70-130	3		30
1,3,5-Trimethylbenzene	98		105		70-130	7		30
1,2,4-Trimethylbenzene	101		105		70-130	4		30
1,4-Dioxane	111		97		65-136	13		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05 Batch: WG1287031-3 WG1287031-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		93		70-130
Toluene-d8	92		91		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09-10 Batch: WG1287267-3 WG1287267-4								
Methylene chloride	94		90		70-130	4		20
1,1-Dichloroethane	99		97		70-130	2		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	92		93		70-130	1		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	97		93		75-130	4		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	100		95		67-130	5		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	98		96		70-130	2		20
1,1-Dichloropropene	100		97		70-130	3		20
Bromoform	89		89		54-136	0		20
1,1,2,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	95		92		70-130	3		20
Toluene	95		91		70-130	4		20
Ethylbenzene	95		92		70-130	3		20
Chloromethane	88		85		64-130	3		20
Bromomethane	67		62		39-139	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09-10 Batch: WG1287267-3 WG1287267-4								
Vinyl chloride	100		92		55-140	8		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	100		99		63-130	1		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	97		91		70-130	6		20
Dibromomethane	97		96		70-130	1		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	93		90		36-147	3		20
Acetone	94		97		58-148	3		20
Carbon disulfide	94		89		51-130	5		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	96		96		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09-10 Batch: WG1287267-3 WG1287267-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	90		91		70-130	1		20
1,3-Dichloropropane	94		91		70-130	3		20
1,1,1,2-Tetrachloroethane	95		93		64-130	2		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		98		70-130	2		20
tert-Butylbenzene	97		92		70-130	5		20
o-Chlorotoluene	98		94		70-130	4		20
p-Chlorotoluene	97		95		70-130	2		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	82		80		63-130	2		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	96		93		70-130	3		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	96		93		69-130	3		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		96		64-130	4		20
1,2,4-Trimethylbenzene	100		97		70-130	3		20
1,4-Dioxane	98		98		56-162	0		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09-10 Batch: WG1287267-3 WG1287267-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,06-08 Batch: WG1287355-3 WG1287355-4								
Methylene chloride	99		95		70-130	4		30
1,1-Dichloroethane	86		85		70-130	1		30
Chloroform	97		95		70-130	2		30
Carbon tetrachloride	92		91		70-130	1		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	88		88		70-130	0		30
1,1,2-Trichloroethane	84		86		70-130	2		30
Tetrachloroethene	95		94		70-130	1		30
Chlorobenzene	86		86		70-130	0		30
Trichlorofluoromethane	81		80		70-139	1		30
1,2-Dichloroethane	89		87		70-130	2		30
1,1,1-Trichloroethane	92		91		70-130	1		30
Bromodichloromethane	90		88		70-130	2		30
trans-1,3-Dichloropropene	84		83		70-130	1		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	92		90		70-130	2		30
Bromoform	88		88		70-130	0		30
1,1,2,2-Tetrachloroethane	80		78		70-130	3		30
Benzene	91		90		70-130	1		30
Toluene	86		86		70-130	0		30
Ethylbenzene	87		87		70-130	0		30
Chloromethane	79		77		52-130	3		30
Bromomethane	82		82		57-147	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,06-08 Batch: WG1287355-3 WG1287355-4								
Vinyl chloride	74		71		67-130	4		30
Chloroethane	76		74		50-151	3		30
1,1-Dichloroethene	89		89		65-135	0		30
trans-1,2-Dichloroethene	92		89		70-130	3		30
Trichloroethene	92		92		70-130	0		30
1,2-Dichlorobenzene	88		86		70-130	2		30
1,3-Dichlorobenzene	89		87		70-130	2		30
1,4-Dichlorobenzene	93		91		70-130	2		30
Methyl tert butyl ether	88		87		66-130	1		30
p/m-Xylene	91		89		70-130	2		30
o-Xylene	90		90		70-130	0		30
cis-1,2-Dichloroethene	92		90		70-130	2		30
Dibromomethane	91		92		70-130	1		30
Styrene	93		93		70-130	0		30
Dichlorodifluoromethane	79		77		30-146	3		30
Acetone	77		77		54-140	0		30
Carbon disulfide	87		86		59-130	1		30
2-Butanone	65	Q	68	Q	70-130	5		30
Vinyl acetate	77		76		70-130	1		30
4-Methyl-2-pentanone	87		86		70-130	1		30
1,2,3-Trichloropropane	77		77		68-130	0		30
2-Hexanone	77		80		70-130	4		30
Bromochloromethane	97		95		70-130	2		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,06-08 Batch: WG1287355-3 WG1287355-4								
2,2-Dichloropropane	89		88		70-130	1		30
1,2-Dibromoethane	89		88		70-130	1		30
1,3-Dichloropropane	83		83		69-130	0		30
1,1,1,2-Tetrachloroethane	89		89		70-130	0		30
Bromobenzene	86		85		70-130	1		30
n-Butylbenzene	85		85		70-130	0		30
sec-Butylbenzene	86		84		70-130	2		30
tert-Butylbenzene	87		85		70-130	2		30
o-Chlorotoluene	83		83		70-130	0		30
p-Chlorotoluene	81		80		70-130	1		30
1,2-Dibromo-3-chloropropane	92		88		68-130	4		30
Hexachlorobutadiene	95		94		67-130	1		30
Isopropylbenzene	85		83		70-130	2		30
p-Isopropyltoluene	88		88		70-130	0		30
Naphthalene	86		85		70-130	1		30
n-Propylbenzene	84		82		70-130	2		30
1,2,3-Trichlorobenzene	92		91		70-130	1		30
1,2,4-Trichlorobenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	87		84		70-130	4		30
1,2,4-Trimethylbenzene	87		85		70-130	2		30
1,4-Dioxane	84		92		65-136	9		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,06-08 Batch: WG1287355-3 WG1287355-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	94		95		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	99		99		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 09-10 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID:												
Methylene chloride	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloroethane	ND	25	27	108		26	104		70-130	4		20
Chloroform	ND	25	26	104		27	108		70-130	4		20
Carbon tetrachloride	ND	25	28	112		28	112		63-132	0		20
1,2-Dichloropropane	ND	25	24	96		25	100		70-130	4		20
Dibromochloromethane	ND	25	24	96		25	100		63-130	4		20
1,1,2-Trichloroethane	ND	25	24	96		24	96		70-130	0		20
Tetrachloroethene	ND	25	24	96		24	96		70-130	0		20
Chlorobenzene	ND	25	25	100		25	100		75-130	0		20
Trichlorofluoromethane	ND	25	28	112		27	108		62-150	4		20
1,2-Dichloroethane	ND	25	29	116		29	116		70-130	0		20
1,1,1-Trichloroethane	ND	25	28	112		28	112		67-130	0		20
Bromodichloromethane	ND	25	26	104		26	104		67-130	0		20
trans-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
cis-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloropropene	ND	25	28	112		28	112		70-130	0		20
Bromoform	ND	25	23	92		23	92		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	25	25	100		25	100		67-130	0		20
Benzene	0.84J	25	26	104		26	104		70-130	0		20
Toluene	ND	25	24	96		25	100		70-130	4		20
Ethylbenzene	ND	25	25	100		24	96		70-130	4		20
Chloromethane	ND	25	24	96		24	96		64-130	0		20
Bromomethane	ND	25	6.1J	24	Q	8.3	33	Q	39-139	31	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 09-10 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID:												
Vinyl chloride	ND	25	28	112		27	108		55-140	4		20
Chloroethane	ND	25	28	112		28	112		55-138	0		20
1,1-Dichloroethene	ND	25	26	104		26	104		61-145	0		20
trans-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Trichloroethene	ND	25	26	104		26	104		70-130	0		20
1,2-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,3-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,4-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
Methyl tert butyl ether	ND	25	27	108		27	108		63-130	0		20
p/m-Xylene	510	50	500	0	Q	480	0	Q	70-130	4		20
o-Xylene	ND	50	50	100		50	100		70-130	0		20
cis-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Dibromomethane	ND	25	26	104		25	100		70-130	4		20
1,2,3-Trichloropropane	ND	25	24	96		26	104		64-130	8		20
Styrene	ND	50	50	100		51	102		70-130	2		20
Dichlorodifluoromethane	ND	25	26	104		25	100		36-147	4		20
Acetone	ND	25	26	104		28	112		58-148	7		20
Carbon disulfide	ND	25	25	100		25	100		51-130	0		20
2-Butanone	ND	25	35	140	Q	35	140	Q	63-138	0		20
Vinyl acetate	ND	25	30	120		29	116		70-130	3		20
4-Methyl-2-pentanone	ND	25	26	104		26	104		59-130	0		20
2-Hexanone	ND	25	28	112		28	112		57-130	0		20
Bromochloromethane	ND	25	26	104		26	104		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 09-10 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID:												
2,2-Dichloropropane	ND	25	24	96		23	92		63-133	4		20
1,2-Dibromoethane	ND	25	24	96		24	96		70-130	0		20
1,3-Dichloropropane	ND	25	24	96		24	96		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	25	25	100		25	100		64-130	0		20
Bromobenzene	ND	25	24	96		24	96		70-130	0		20
n-Butylbenzene	ND	25	25	100		25	100		53-136	0		20
sec-Butylbenzene	ND	25	27	108		26	104		70-130	4		20
tert-Butylbenzene	ND	25	26	104		25	100		70-130	4		20
o-Chlorotoluene	ND	25	28	112		32	128		70-130	13		20
p-Chlorotoluene	ND	25	24	96		24	96		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	25	25	100		26	104		41-144	4		20
Hexachlorobutadiene	ND	25	20	80		21	84		63-130	5		20
Isopropylbenzene	29	25	52	92		50	84		70-130	4		20
p-Isopropyltoluene	ND	25	25	100		24	96		70-130	4		20
Naphthalene	6.5	25	29	90		30	94		70-130	3		20
n-Propylbenzene	6.8	25	31	97		30	93		69-130	3		20
1,2,3-Trichlorobenzene	ND	25	23	92		24	96		70-130	4		20
1,2,4-Trichlorobenzene	ND	25	23	92		23	92		70-130	0		20
1,3,5-Trimethylbenzene	4.0J	25	29	116		29	116		64-130	0		20
1,2,4-Trimethylbenzene	15	25	39	96		38	92		70-130	3		20
1,4-Dioxane	ND	1250	1300	104		1400	112		56-162	7		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09-10 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	113		112		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	94		94		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-01
 Client ID: DPT-48-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:00
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.291		%	0.050	0.050	1	-	09/23/19 09:01	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Gravel	34.6		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Gravel	26.4		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Gravel	61.0		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Sand	10.1		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Medium Sand	13.4		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Sand	5.90		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Sand	29.4		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Fines	9.60		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-02
 Client ID: DPT-48-18-20-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:10
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	1.68		%	0.050	0.050	1	-	09/23/19 09:01	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Gravel	0.300		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Gravel	0.300		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Gravel	0.600		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Sand	0.500		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Medium Sand	2.60		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Sand	1.50		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Sand	4.60		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Fines	94.8		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	78.7		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-03
 Client ID: DPT-48-20-22-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:20
 Date Received: 09/17/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.643		%	0.050	0.050	1	-	09/23/19 09:01	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Coarse Sand	0.100		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Medium Sand	0.200		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Fine Sand	26.5		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Sand	26.8		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
% Total Fines	73.2		%	0.100	NA	1	-	09/19/19 08:16	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	78.5		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-04

Client ID: DPT-48-27-29-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 10:30

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-05

Client ID: DPT-44-10-12-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:00

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.8		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19**SAMPLE RESULTS****Lab ID:** L1942778-06**Client ID:** DPT-44-14-16-20190917**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/17/19 13:10**Date Received:** 09/17/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-07

Client ID: DPT-44-16-18-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:20

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

SAMPLE RESULTS

Lab ID: L1942778-08

Client ID: DPT-44-16-18-20190917FD

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 13:25

Date Received: 09/17/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	09/18/19 13:16	121,2540G	RI



Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01-03 Batch: WG1286056-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	09/23/19 09:01	13,-	SP

Lab Control Sample Analysis
Batch Quality Control**Project Name:** ESSEX-HOPE**Project Number:** DWJMS004**Lab Number:** L1942778**Report Date:** 09/30/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 Batch: WG1286056-2								
Total Organic Carbon	98		-		75-125	-		25

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Lab Number: L1942778

Project Number: DWJMS004

Report Date: 09/30/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1286056-4 QC Sample: L1942778-01 Client ID: DPT-48-10-12-20190917												
Total Organic Carbon	0.291	0.999	1.38	109		-	-		75-125	-		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX-HOPE

Project Number: DWJMS004

Lab Number: L1942778

Report Date: 09/30/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1285598-1 QC Sample: L1942612-01 Client ID: DUP Sample						
Solids, Total	79.7	78.6	%	1		20
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1286007-1 QC Sample: L1942778-01 Client ID: DPT-48-10-12-20190917						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	34.6	26.9	%	25	Q	20
% Fine Gravel	26.4	22.7	%	15		20
% Total Gravel	61.0	49.6	%	21	Q	20
% Coarse Sand	10.1	11.4	%	12		20
% Medium Sand	13.4	17.1	%	24	Q	20
% Fine Sand	5.90	7.50	%	24	Q	20
% Total Sand	29.4	36.0	%	20		20
% Total Fines	9.60	14.4	%	40	Q	20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1286056-3 QC Sample: L1942778-01 Client ID: DPT-48-10-12-20190917						
Total Organic Carbon	0.291	0.293	%	1		25

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942778-01A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-01B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-01C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-01D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-01E	Glass 120ml/4oz unpreserved	A	NA		4.4	Y	Absent		A2-TOC-LK(14)
L1942778-01F	Plastic 8oz unpreserved for Grain Size	A	NA		4.4	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1942778-01X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-01Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 12:22	NYTCL-8260HLW(14)
L1942778-01Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 12:22	NYTCL-8260HLW(14)
L1942778-02A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-02B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-02C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-02D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-02E	Glass 120ml/4oz unpreserved	A	NA		4.4	Y	Absent		A2-TOC-LK(14)
L1942778-02F	Plastic 8oz unpreserved for Grain Size	A	NA		4.4	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1942778-02X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-02Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 12:22	NYTCL-8260HLW(14)
L1942778-02Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 12:22	NYTCL-8260HLW(14)
L1942778-03A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Serial_No:09301918:58
Lab Number: L1942778
Report Date: 09/30/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942778-03B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-03C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-03D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-03E	Glass 120ml/4oz unpreserved	A	NA		4.4	Y	Absent		A2-TOC-LK(14)
L1942778-03F	Plastic 8oz unpreserved for Grain Size	A	NA		4.4	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1942778-03X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-03Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-03Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-04A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-04B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-04C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-04D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-04X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-04Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-04Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-05A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-05B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-05C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-05D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-05X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-05Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-05Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-06A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-06B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-06C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-06D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)

Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942778-06X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-06Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-06Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-07A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-07B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-07C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-07D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-07X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-07Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-07Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-08A	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-08B	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-08C	5 gram Encore Sampler	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-08D	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		TS(7)
L1942778-08X	Vial MeOH preserved split	A	NA		4.4	Y	Absent		NYTCL-8260HLW(14)
L1942778-08Y	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-08Z	Vial Water preserved split	A	NA		4.4	Y	Absent	18-SEP-19 14:00	NYTCL-8260HLW(14)
L1942778-09A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942778-09B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942778-09C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942778-10A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)
L1942778-10B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX-HOPE
Project Number: DWJMS004

Lab Number: L1942778
Report Date: 09/30/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX-HOPE**Lab Number:** L1942778**Project Number:** DWJMS004**Report Date:** 09/30/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

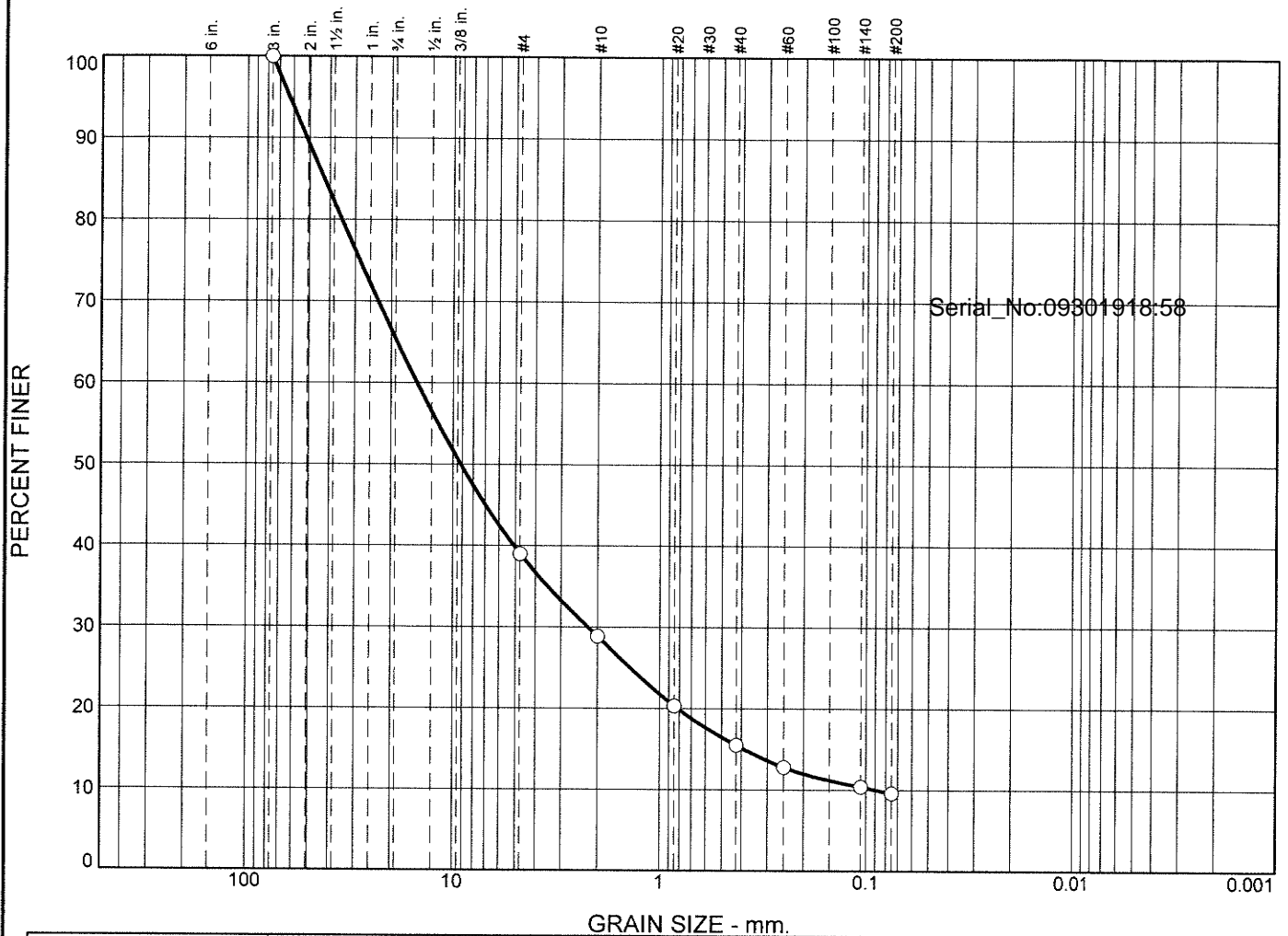


Serial_No:09301918:58

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt		Clay		
<input type="radio"/>	0.0	34.6	26.4	10.1	13.4	5.9	9.6				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>				42.5497	14.9494	9.1797	2.2234	0.3885	0.0890	3.71	167.89

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-48-10-12-20190917 Sample Number: L1942778-01 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
---	---	--

GRAIN SIZE DISTRIBUTION TEST DATA

9/20/2019

Location: DPT-48-10-12-20190917

Sample Number: L1942778-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.85

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
92.85	0.00	3"	0.00	0.00	100.0
		#4	56.63	0.00	39.0
		#10	9.41	0.00	28.9
		#20	7.93	0.00	20.3
		#40	4.47	0.00	15.5
		#60	2.53	0.00	12.8
		#140	2.23	0.00	10.4
		#200	0.73	0.00	9.6

Serial_No:09301918:58

Fractional Components

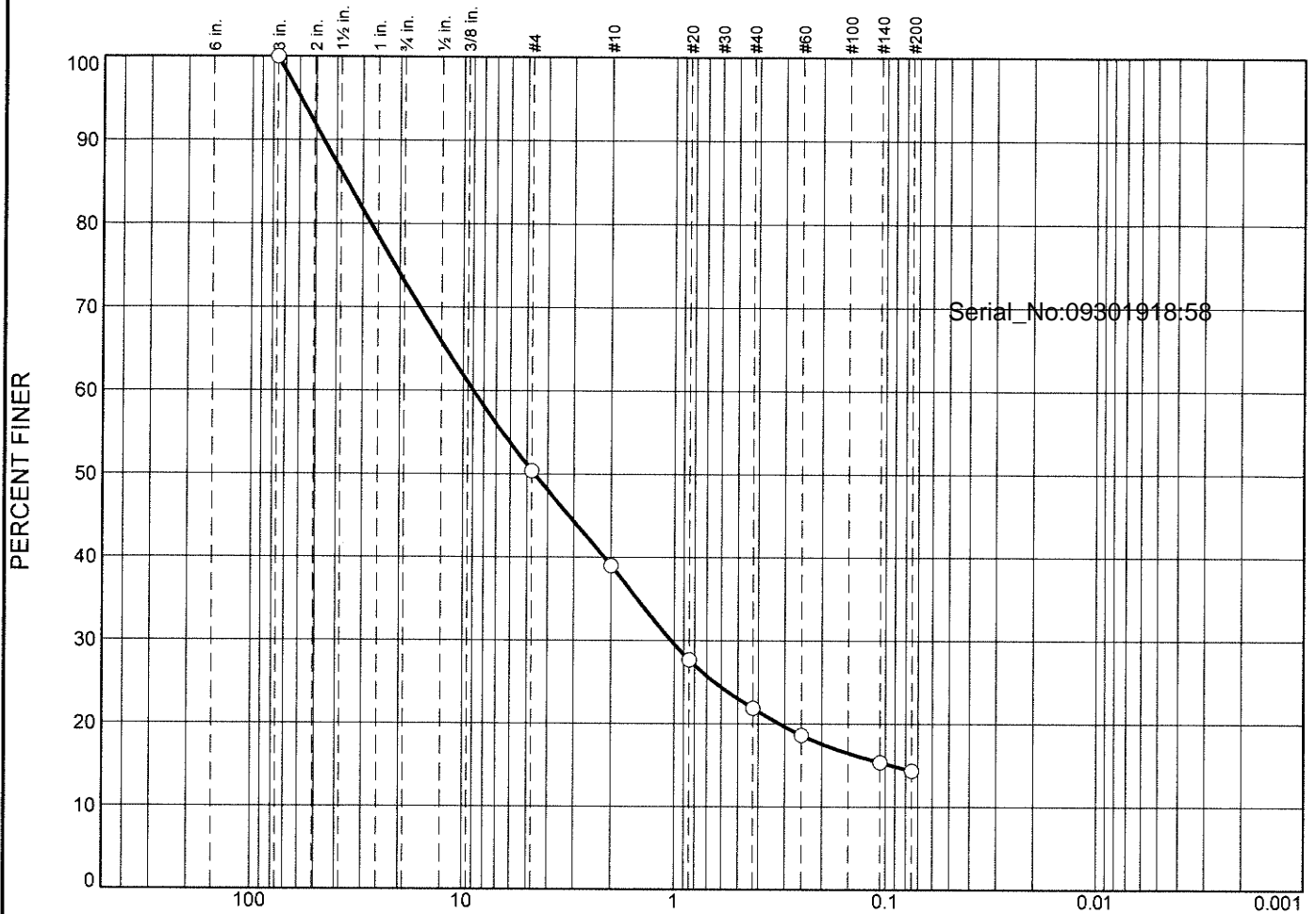
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	34.6	26.4	61.0	10.1	13.4	5.9	29.4			9.6

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0890	0.3885	0.8166	2.2234	5.0886	9.1797	14.9494	34.8915	42.5497	51.7467	62.8211

Fineness Modulus	C _u	C _c
5.66	167.89	3.71

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE DISTRIBUTION TEST DATA

9/20/2019

Location: DPT-48-10-12-20190917

Sample Number: WG1286007-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.74

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
92.74	0.00	3"	0.00	0.00	100.0
		#4	46.01	0.00	50.4
		#10	10.55	0.00	39.0
		#20	10.50	0.00	27.7
		#40	5.37	0.00	21.9
		#60	3.02	0.00	18.6
		#140	3.04	0.00	15.4
		#200	0.93	0.00	14.4

Serial_No:09301918:58

Fractional Components

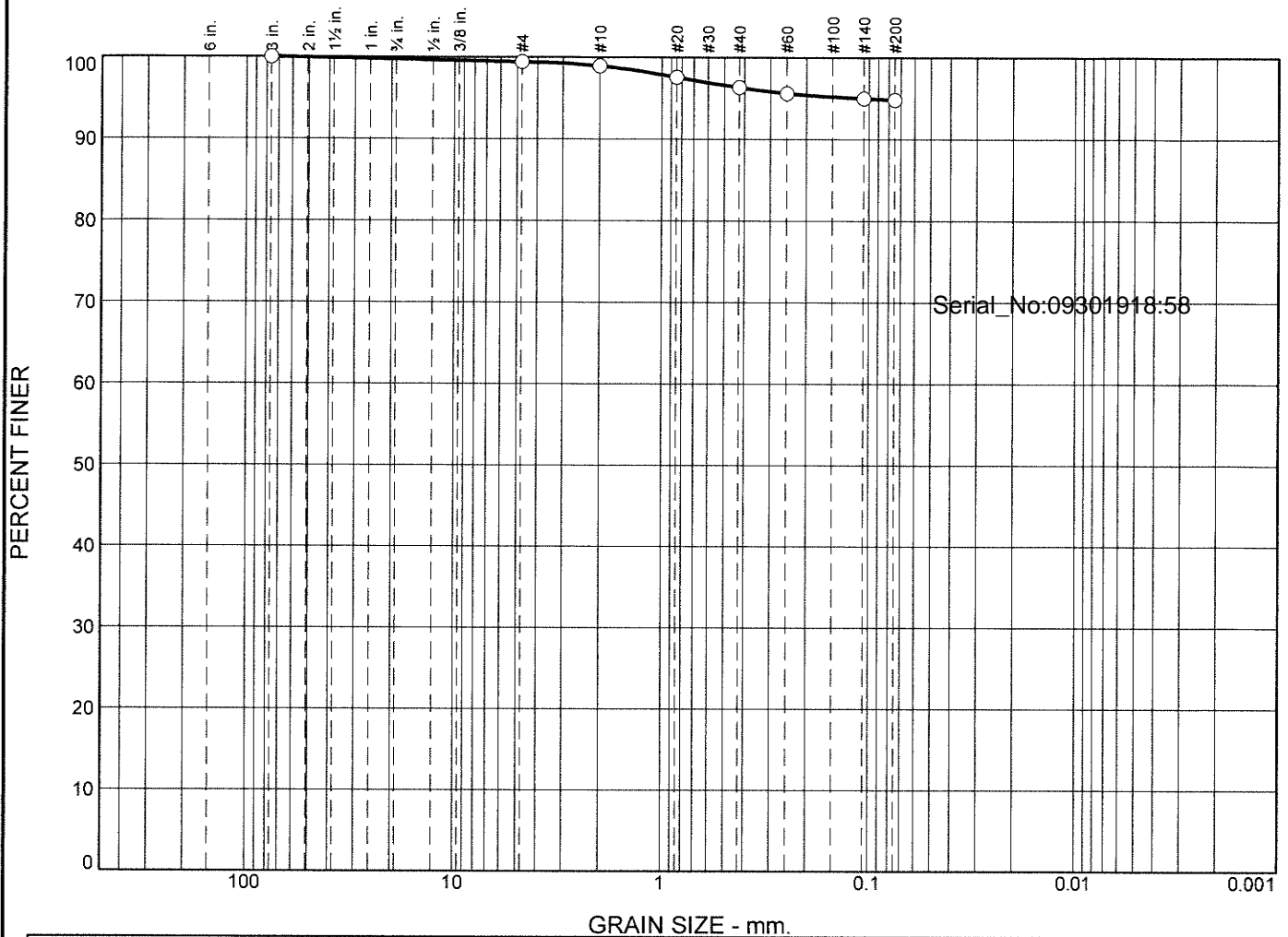
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	26.9	22.7	49.6	11.4	17.1	7.5	36.0			14.4

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0936	0.3174	1.0343	2.1521	4.6183	8.9640	27.4847	35.6315	46.0055	59.2458

Fineness Modulus
4.96

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"		% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0	0.3	0.3	0.5	2.6	1.5	94.8			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c C _u
<input type="radio"/>										
<input type="radio"/>										

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Client: Project: <input type="radio"/> Source of Sample: DPT-48-18-20-20190917 Sample Number: L1942778-02 Date: <input type="radio"/>	Remarks:
Alpha Analytical Mansfield, MA	

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

9/20/2019

Location: DPT-48-18-20-20190917

Sample Number: L1942778-02

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =81.97

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
81.97	0.00	3"	0.00	0.00	100.0
		#4	0.49	0.00	99.4
		#10	0.38	0.00	98.9
		#20	1.13	0.00	97.6
		#40	1.01	0.00	96.3
		#60	0.59	0.00	95.6
		#140	0.49	0.00	95.0
		#200	0.17	0.00	94.8

Serial_No:09301918:58

Fractional Components

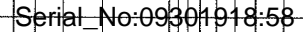
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.3	0.3	0.6	0.5	2.6	1.5	4.6			94.8

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
											0.1041

Fineness Modulus
0.16

Alpha Analytical

PERCENT FINER

[illegible]

AASHTO

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

9/20/2019

Location: DPT-48-20-22-20190917

Sample Number: L1942778-03

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =90.13

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
90.13	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.06	0.00	99.9
		#20	0.11	0.00	99.8
		#40	0.06	0.00	99.7
		#60	0.07	0.00	99.7
		#140	10.14	0.00	88.4
		#200	13.69	0.00	73.2

Serial_No:09301918:58

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	26.5	26.8			73.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.0865	0.0970	0.1111	0.1354

Fineness Modulus
0.04

Alpha Analytical

Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 9/18/19		ALPHA Job # L1942778			
		Project Information Project Name: Essex-Hope Project Location: Jamestown, NY Project # DWTMS004 (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other - Per PO		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #					
Client Information Client: Jacobs Address: 125 Blackstone Ave Jamestown, NY Phone: 508-397-1904 Fax: Email: Dave.Kurtz@jacobs.com		Project Manager: Shamus Keckane ALPHAQuote #: PO # 148007814 Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other Per PO <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities: Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:					
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: See Program QA/QC associated w/ PO Please specify Metals or TAL.						ANALYSIS VOCs (Sw800) <input checked="" type="checkbox"/> Grain Size (0.2) <input checked="" type="checkbox"/> Total Organic Carbon (TOC) <input checked="" type="checkbox"/>		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)			
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Sample Specific Comments	
42778-01		DPT-48-10-12-20190917		9/17/19 1000		S		DK		X X X	
-02		DPT-48-18-20-20190917		9/17/19 1010		S		DK		X X X	
-03		DPT-48-20-22-20190917		9/17/19 1020		S		DK		X X X	
-04		DPT-48-27-29-20190917		9/17/19 1030		S		DK		X	
-05		DPT-44-10-12-20190917		9/17/19 1300		S		DK		X	
-06		DPT-44-14-16-20190917		9/17/19 1310		S		DK		X	
-07		DPT-44-16-18-20190917		9/17/19 1320		S		DK		X	
-08		DPT-44-16-18-20190917FD		9/17/19 1325		S		DK		X	
-09		EB-002-20190917		9/17/19 1410		W		DK		X	
-10		TB-006-20190917		9/17/19 -		W		Lab		X	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type E P A		Preservative A A A		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Relinquished By: Daniel V. Keckane		Date/Time: 9/17/19 14:50		Received By: Daniel V. Keckane		Date/Time: 9/17/19 14:50					
Relinquished By: Doreen Ziley		Date/Time: 9/17/19 14:30		Received By: Doreen Ziley		Date/Time: 9/17/19 14:30					



ANALYTICAL REPORT

Lab Number:	L1942979
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/25/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942979-01	MW-112S-20190917	WATER	JAMESTOWN, NY	09/17/19 16:05	09/18/19
L1942979-02	MW-29S-20190918	WATER	JAMESTOWN, NY	09/18/19 09:15	09/18/19
L1942979-03	MW-29S-20190918FD	WATER	JAMESTOWN, NY	09/18/19 09:15	09/18/19
L1942979-04	MW-24S-20190918	WATER	JAMESTOWN, NY	09/18/19 10:15	09/18/19
L1942979-05	MW-26S-20190918	WATER	JAMESTOWN, NY	09/18/19 11:30	09/18/19
L1942979-06	MW-117S-20190918	WATER	JAMESTOWN, NY	09/18/19 13:45	09/18/19
L1942979-07	TB-007-20190918	WATER	JAMESTOWN, NY	09/18/19 00:00	09/18/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942979-02, -03, -04, and -05: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1942979-02 and -03: The sample was re-analyzed on dilution in order to quantify the results within the calibration range. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

L1942979-07: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1287267-6/-7 MS/MSD recoveries, performed on L1942979-04, are outside the acceptance criteria for bromomethane (24%/33%) and 2-butanone (140%/140%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

The WG1287267-6/-7 MS/MSD recoveries, performed on L1942979-04, are outside the acceptance criteria for p/m-xylene (0%/0%). The unacceptable percent recoveries are attributed to the elevated concentration of target compound present in the native sample.

The WG1287267-6/-7 MS/MSD RPD, performed on L1942979-04, is outside the acceptance criteria for bromomethane (31%).

The initial calibration, associated with L1942979-01 through -07, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), and 1,2,4-Trichlorobenzene (30%D) above the 30% ICV criteria, but within overall method allowances.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Case Narrative (continued)

The continuing calibration, associated with L1942979-01 through -07, did not meet the method required minimum response factor for bromomethane, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.


WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane (31%D) above the 20% CCV criteria, but within overall method allowances.

Total Metals

The WG1286757-3 MS recoveries for iron (160%) and manganese (0%), performed on L1942979-05, do not apply because the sample concentrations are greater than four times the spike amounts added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 09/25/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-01
 Client ID: MW-112S-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:05
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 16:12

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.36	J	ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.12	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-01
 Client ID: MW-112S-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:05
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.45	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.0	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	1.4	J	ug/l	2.5	0.70	1
tert-Butylbenzene	1.8	J	ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	1.6	J	ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	2.4	J	ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-01

Date Collected: 09/17/19 16:05

Client ID: MW-112S-20190917

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-02 D2

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/24/19 10:31

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

Ethylbenzene	2000		ug/l	50	14.	20
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-02 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 17:03

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	19		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	ND		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10
Trichloroethene	ND		ug/l	5.0	1.8	10

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942979-02 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	2700		ug/l	25	7.0	10
o-Xylene	130		ug/l	25	7.0	10
Xylenes, Total	2800		ug/l	25	7.0	10
cis-1,2-Dichloroethene	ND		ug/l	25	7.0	10
1,2-Dichloroethene, Total	ND		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	170		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	83		ug/l	25	7.0	10
n-Propylbenzene	68		ug/l	25	7.0	10
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-02 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	16	J	ug/l	25	7.0	10
1,2,4-Trimethylbenzene	120		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-03 D2

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918FD

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/24/19 10:56

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

Ethylbenzene	2200		ug/l	50	14.	20
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-03 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918FD

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 17:28

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	19		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	ND		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10
Trichloroethene	ND		ug/l	5.0	1.8	10

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-03 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918FD

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	2600		ug/l	25	7.0	10
o-Xylene	130		ug/l	25	7.0	10
Xylenes, Total	2700		ug/l	25	7.0	10
cis-1,2-Dichloroethene	ND		ug/l	25	7.0	10
1,2-Dichloroethene, Total	ND		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	170		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	90		ug/l	25	7.0	10
n-Propylbenzene	68		ug/l	25	7.0	10
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-03 D

Date Collected: 09/18/19 09:15

Client ID: MW-29S-20190918FD

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	15	J	ug/l	25	7.0	10
1,2,4-Trimethylbenzene	120		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-04 D

Date Collected: 09/18/19 10:15

Client ID: MW-24S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 17:54

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	0.36	2.5
1,1-Dichloropropene	ND		ug/l	6.2	1.8	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	0.84	J	ug/l	1.2	0.40	2.5
Toluene	ND		ug/l	6.2	1.8	2.5
Ethylbenzene	ND		ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-04 D

Date Collected: 09/18/19 10:15

Client ID: MW-24S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	510		ug/l	6.2	1.8	2.5
o-Xylene	ND		ug/l	6.2	1.8	2.5
Xylenes, Total	510		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethene, Total	ND		ug/l	6.2	1.8	2.5
Dibromomethane	ND		ug/l	12	2.5	2.5
1,2,3-Trichloropropane	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	ND		ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
Vinyl acetate	ND		ug/l	12	2.5	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
2,2-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,3-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	6.2	1.8	2.5
Bromobenzene	ND		ug/l	6.2	1.8	2.5
n-Butylbenzene	ND		ug/l	6.2	1.8	2.5
sec-Butylbenzene	ND		ug/l	6.2	1.8	2.5
tert-Butylbenzene	ND		ug/l	6.2	1.8	2.5
o-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
p-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Hexachlorobutadiene	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	29		ug/l	6.2	1.8	2.5
p-Isopropyltoluene	ND		ug/l	6.2	1.8	2.5
Naphthalene	6.5		ug/l	6.2	1.8	2.5
n-Propylbenzene	6.8		ug/l	6.2	1.8	2.5

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-04 D

Date Collected: 09/18/19 10:15

Client ID: MW-24S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3,5-Trimethylbenzene	4.0	J	ug/l	6.2	1.8	2.5
1,2,4-Trimethylbenzene	15		ug/l	6.2	1.8	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-05 D

Date Collected: 09/18/19 11:30

Client ID: MW-26S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 09/21/19 18:19

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	62	18.	25
1,1-Dichloroethane	ND		ug/l	62	18.	25
Chloroform	ND		ug/l	62	18.	25
Carbon tetrachloride	ND		ug/l	12	3.4	25
1,2-Dichloropropane	ND		ug/l	25	3.4	25
Dibromochloromethane	ND		ug/l	12	3.7	25
1,1,2-Trichloroethane	ND		ug/l	38	12.	25
Tetrachloroethene	ND		ug/l	12	4.5	25
Chlorobenzene	ND		ug/l	62	18.	25
Trichlorofluoromethane	ND		ug/l	62	18.	25
1,2-Dichloroethane	ND		ug/l	12	3.3	25
1,1,1-Trichloroethane	ND		ug/l	62	18.	25
Bromodichloromethane	ND		ug/l	12	4.8	25
trans-1,3-Dichloropropene	ND		ug/l	12	4.1	25
cis-1,3-Dichloropropene	ND		ug/l	12	3.6	25
1,3-Dichloropropene, Total	ND		ug/l	12	3.6	25
1,1-Dichloropropene	ND		ug/l	62	18.	25
Bromoform	ND		ug/l	50	16.	25
1,1,2,2-Tetrachloroethane	ND		ug/l	12	4.2	25
Benzene	ND		ug/l	12	4.0	25
Toluene	ND		ug/l	62	18.	25
Ethylbenzene	130		ug/l	62	18.	25
Chloromethane	ND		ug/l	62	18.	25
Bromomethane	ND		ug/l	62	18.	25
Vinyl chloride	ND		ug/l	25	1.8	25
Chloroethane	ND		ug/l	62	18.	25
1,1-Dichloroethene	ND		ug/l	12	4.2	25
trans-1,2-Dichloroethene	ND		ug/l	62	18.	25

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-05 D

Date Collected: 09/18/19 11:30

Client ID: MW-26S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	12	4.4	25
1,2-Dichlorobenzene	ND		ug/l	62	18.	25
1,3-Dichlorobenzene	ND		ug/l	62	18.	25
1,4-Dichlorobenzene	ND		ug/l	62	18.	25
Methyl tert butyl ether	ND		ug/l	62	18.	25
p/m-Xylene	120		ug/l	62	18.	25
o-Xylene	ND		ug/l	62	18.	25
Xylenes, Total	120		ug/l	62	18.	25
cis-1,2-Dichloroethene	ND		ug/l	62	18.	25
1,2-Dichloroethene, Total	ND		ug/l	62	18.	25
Dibromomethane	ND		ug/l	120	25.	25
1,2,3-Trichloropropane	ND		ug/l	62	18.	25
Styrene	ND		ug/l	62	18.	25
Dichlorodifluoromethane	ND		ug/l	120	25.	25
Acetone	ND		ug/l	120	36.	25
Carbon disulfide	ND		ug/l	120	25.	25
2-Butanone	ND		ug/l	120	48.	25
Vinyl acetate	ND		ug/l	120	25.	25
4-Methyl-2-pentanone	ND		ug/l	120	25.	25
2-Hexanone	ND		ug/l	120	25.	25
Bromochloromethane	ND		ug/l	62	18.	25
2,2-Dichloropropane	ND		ug/l	62	18.	25
1,2-Dibromoethane	ND		ug/l	50	16.	25
1,3-Dichloropropane	ND		ug/l	62	18.	25
1,1,1,2-Tetrachloroethane	ND		ug/l	62	18.	25
Bromobenzene	ND		ug/l	62	18.	25
n-Butylbenzene	ND		ug/l	62	18.	25
sec-Butylbenzene	ND		ug/l	62	18.	25
tert-Butylbenzene	ND		ug/l	62	18.	25
o-Chlorotoluene	ND		ug/l	62	18.	25
p-Chlorotoluene	ND		ug/l	62	18.	25
1,2-Dibromo-3-chloropropane	ND		ug/l	62	18.	25
Hexachlorobutadiene	ND		ug/l	62	18.	25
Isopropylbenzene	130		ug/l	62	18.	25
p-Isopropyltoluene	ND		ug/l	62	18.	25
Naphthalene	92		ug/l	62	18.	25
n-Propylbenzene	530		ug/l	62	18.	25

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-05 D

Date Collected: 09/18/19 11:30

Client ID: MW-26S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	62	18.	25
1,2,4-Trichlorobenzene	ND		ug/l	62	18.	25
1,3,5-Trimethylbenzene	440		ug/l	62	18.	25
1,2,4-Trimethylbenzene	3800		ug/l	62	18.	25
1,4-Dioxane	ND		ug/l	6200	1500	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-06
 Client ID: MW-117S-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 13:45
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 18:45
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.43	J	ug/l	0.50	0.16	1
Toluene	2.0	J	ug/l	2.5	0.70	1
Ethylbenzene	20		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-06
 Client ID: MW-117S-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 13:45
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	120		ug/l	2.5	0.70	1
o-Xylene	18		ug/l	2.5	0.70	1
Xylenes, Total	140		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.2	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	0.74	J	ug/l	2.5	0.70	1
sec-Butylbenzene	1.3	J	ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	15		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	3.3		ug/l	2.5	0.70	1
n-Propylbenzene	6.2		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-06
 Client ID: MW-117S-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 13:45
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	0.90	J	ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	3.3		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-07
 Client ID: TB-007-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 00:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 16:37
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-07
 Client ID: TB-007-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 00:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.0		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942979-07**Date Collected:** 09/18/19 00:00**Client ID:** TB-007-20190918**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1287267-12					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1287267-12					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1287267-12					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1287267-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1287267-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1287267-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1287267-10 WG1287267-11								
Methylene chloride	88		91		70-130	3		20
1,1-Dichloroethane	96		95		70-130	1		20
Chloroform	94		93		70-130	1		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	90		90		70-130	0		20
Dibromochloromethane	89		87		63-130	2		20
1,1,2-Trichloroethane	89		86		70-130	3		20
Tetrachloroethene	91		89		70-130	2		20
Chlorobenzene	92		91		75-130	1		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	97		96		67-130	1		20
trans-1,3-Dichloropropene	93		91		70-130	2		20
cis-1,3-Dichloropropene	94		94		70-130	0		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	85		83		54-136	2		20
1,1,2,2-Tetrachloroethane	95		89		67-130	7		20
Benzene	92		91		70-130	1		20
Toluene	92		92		70-130	0		20
Ethylbenzene	93		91		70-130	2		20
Chloromethane	81		80		64-130	1		20
Bromomethane	48		46		39-139	4		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1287267-10 WG1287267-11								
Vinyl chloride	93		91		55-140	2		20
Chloroethane	97		95		55-138	2		20
1,1-Dichloroethene	92		90		61-145	2		20
trans-1,2-Dichloroethene	94		92		70-130	2		20
Trichloroethene	94		96		70-130	2		20
1,2-Dichlorobenzene	95		92		70-130	3		20
1,3-Dichlorobenzene	95		94		70-130	1		20
1,4-Dichlorobenzene	97		94		70-130	3		20
Methyl tert butyl ether	99		98		63-130	1		20
p/m-Xylene	95		90		70-130	5		20
o-Xylene	95		90		70-130	5		20
cis-1,2-Dichloroethene	92		90		70-130	2		20
Dibromomethane	96		94		70-130	2		20
1,2,3-Trichloropropane	100		98		64-130	2		20
Styrene	95		90		70-130	5		20
Dichlorodifluoromethane	79		77		36-147	3		20
Acetone	110		110		58-148	0		20
Carbon disulfide	90		88		51-130	2		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	100		100		70-130	0		20
4-Methyl-2-pentanone	98		88		59-130	11		20
2-Hexanone	100		99		57-130	1		20
Bromochloromethane	93		95		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1287267-10 WG1287267-11								
2,2-Dichloropropane	100		100		63-133	0		20
1,2-Dibromoethane	89		88		70-130	1		20
1,3-Dichloropropane	92		89		70-130	3		20
1,1,1,2-Tetrachloroethane	90		89		64-130	1		20
Bromobenzene	93		92		70-130	1		20
n-Butylbenzene	99		95		53-136	4		20
sec-Butylbenzene	99		97		70-130	2		20
tert-Butylbenzene	93		93		70-130	0		20
o-Chlorotoluene	94		92		70-130	2		20
p-Chlorotoluene	94		93		70-130	1		20
1,2-Dibromo-3-chloropropane	100		92		41-144	8		20
Hexachlorobutadiene	78		77		63-130	1		20
Isopropylbenzene	98		96		70-130	2		20
p-Isopropyltoluene	94		92		70-130	2		20
Naphthalene	100		95		70-130	5		20
n-Propylbenzene	96		92		69-130	4		20
1,2,3-Trichlorobenzene	96		92		70-130	4		20
1,2,4-Trichlorobenzene	93		90		70-130	3		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	97		95		70-130	2		20
1,4-Dioxane	96		92		56-162	4		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942979**Report Date:** 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1287267-10 WG1287267-11

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		117		70-130
Toluene-d8	94		94		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1287267-3 WG1287267-4								
Methylene chloride	94		90		70-130	4		20
1,1-Dichloroethane	99		97		70-130	2		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	92		93		70-130	1		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	97		93		75-130	4		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	100		95		67-130	5		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	98		96		70-130	2		20
1,1-Dichloropropene	100		97		70-130	3		20
Bromoform	89		89		54-136	0		20
1,1,2,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	95		92		70-130	3		20
Toluene	95		91		70-130	4		20
Ethylbenzene	95		92		70-130	3		20
Chloromethane	88		85		64-130	3		20
Bromomethane	67		62		39-139	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1287267-3 WG1287267-4								
Vinyl chloride	100		92		55-140	8		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	100		99		63-130	1		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	97		91		70-130	6		20
Dibromomethane	97		96		70-130	1		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	93		90		36-147	3		20
Acetone	94		97		58-148	3		20
Carbon disulfide	94		89		51-130	5		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	96		96		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1287267-3 WG1287267-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	90		91		70-130	1		20
1,3-Dichloropropane	94		91		70-130	3		20
1,1,1,2-Tetrachloroethane	95		93		64-130	2		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		98		70-130	2		20
tert-Butylbenzene	97		92		70-130	5		20
o-Chlorotoluene	98		94		70-130	4		20
p-Chlorotoluene	97		95		70-130	2		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	82		80		63-130	2		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	96		93		70-130	3		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	96		93		69-130	3		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		96		64-130	4		20
1,2,4-Trimethylbenzene	100		97		70-130	3		20
1,4-Dioxane	98		98		56-162	0		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1287267-3 WG1287267-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	98		98		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MW-24S-20190918												
Methylene chloride	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloroethane	ND	25	27	108		26	104		70-130	4		20
Chloroform	ND	25	26	104		27	108		70-130	4		20
Carbon tetrachloride	ND	25	28	112		28	112		63-132	0		20
1,2-Dichloropropane	ND	25	24	96		25	100		70-130	4		20
Dibromochloromethane	ND	25	24	96		25	100		63-130	4		20
1,1,2-Trichloroethane	ND	25	24	96		24	96		70-130	0		20
Tetrachloroethene	ND	25	24	96		24	96		70-130	0		20
Chlorobenzene	ND	25	25	100		25	100		75-130	0		20
Trichlorofluoromethane	ND	25	28	112		27	108		62-150	4		20
1,2-Dichloroethane	ND	25	29	116		29	116		70-130	0		20
1,1,1-Trichloroethane	ND	25	28	112		28	112		67-130	0		20
Bromodichloromethane	ND	25	26	104		26	104		67-130	0		20
trans-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
cis-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloropropene	ND	25	28	112		28	112		70-130	0		20
Bromoform	ND	25	23	92		23	92		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	25	25	100		25	100		67-130	0		20
Benzene	0.84J	25	26	104		26	104		70-130	0		20
Toluene	ND	25	24	96		25	100		70-130	4		20
Ethylbenzene	ND	25	25	100		24	96		70-130	4		20
Chloromethane	ND	25	24	96		24	96		64-130	0		20
Bromomethane	ND	25	6.1J	24	Q	8.3	33	Q	39-139	31	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MW-24S-20190918												
Vinyl chloride	ND	25	28	112		27	108		55-140	4		20
Chloroethane	ND	25	28	112		28	112		55-138	0		20
1,1-Dichloroethene	ND	25	26	104		26	104		61-145	0		20
trans-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Trichloroethene	ND	25	26	104		26	104		70-130	0		20
1,2-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,3-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,4-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
Methyl tert butyl ether	ND	25	27	108		27	108		63-130	0		20
p/m-Xylene	510	50	500	0	Q	480	0	Q	70-130	4		20
o-Xylene	ND	50	50	100		50	100		70-130	0		20
cis-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Dibromomethane	ND	25	26	104		25	100		70-130	4		20
1,2,3-Trichloropropane	ND	25	24	96		26	104		64-130	8		20
Styrene	ND	50	50	100		51	102		70-130	2		20
Dichlorodifluoromethane	ND	25	26	104		25	100		36-147	4		20
Acetone	ND	25	26	104		28	112		58-148	7		20
Carbon disulfide	ND	25	25	100		25	100		51-130	0		20
2-Butanone	ND	25	35	140	Q	35	140	Q	63-138	0		20
Vinyl acetate	ND	25	30	120		29	116		70-130	3		20
4-Methyl-2-pentanone	ND	25	26	104		26	104		59-130	0		20
2-Hexanone	ND	25	28	112		28	112		57-130	0		20
Bromochloromethane	ND	25	26	104		26	104		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MW-24S-20190918												
2,2-Dichloropropane	ND	25	24	96		23	92		63-133	4		20
1,2-Dibromoethane	ND	25	24	96		24	96		70-130	0		20
1,3-Dichloropropane	ND	25	24	96		24	96		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	25	25	100		25	100		64-130	0		20
Bromobenzene	ND	25	24	96		24	96		70-130	0		20
n-Butylbenzene	ND	25	25	100		25	100		53-136	0		20
sec-Butylbenzene	ND	25	27	108		26	104		70-130	4		20
tert-Butylbenzene	ND	25	26	104		25	100		70-130	4		20
o-Chlorotoluene	ND	25	28	112		32	128		70-130	13		20
p-Chlorotoluene	ND	25	24	96		24	96		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	25	25	100		26	104		41-144	4		20
Hexachlorobutadiene	ND	25	20	80		21	84		63-130	5		20
Isopropylbenzene	29	25	52	92		50	84		70-130	4		20
p-Isopropyltoluene	ND	25	25	100		24	96		70-130	4		20
Naphthalene	6.5	25	29	90		30	94		70-130	3		20
n-Propylbenzene	6.8	25	31	97		30	93		69-130	3		20
1,2,3-Trichlorobenzene	ND	25	23	92		24	96		70-130	4		20
1,2,4-Trichlorobenzene	ND	25	23	92		23	92		70-130	0		20
1,3,5-Trimethylbenzene	4.0J	25	29	116		29	116		64-130	0		20
1,2,4-Trimethylbenzene	15	25	39	96		38	92		70-130	3		20
1,4-Dioxane	ND	1250	1300	104		1400	112		56-162	7		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942979**Report Date:** 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MW-24S-20190918

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	113		112		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	94		94		70-130

METALS

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-05

Date Collected: 09/18/19 11:30

Client ID: MW-26S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	23.3		mg/l	0.0500	0.0191	1	09/20/19 16:55	09/23/19 11:01	EPA 3005A	1,6020B	AM
Manganese, Total	8.020		mg/l	0.00100	0.00044	1	09/20/19 16:55	09/23/19 11:01	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942979-06

Date Collected: 09/18/19 13:45

Client ID: MW-117S-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Iron, Total	0.866		mg/l	0.0500	0.0191	1	09/20/19 16:55	09/23/19 11:05	EPA 3005A	1,6020B	AM
Manganese, Total	1.371		mg/l	0.00100	0.00044	1	09/20/19 16:55	09/23/19 11:05	EPA 3005A	1,6020B	AM



Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 05-06 Batch: WG1286757-1										
Iron, Total	ND		mg/l	0.0500	0.0191	1	09/20/19 16:55	09/23/19 10:29	1,6020B	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	09/20/19 16:55	09/23/19 10:29	1,6020B	AM

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06 Batch: WG1286757-2								
Iron, Total	115		-		80-120	-		
Manganese, Total	101		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06 QC Batch ID: WG1286757-3 QC Sample: L1942979-05 Client ID: MW-26S-20190918												
Iron, Total	23.3	1	24.9	160	Q	-	-		75-125	-		20
Manganese, Total	8.020	0.5	7.902	0	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06 QC Batch ID: WG1286757-4 QC Sample: L1942979-05 Client ID: MW-26S-20190918						
Iron, Total	23.3	23.6	mg/l	1		20
Manganese, Total	8.020	8.182	mg/l	2		20

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942979-05

Client ID: MW-26S-20190918

Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 11:30

Date Received: 09/18/19

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	244.		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	2.50		mg/l	0.500	0.083	1	-	09/23/19 18:34	44,300.0	AT



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942979-06

Client ID: MW-117S-20190918

Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 13:45

Date Received: 09/18/19

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	234.		mg CaCO3/L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab										
Chloride	49.7		mg/l	5.00	0.839	10	-	09/23/19 21:33	44,300.0	AT



Project Name: ESSEX HOPE

Lab Number: L1942979

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis

Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 05-06 Batch: WG1286433-1										
Alkalinity, Total	ND		mg CaCO ₃ /L	2.00	NA	1	-	09/20/19 04:49	121,2320B	BR
Anions by Ion Chromatography - Westborough Lab for sample(s): 05-06 Batch: WG1287840-1										
Chloride	ND		mg/l	0.500	0.083	1	-	09/23/19 23:26	44,300.0	AT



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05-06 Batch: WG1286433-2								
Alkalinity, Total	101		-		90-110	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 05-06 Batch: WG1287840-2								
Chloride	90		-		90-110	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05-06 QC Batch ID: WG1286433-4 QC Sample: L1942777-01 Client ID: MS Sample												
Alkalinity, Total	95.7	100	196	100		-	-		86-116	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 05-06 QC Batch ID: WG1287840-3 QC Sample: L1942979-05 Client ID: MW-26S-20190918												
Chloride	2.50	4	6.27	94		-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942979

Report Date: 09/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05-06 QC Batch ID: WG1286433-3 QC Sample: L1942777-01 Client ID: DUP Sample						
Alkalinity, Total	95.7	97.7	mg CaCO3/L	2		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 05-06 QC Batch ID: WG1287840-4 QC Sample: L1942979-05 Client ID: MW-26S-20190918						
Chloride	2.50	2.54	mg/l	2		18

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942979-01A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-01B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-01C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-02A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-02B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-02C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-03A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-03B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-03C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04A1	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04A2	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04B1	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04B2	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04C1	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-04C2	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-05A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-05B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-05C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-05D	Plastic 60ml unpreserved	A	7	7	2.8	Y	Absent		CL-300(28)
L1942979-05E	Plastic 250ml unpreserved/No Headspace	A	NA		2.8	Y	Absent		ALK-T-2320(14)

Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942979-05F	Plastic 250ml HNO3 preserved	A	<2	<2	2.8	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942979-06A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-06B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-06C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-06D	Plastic 60ml unpreserved	A	7	7	2.8	Y	Absent		CL-300(28)
L1942979-06E	Plastic 250ml unpreserved/No Headspace	A	NA		2.8	Y	Absent		ALK-T-2320(14)
L1942979-06F	Plastic 250ml HNO3 preserved	A	<2	<2	2.8	Y	Absent		FE-6020T(180),MN-6020T(180)
L1942979-07A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-07B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-07C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942979-07D	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942979
Report Date: 09/25/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1942979**Project Number:** DWJMS004**Report Date:** 09/25/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

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Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page <div style="border: 1px solid black; padding: 2px; display: inline-block;">1 of 1</div>		Date Rec'd in Lab <u>09/19/19</u>		ALPHA Job # <u>L1942979</u>													
		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jamestown NY</u> Project # <u>DWJMS004</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Pec Po</u>		Billing Information <input type="checkbox"/> Same as Client Info PO #															
Client Information Client: <u>JACOBS</u> Address: <u>125 Blackstone Ave</u> <u>Jamestown NY</u> Phone: <u>519-497-2011</u> Fax: Email: <u>Shamus.Krotan@jacobs.com</u>		Project Manager: <u>Shamus Krotan</u> ALPHAQuote #: <u>PO # 142007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Rush (only if pre approved) <input type="checkbox"/> Due Date: # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Pec Po</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:															
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <u>See Program Q4/QC associated to PO</u> </div>						ANALYSIS <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VOC (9200)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Alkalinity</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Chloride</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TOTAL IRON</div> </div>		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please Specify below)		Total Bottles											
Please specify Metals or TAL.						Sample Specific Comments															
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	VOC (9200)	Alkalinity	Chloride	TOTAL IRON												
42979-01	MW-1125-20190917	09/17/19	0145	GW	JRG	X															
-02	MW-295-20190918	09/18/19	0915	"	"	X															
-03	MW-295-20190918FD	"	0915	"	"	X															
-04	MW-245-20190918	"	1015	"	"	X															
-04	MW-245-20190918MS	"	1015	"	"	X															
-04	MW-245-20190918SD	"	1015	"	"	X															
-05	MW-265-20190918	"	@1130	"	"	X	X	X	X												
-06	MW-1175-20190918	"	1345	"	"	X	X	X	X												
-07	TB-007-20190918					X															
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other						Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle						Westboro: Certification No: MA935 Mansfield: Certification No: MA015						Container Type <div style="display: flex; justify-content: space-around;"> VPPP </div> Preservative <div style="display: flex; justify-content: space-around;"> BAAC </div>		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Relinquished By: <u>Jm AAL AAL</u>		Date/Time: <u>9/18/19 01435</u> <u>9/18/19 16:30</u>		Received By: <u>Jm AAL AAL</u>		Date/Time: <u>9/18/19 14:35</u> <u>9/19/19 01:20</u>															



ANALYTICAL REPORT

Lab Number:	L1942981
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/25/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1942981-01	DPT-40-10-12-20190917	SOIL	JAMESTOWN, NY	09/17/19 15:50	09/18/19
L1942981-02	DPT-40-10-12-20190917FD	SOIL	JAMESTOWN, NY	09/17/19 15:55	09/18/19
L1942981-03	DPT-40-17-19-20190917	SOIL	JAMESTOWN, NY	09/17/19 16:00	09/18/19
L1942981-04	DPT-40-19-21-12-20190917	SOIL	JAMESTOWN, NY	09/17/19 16:10	09/18/19
L1942981-05	DPT-34-9-11-20190918	SOIL	JAMESTOWN, NY	09/18/19 09:50	09/18/19
L1942981-06	DPT-34-14-16-20190918	SOIL	JAMESTOWN, NY	09/18/19 10:00	09/18/19
L1942981-07	DPT-34-14-16-20190918FD	SOIL	JAMESTOWN, NY	09/18/19 10:05	09/18/19
L1942981-08	DPT-34-16-18-20190918	SOIL	JAMESTOWN, NY	09/18/19 10:10	09/18/19
L1942981-09	DPT-35-9-11-20190918	SOIL	JAMESTOWN, NY	09/18/19 12:00	09/18/19
L1942981-10	DPT-35-11-13-20190918	SOIL	JAMESTOWN, NY	09/18/19 12:10	09/18/19
L1942981-11	DPT-35-13-15-20190918	SOIL	JAMESTOWN, NY	09/18/19 12:20	09/18/19
L1942981-12	TB-007-20190918	WATER	JAMESTOWN, NY	09/18/19 00:00	09/18/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1942981-03 and -04: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of target compounds in the sample.

L1942981-06: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1942981-10: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

The WG1287352-3/-4 LCS/LCSD recoveries, associated with L1942981-01, -02, -05 through -09, and -11, are below the individual acceptance criteria for 2-butanone (65%/68%), but within the overall method allowances. The results of the associated samples are reported.

The WG1287355-3/-4 LCS/LCSD recoveries, associated with L1942981-03, -04, and -10, are below the individual acceptance criteria for 2-butanone (65%/68%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1942981-12, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), and 1,2,4-Trichlorobenzene (30%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1942981-12, did not meet the method required minimum response factor for bromomethane, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Case Narrative (continued)

(31%D) above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1942981-01, -02, -05 through -09, and -11, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane and 1,2-dibromo-3-chloropropane.

The continuing calibration, associated with L1942981-01, -02, -05 through -09, and -11, did not meet the method required minimum response factor for 1,4-dioxane, 1,2-dibromo-3-chloropropane, and 4-methyl-2-pentanone.

WG1287352-2 The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (22%D), chloromethane (25%D), vinyl chloride (26%), chloroethane (28%D), 1,4-Dichlorobutane (26%D), 1,1,2,2-Tetrachloroethane (22%D), 1,2,3-Trichloropropane (24%D), and 4-Chlorotoluene (21%D) above the 20% CCV criteria but within overall method allowances.


The initial calibration, associated with L1942981-03, -04, and -10, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane and 1,2-dibromo-3-chloropropane.

The continuing calibration, associated with L1942981-03, -04, and -10, did not meet the method required minimum response factor for 1,4-dioxane, 1,2-dibromo-3-chloropropane and 4-methyl-2-pentanone.

WG1287355-2 The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (22%D), chloromethane (25%D), vinyl chloride (26%), chloroethane (28%D), 1,4-Dichlorobutane (26%D), 1,1,2,2-Tetrachloroethane (22%D), 1,2,3-Trichloropropane (24%D), and 4-Chlorotoluene (21%D) above the 20% CCV criteria but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 09/25/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-01
 Client ID: DPT-40-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 15:50
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:04
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.20	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.72	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.17	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.16	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.57	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.97	1
Bromomethane	ND		ug/kg	2.1	0.61	1
Vinyl chloride	ND		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.47	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	0.18	J	ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-01
 Client ID: DPT-40-10-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 15:50
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.16	J	ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	0.34	J	ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	0.18	J	ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.95	1
Acetone	42		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.7	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-01

Date Collected: 09/17/19 15:50

Client ID: DPT-40-10-12-20190917

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	83	37.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	76		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-02
 Client ID: DPT-40-10-12-20190917FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 15:55
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:29
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.9	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.16	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.59	0.23	1
Chlorobenzene	ND		ug/kg	0.59	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.7	0.82	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.59	0.20	1
Bromodichloromethane	ND		ug/kg	0.59	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.59	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.59	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.59	0.19	1
Bromoform	ND		ug/kg	4.7	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.59	0.20	1
Benzene	ND		ug/kg	0.59	0.20	1
Toluene	ND		ug/kg	1.2	0.64	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.7	1.1	1
Bromomethane	ND		ug/kg	2.4	0.69	1
Vinyl chloride	ND		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.54	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-02

Date Collected: 09/17/19 15:55

Client ID: DPT-40-10-12-20190917FD

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.20	J	ug/kg	0.59	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.20	1
Methyl tert butyl ether	0.48	J	ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.66	1
o-Xylene	ND		ug/kg	1.2	0.34	1
Xylenes, Total	ND		ug/kg	1.2	0.34	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	150		ug/kg	12	5.7	1
Carbon disulfide	ND		ug/kg	12	5.4	1
2-Butanone	ND		ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.5	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.33	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.59	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.7	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.7	0.77	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-02**Date Collected:** 09/17/19 15:55**Client ID:** DPT-40-10-12-20190917FD**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.38	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	95	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-03
 Client ID: DPT-40-17-19-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 15:52
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	390	180	1
1,1-Dichloroethane	ND		ug/kg	78	11.	1
Chloroform	ND		ug/kg	120	11.	1
Carbon tetrachloride	ND		ug/kg	78	18.	1
1,2-Dichloropropane	ND		ug/kg	78	9.7	1
Dibromochloromethane	ND		ug/kg	78	11.	1
1,1,2-Trichloroethane	ND		ug/kg	78	21.	1
Tetrachloroethene	640		ug/kg	39	15.	1
Chlorobenzene	ND		ug/kg	39	9.9	1
Trichlorofluoromethane	ND		ug/kg	310	54.	1
1,2-Dichloroethane	ND		ug/kg	78	20.	1
1,1,1-Trichloroethane	ND		ug/kg	39	13.	1
Bromodichloromethane	ND		ug/kg	39	8.5	1
trans-1,3-Dichloropropene	ND		ug/kg	78	21.	1
cis-1,3-Dichloropropene	ND		ug/kg	39	12.	1
1,3-Dichloropropene, Total	ND		ug/kg	39	12.	1
1,1-Dichloropropene	ND		ug/kg	39	12.	1
Bromoform	ND		ug/kg	310	19.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	39	13.	1
Benzene	ND		ug/kg	39	13.	1
Toluene	ND		ug/kg	78	42.	1
Ethylbenzene	37	J	ug/kg	78	11.	1
Chloromethane	ND		ug/kg	310	72.	1
Bromomethane	ND		ug/kg	160	45.	1
Vinyl chloride	34	J	ug/kg	78	26.	1
Chloroethane	ND		ug/kg	160	35.	1
1,1-Dichloroethene	ND		ug/kg	78	18.	1
trans-1,2-Dichloroethene	87	J	ug/kg	120	11.	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-03
 Client ID: DPT-40-17-19-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	2200		ug/kg	39	11.	1
1,2-Dichlorobenzene	ND		ug/kg	160	11.	1
1,3-Dichlorobenzene	ND		ug/kg	160	12.	1
1,4-Dichlorobenzene	ND		ug/kg	160	13.	1
Methyl tert butyl ether	ND		ug/kg	160	16.	1
p/m-Xylene	71	J	ug/kg	160	44.	1
o-Xylene	29	J	ug/kg	78	23.	1
Xylenes, Total	100	J	ug/kg	78	23.	1
cis-1,2-Dichloroethene	3800		ug/kg	78	14.	1
1,2-Dichloroethene, Total	3900	J	ug/kg	78	11.	1
Dibromomethane	ND		ug/kg	160	18.	1
Styrene	ND		ug/kg	78	15.	1
Dichlorodifluoromethane	ND		ug/kg	780	71.	1
Acetone	ND		ug/kg	780	370	1
Carbon disulfide	ND		ug/kg	780	350	1
2-Butanone	ND		ug/kg	780	170	1
Vinyl acetate	ND		ug/kg	780	170	1
4-Methyl-2-pentanone	ND		ug/kg	780	100	1
1,2,3-Trichloropropane	ND		ug/kg	160	9.9	1
2-Hexanone	ND		ug/kg	780	92.	1
Bromochloromethane	ND		ug/kg	160	16.	1
2,2-Dichloropropane	ND		ug/kg	160	16.	1
1,2-Dibromoethane	ND		ug/kg	78	22.	1
1,3-Dichloropropane	ND		ug/kg	160	13.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	39	10.	1
Bromobenzene	ND		ug/kg	160	11.	1
n-Butylbenzene	ND		ug/kg	78	13.	1
sec-Butylbenzene	ND		ug/kg	78	11.	1
tert-Butylbenzene	ND		ug/kg	160	9.2	1
o-Chlorotoluene	ND		ug/kg	160	15.	1
p-Chlorotoluene	ND		ug/kg	160	8.4	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	230	78.	1
Hexachlorobutadiene	ND		ug/kg	310	13.	1
Isopropylbenzene	11	J	ug/kg	78	8.5	1
p-Isopropyltoluene	ND		ug/kg	78	8.5	1
Naphthalene	ND		ug/kg	310	50.	1
n-Propylbenzene	19	J	ug/kg	78	13.	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-03

Date Collected: 09/17/19 16:00

Client ID: DPT-40-17-19-20190917

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	160	25.	1
1,2,4-Trichlorobenzene	ND		ug/kg	160	21.	1
1,3,5-Trimethylbenzene	19	J	ug/kg	160	15.	1
1,2,4-Trimethylbenzene	78	J	ug/kg	160	26.	1
1,4-Dioxane	ND		ug/kg	6200	2700	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-04
 Client ID: DPT-40-19-21-12-20190917
 Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:10
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 16:18
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	340	160	1
1,1-Dichloroethane	ND		ug/kg	68	9.8	1
Chloroform	ND		ug/kg	100	9.5	1
Carbon tetrachloride	ND		ug/kg	68	16.	1
1,2-Dichloropropane	ND		ug/kg	68	8.5	1
Dibromochloromethane	ND		ug/kg	68	9.5	1
1,1,2-Trichloroethane	ND		ug/kg	68	18.	1
Tetrachloroethene	ND		ug/kg	34	13.	1
Chlorobenzene	ND		ug/kg	34	8.6	1
Trichlorofluoromethane	ND		ug/kg	270	47.	1
1,2-Dichloroethane	ND		ug/kg	68	17.	1
1,1,1-Trichloroethane	ND		ug/kg	34	11.	1
Bromodichloromethane	ND		ug/kg	34	7.4	1
trans-1,3-Dichloropropene	ND		ug/kg	68	18.	1
cis-1,3-Dichloropropene	ND		ug/kg	34	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	34	11.	1
1,1-Dichloropropene	ND		ug/kg	34	11.	1
Bromoform	ND		ug/kg	270	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	34	11.	1
Benzene	ND		ug/kg	34	11.	1
Toluene	ND		ug/kg	68	37.	1
Ethylbenzene	20	J	ug/kg	68	9.6	1
Chloromethane	ND		ug/kg	270	63.	1
Bromomethane	ND		ug/kg	140	39.	1
Vinyl chloride	ND		ug/kg	68	23.	1
Chloroethane	ND		ug/kg	140	31.	1
1,1-Dichloroethene	ND		ug/kg	68	16.	1
trans-1,2-Dichloroethene	35	J	ug/kg	100	9.3	1

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-04

Date Collected: 09/17/19 16:10

Client ID: DPT-40-19-21-12-20190917

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	57		ug/kg	34	9.3	1
1,2-Dichlorobenzene	ND		ug/kg	140	9.8	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	38.	1
o-Xylene	ND		ug/kg	68	20.	1
Xylenes, Total	ND		ug/kg	68	20.	1
cis-1,2-Dichloroethene	1000		ug/kg	68	12.	1
1,2-Dichloroethene, Total	1000	J	ug/kg	68	9.3	1
Dibromomethane	ND		ug/kg	140	16.	1
Styrene	ND		ug/kg	68	13.	1
Dichlorodifluoromethane	ND		ug/kg	680	62.	1
Acetone	ND		ug/kg	680	330	1
Carbon disulfide	ND		ug/kg	680	310	1
2-Butanone	ND		ug/kg	680	150	1
Vinyl acetate	ND		ug/kg	680	140	1
4-Methyl-2-pentanone	ND		ug/kg	680	87.	1
1,2,3-Trichloropropane	ND		ug/kg	140	8.6	1
2-Hexanone	ND		ug/kg	680	80.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	68	19.	1
1,3-Dichloropropane	ND		ug/kg	140	11.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	34	9.0	1
Bromobenzene	ND		ug/kg	140	9.8	1
n-Butylbenzene	ND		ug/kg	68	11.	1
sec-Butylbenzene	ND		ug/kg	68	9.9	1
tert-Butylbenzene	ND		ug/kg	140	8.0	1
o-Chlorotoluene	ND		ug/kg	140	13.	1
p-Chlorotoluene	ND		ug/kg	140	7.3	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	68.	1
Hexachlorobutadiene	ND		ug/kg	270	11.	1
Isopropylbenzene	ND		ug/kg	68	7.4	1
p-Isopropyltoluene	ND		ug/kg	68	7.4	1
Naphthalene	ND		ug/kg	270	44.	1
n-Propylbenzene	ND		ug/kg	68	12.	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-04**Date Collected:** 09/17/19 16:10**Client ID:** DPT-40-19-21-12-20190917**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	22.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	18.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	13.	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	23.	1
1,4-Dioxane	ND		ug/kg	5400	2400	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-05
 Client ID: DPT-34-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 09:50
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:55
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.0	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.14	1
Chloroform	ND		ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.12	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.50	0.20	1
Chlorobenzene	ND		ug/kg	0.50	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.69	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17	1
Bromodichloromethane	ND		ug/kg	0.50	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27	1
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.50	0.16	1
Bromoform	ND		ug/kg	4.0	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.16	1
Benzene	ND		ug/kg	0.50	0.16	1
Toluene	ND		ug/kg	1.0	0.54	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.0	0.93	1
Bromomethane	ND		ug/kg	2.0	0.58	1
Vinyl chloride	ND		ug/kg	1.0	0.33	1
Chloroethane	ND		ug/kg	2.0	0.45	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-05
 Client ID: DPT-34-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 09:50
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.50	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	0.44	J	ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.56	1
o-Xylene	ND		ug/kg	1.0	0.29	1
Xylenes, Total	ND		ug/kg	1.0	0.29	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.17	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.91	1
Acetone	73		ug/kg	10	4.8	1
Carbon disulfide	ND		ug/kg	10	4.5	1
2-Butanone	ND		ug/kg	10	2.2	1
Vinyl acetate	ND		ug/kg	10	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.20	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.14	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.14	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.0	0.65	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-05
 Client ID: DPT-34-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 09:50
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33	1
1,4-Dioxane	ND		ug/kg	80	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-06
 Client ID: DPT-34-14-16-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 10:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 11:37
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.5	3.0	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	1.9	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.30	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.35	1
Tetrachloroethene	0.41	J	ug/kg	0.65	0.25	1
Chlorobenzene	ND		ug/kg	0.65	0.16	1
Trichlorofluoromethane	ND		ug/kg	5.2	0.90	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.33	1
1,1,1-Trichloroethane	ND		ug/kg	0.65	0.22	1
Bromodichloromethane	ND		ug/kg	0.65	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.35	1
cis-1,3-Dichloropropene	ND		ug/kg	0.65	0.20	1
1,3-Dichloropropene, Total	ND		ug/kg	0.65	0.20	1
1,1-Dichloropropene	ND		ug/kg	0.65	0.21	1
Bromoform	ND		ug/kg	5.2	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.65	0.22	1
Benzene	ND		ug/kg	0.65	0.22	1
Toluene	ND		ug/kg	1.3	0.70	1
Ethylbenzene	ND		ug/kg	1.3	0.18	1
Chloromethane	ND		ug/kg	5.2	1.2	1
Bromomethane	ND		ug/kg	2.6	0.75	1
Vinyl chloride	ND		ug/kg	1.3	0.43	1
Chloroethane	ND		ug/kg	2.6	0.59	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.31	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-06
 Client ID: DPT-34-14-16-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 10:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	6.4		ug/kg	0.65	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	0.22	1
Methyl tert butyl ether	ND		ug/kg	2.6	0.26	1
p/m-Xylene	ND		ug/kg	2.6	0.73	1
o-Xylene	ND		ug/kg	1.3	0.38	1
Xylenes, Total	ND		ug/kg	1.3	0.38	1
cis-1,2-Dichloroethene	0.34	J	ug/kg	1.3	0.23	1
1,2-Dichloroethene, Total	0.34	J	ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.6	0.31	1
Styrene	ND		ug/kg	1.3	0.25	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	410	E	ug/kg	13	6.2	1
Carbon disulfide	ND		ug/kg	13	5.9	1
2-Butanone	6.5	J	ug/kg	13	2.9	1
Vinyl acetate	ND		ug/kg	13	2.8	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.6	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	0.16	1
2-Hexanone	ND		ug/kg	13	1.5	1
Bromochloromethane	ND		ug/kg	2.6	0.26	1
2,2-Dichloropropane	ND		ug/kg	2.6	0.26	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.36	1
1,3-Dichloropropane	ND		ug/kg	2.6	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.65	0.17	1
Bromobenzene	ND		ug/kg	2.6	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.6	0.15	1
o-Chlorotoluene	ND		ug/kg	2.6	0.25	1
p-Chlorotoluene	ND		ug/kg	2.6	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.9	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.2	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.2	0.84	1
n-Propylbenzene	ND		ug/kg	1.3	0.22	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-06

Date Collected: 09/18/19 10:00

Client ID: DPT-34-14-16-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	0.42	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	0.35	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	0.25	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	0.43	1
1,4-Dioxane	ND		ug/kg	100	46.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-07
 Client ID: DPT-34-14-16-20190918FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 10:05
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 12:02
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.28	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.60	0.23	1
Chlorobenzene	ND		ug/kg	0.60	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.8	0.83	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.31	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	0.20	1
Bromodichloromethane	ND		ug/kg	0.60	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.33	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.60	0.19	1
Bromoform	ND		ug/kg	4.8	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	0.20	1
Benzene	ND		ug/kg	0.60	0.20	1
Toluene	ND		ug/kg	1.2	0.65	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.8	1.1	1
Bromomethane	ND		ug/kg	2.4	0.70	1
Vinyl chloride	ND		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.54	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	0.16	J	ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-07**Date Collected:** 09/18/19 10:05**Client ID:** DPT-34-14-16-20190918FD**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	5.2		ug/kg	0.60	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.20	1
Methyl tert butyl ether	0.41	J	ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.67	1
o-Xylene	ND		ug/kg	1.2	0.35	1
Xylenes, Total	ND		ug/kg	1.2	0.35	1
cis-1,2-Dichloroethene	0.49	J	ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	0.65	J	ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	33		ug/kg	12	5.8	1
Carbon disulfide	ND		ug/kg	12	5.4	1
2-Butanone	ND		ug/kg	12	2.7	1
Vinyl acetate	ND		ug/kg	12	2.6	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.33	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.18	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.8	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.8	0.78	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-07**Date Collected:** 09/18/19 10:05**Client ID:** DPT-34-14-16-20190918FD**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.39	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.33	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	96	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-08
 Client ID: DPT-34-16-18-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 10:10
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 12:28
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.3	2.9	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.18	1
Chloroform	ND		ug/kg	1.9	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.29	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.34	1
Tetrachloroethene	ND		ug/kg	0.63	0.25	1
Chlorobenzene	ND		ug/kg	0.63	0.16	1
Trichlorofluoromethane	ND		ug/kg	5.0	0.88	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.32	1
1,1,1-Trichloroethane	ND		ug/kg	0.63	0.21	1
Bromodichloromethane	ND		ug/kg	0.63	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.34	1
cis-1,3-Dichloropropene	ND		ug/kg	0.63	0.20	1
1,3-Dichloropropene, Total	ND		ug/kg	0.63	0.20	1
1,1-Dichloropropene	ND		ug/kg	0.63	0.20	1
Bromoform	ND		ug/kg	5.0	0.31	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.63	0.21	1
Benzene	ND		ug/kg	0.63	0.21	1
Toluene	ND		ug/kg	1.3	0.69	1
Ethylbenzene	ND		ug/kg	1.3	0.18	1
Chloromethane	ND		ug/kg	5.0	1.2	1
Bromomethane	ND		ug/kg	2.5	0.73	1
Vinyl chloride	ND		ug/kg	1.3	0.42	1
Chloroethane	ND		ug/kg	2.5	0.57	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.30	1
trans-1,2-Dichloroethene	2.0		ug/kg	1.9	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-08
 Client ID: DPT-34-16-18-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 10:10
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	94		ug/kg	0.63	0.17	1
1,2-Dichlorobenzene	ND		ug/kg	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/kg	2.5	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.5	0.22	1
Methyl tert butyl ether	0.50	J	ug/kg	2.5	0.25	1
p/m-Xylene	ND		ug/kg	2.5	0.71	1
o-Xylene	ND		ug/kg	1.3	0.37	1
Xylenes, Total	ND		ug/kg	1.3	0.37	1
cis-1,2-Dichloroethene	12		ug/kg	1.3	0.22	1
1,2-Dichloroethene, Total	14		ug/kg	1.3	0.17	1
Dibromomethane	ND		ug/kg	2.5	0.30	1
Styrene	ND		ug/kg	1.3	0.25	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	240		ug/kg	13	6.1	1
Carbon disulfide	ND		ug/kg	13	5.8	1
2-Butanone	ND		ug/kg	13	2.8	1
Vinyl acetate	ND		ug/kg	13	2.7	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.6	1
1,2,3-Trichloropropane	ND		ug/kg	2.5	0.16	1
2-Hexanone	ND		ug/kg	13	1.5	1
Bromochloromethane	ND		ug/kg	2.5	0.26	1
2,2-Dichloropropane	ND		ug/kg	2.5	0.26	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.35	1
1,3-Dichloropropane	ND		ug/kg	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.63	0.17	1
Bromobenzene	ND		ug/kg	2.5	0.18	1
n-Butylbenzene	ND		ug/kg	1.3	0.21	1
sec-Butylbenzene	ND		ug/kg	1.3	0.18	1
tert-Butylbenzene	ND		ug/kg	2.5	0.15	1
o-Chlorotoluene	ND		ug/kg	2.5	0.24	1
p-Chlorotoluene	ND		ug/kg	2.5	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.8	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.0	0.21	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.0	0.82	1
n-Propylbenzene	ND		ug/kg	1.3	0.22	1



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-08

Date Collected: 09/18/19 10:10

Client ID: DPT-34-16-18-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.5	0.41	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.5	0.34	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.5	0.24	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.5	0.42	1
1,4-Dioxane	ND		ug/kg	100	44.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-09
 Client ID: DPT-35-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 12:53
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.1	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.51	0.20	1
Chlorobenzene	ND		ug/kg	0.51	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.70	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.51	0.17	1
Bromodichloromethane	ND		ug/kg	0.51	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.51	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.51	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.51	0.16	1
Bromoform	ND		ug/kg	4.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.51	0.17	1
Benzene	ND		ug/kg	0.51	0.17	1
Toluene	ND		ug/kg	1.0	0.55	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.0	0.94	1
Bromomethane	ND		ug/kg	2.0	0.59	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.46	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-09
 Client ID: DPT-35-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.40	J	ug/kg	0.51	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	0.44	J	ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.57	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.93	1
Acetone	140		ug/kg	10	4.9	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	ND		ug/kg	10	2.2	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.51	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.0	0.66	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-09
 Client ID: DPT-35-9-11-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.33	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	81	36.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-10 D
 Client ID: DPT-35-11-13-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:10
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 16:44
 Analyst: JC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	630	290	2
1,1-Dichloroethane	ND		ug/kg	120	18.	2
Chloroform	ND		ug/kg	190	18.	2
Carbon tetrachloride	ND		ug/kg	120	29.	2
1,2-Dichloropropane	ND		ug/kg	120	16.	2
Dibromochloromethane	ND		ug/kg	120	18.	2
1,1,2-Trichloroethane	ND		ug/kg	120	34.	2
Tetrachloroethene	ND		ug/kg	63	25.	2
Chlorobenzene	ND		ug/kg	63	16.	2
Trichlorofluoromethane	ND		ug/kg	500	88.	2
1,2-Dichloroethane	ND		ug/kg	120	32.	2
1,1,1-Trichloroethane	ND		ug/kg	63	21.	2
Bromodichloromethane	ND		ug/kg	63	14.	2
trans-1,3-Dichloropropene	ND		ug/kg	120	34.	2
cis-1,3-Dichloropropene	ND		ug/kg	63	20.	2
1,3-Dichloropropene, Total	ND		ug/kg	63	20.	2
1,1-Dichloropropene	ND		ug/kg	63	20.	2
Bromoform	ND		ug/kg	500	31.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	63	21.	2
Benzene	ND		ug/kg	63	21.	2
Toluene	ND		ug/kg	120	68.	2
Ethylbenzene	ND		ug/kg	120	18.	2
Chloromethane	ND		ug/kg	500	120	2
Bromomethane	ND		ug/kg	250	73.	2
Vinyl chloride	ND		ug/kg	120	42.	2
Chloroethane	ND		ug/kg	250	57.	2
1,1-Dichloroethene	ND		ug/kg	120	30.	2
trans-1,2-Dichloroethene	ND		ug/kg	190	17.	2

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-10 D

Date Collected: 09/18/19 12:10

Client ID: DPT-35-11-13-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	16000		ug/kg	63	17.	2
1,2-Dichlorobenzene	ND		ug/kg	250	18.	2
1,3-Dichlorobenzene	ND		ug/kg	250	19.	2
1,4-Dichlorobenzene	ND		ug/kg	250	22.	2
Methyl tert butyl ether	ND		ug/kg	250	25.	2
p/m-Xylene	ND		ug/kg	250	70.	2
o-Xylene	ND		ug/kg	120	37.	2
Xylenes, Total	ND		ug/kg	120	37.	2
cis-1,2-Dichloroethene	510		ug/kg	120	22.	2
1,2-Dichloroethene, Total	510		ug/kg	120	17.	2
Dibromomethane	ND		ug/kg	250	30.	2
Styrene	ND		ug/kg	120	25.	2
Dichlorodifluoromethane	ND		ug/kg	1200	120	2
Acetone	ND		ug/kg	1200	610	2
Carbon disulfide	ND		ug/kg	1200	570	2
2-Butanone	ND		ug/kg	1200	280	2
Vinyl acetate	ND		ug/kg	1200	270	2
4-Methyl-2-pentanone	ND		ug/kg	1200	160	2
1,2,3-Trichloropropane	ND		ug/kg	250	16.	2
2-Hexanone	ND		ug/kg	1200	150	2
Bromochloromethane	ND		ug/kg	250	26.	2
2,2-Dichloropropane	ND		ug/kg	250	25.	2
1,2-Dibromoethane	ND		ug/kg	120	35.	2
1,3-Dichloropropane	ND		ug/kg	250	21.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	63	17.	2
Bromobenzene	ND		ug/kg	250	18.	2
n-Butylbenzene	ND		ug/kg	120	21.	2
sec-Butylbenzene	ND		ug/kg	120	18.	2
tert-Butylbenzene	ND		ug/kg	250	15.	2
o-Chlorotoluene	ND		ug/kg	250	24.	2
p-Chlorotoluene	ND		ug/kg	250	14.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	380	120	2
Hexachlorobutadiene	ND		ug/kg	500	21.	2
Isopropylbenzene	ND		ug/kg	120	14.	2
p-Isopropyltoluene	ND		ug/kg	120	14.	2
Naphthalene	ND		ug/kg	500	82.	2
n-Propylbenzene	ND		ug/kg	120	22.	2

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-10 D

Date Collected: 09/18/19 12:10

Client ID: DPT-35-11-13-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	250	40.	2
1,2,4-Trichlorobenzene	ND		ug/kg	250	34.	2
1,3,5-Trimethylbenzene	ND		ug/kg	250	24.	2
1,2,4-Trimethylbenzene	ND		ug/kg	250	42.	2
1,4-Dioxane	ND		ug/kg	10000	4400	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-11
 Client ID: DPT-35-13-15-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:20
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 13:19
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	2.8	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.18	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.28	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.60	0.24	1
Chlorobenzene	ND		ug/kg	0.60	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.8	0.84	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.31	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	0.20	1
Bromodichloromethane	ND		ug/kg	0.60	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.33	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.60	0.19	1
Bromoform	ND		ug/kg	4.8	0.30	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	0.20	1
Benzene	2.2		ug/kg	0.60	0.20	1
Toluene	ND		ug/kg	1.2	0.66	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.8	1.1	1
Bromomethane	ND		ug/kg	2.4	0.70	1
Vinyl chloride	12		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.55	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.29	1
trans-1,2-Dichloroethene	1.1	J	ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-11
 Client ID: DPT-35-13-15-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:20
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.28	J	ug/kg	0.60	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.21	1
Methyl tert butyl ether	0.50	J	ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.68	1
o-Xylene	ND		ug/kg	1.2	0.35	1
Xylenes, Total	ND		ug/kg	1.2	0.35	1
cis-1,2-Dichloroethene	40		ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	41	J	ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.29	1
Styrene	ND		ug/kg	1.2	0.24	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	91		ug/kg	12	5.8	1
Carbon disulfide	ND		ug/kg	12	5.5	1
2-Butanone	ND		ug/kg	12	2.7	1
Vinyl acetate	ND		ug/kg	12	2.6	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.25	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.34	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.18	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.18	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.8	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.8	0.78	1
n-Propylbenzene	ND		ug/kg	1.2	0.21	1



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-11

Date Collected: 09/18/19 12:20

Client ID: DPT-35-13-15-20190918

Date Received: 09/18/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.39	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.33	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	97	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS**

Lab ID: L1942981-12
 Client ID: TB-007-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 00:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 11:57
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-12
 Client ID: TB-007-20190918
 Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 00:00
 Date Received: 09/18/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	4.9	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-12**Date Collected:** 09/18/19 00:00**Client ID:** TB-007-20190918**Date Received:** 09/18/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1287267-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1287267-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1287267-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05-09,11 Batch: WG1287352-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	ND		ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05-09,11 Batch: WG1287352-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05-09,11 Batch: WG1287352-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	0.17	J	ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	0.34	J	ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,10 Batch: WG1287355-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	ND		ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,10 Batch: WG1287355-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1942981

Project Number: DWJMS004

Report Date: 09/25/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 09:38
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,10 Batch: WG1287355-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	8.4	J	ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	17	J	ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1287267-3 WG1287267-4								
Methylene chloride	94		90		70-130	4		20
1,1-Dichloroethane	99		97		70-130	2		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	92		93		70-130	1		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	97		93		75-130	4		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	100		95		67-130	5		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	98		96		70-130	2		20
1,1-Dichloropropene	100		97		70-130	3		20
Bromoform	89		89		54-136	0		20
1,1,1,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	95		92		70-130	3		20
Toluene	95		91		70-130	4		20
Ethylbenzene	95		92		70-130	3		20
Chloromethane	88		85		64-130	3		20
Bromomethane	67		62		39-139	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1287267-3 WG1287267-4								
Vinyl chloride	100		92		55-140	8		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	100		99		63-130	1		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	97		91		70-130	6		20
Dibromomethane	97		96		70-130	1		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	93		90		36-147	3		20
Acetone	94		97		58-148	3		20
Carbon disulfide	94		89		51-130	5		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	96		96		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1287267-3 WG1287267-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	90		91		70-130	1		20
1,3-Dichloropropane	94		91		70-130	3		20
1,1,1,2-Tetrachloroethane	95		93		64-130	2		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		98		70-130	2		20
tert-Butylbenzene	97		92		70-130	5		20
o-Chlorotoluene	98		94		70-130	4		20
p-Chlorotoluene	97		95		70-130	2		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	82		80		63-130	2		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	96		93		70-130	3		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	96		93		69-130	3		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		96		64-130	4		20
1,2,4-Trimethylbenzene	100		97		70-130	3		20
1,4-Dioxane	98		98		56-162	0		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1287267-3 WG1287267-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05-09,11 Batch: WG1287352-3 WG1287352-4								
Methylene chloride	99		95		70-130	4		30
1,1-Dichloroethane	86		85		70-130	1		30
Chloroform	97		95		70-130	2		30
Carbon tetrachloride	92		91		70-130	1		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	88		88		70-130	0		30
1,1,2-Trichloroethane	84		86		70-130	2		30
Tetrachloroethene	95		94		70-130	1		30
Chlorobenzene	86		86		70-130	0		30
Trichlorofluoromethane	81		80		70-139	1		30
1,2-Dichloroethane	89		87		70-130	2		30
1,1,1-Trichloroethane	92		91		70-130	1		30
Bromodichloromethane	90		88		70-130	2		30
trans-1,3-Dichloropropene	84		83		70-130	1		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	92		90		70-130	2		30
Bromoform	88		88		70-130	0		30
1,1,2,2-Tetrachloroethane	80		78		70-130	3		30
Benzene	91		90		70-130	1		30
Toluene	86		86		70-130	0		30
Ethylbenzene	87		87		70-130	0		30
Chloromethane	79		77		52-130	3		30
Bromomethane	82		82		57-147	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05-09,11 Batch: WG1287352-3 WG1287352-4								
Vinyl chloride	74		71		67-130	4		30
Chloroethane	76		74		50-151	3		30
1,1-Dichloroethene	89		89		65-135	0		30
trans-1,2-Dichloroethene	92		89		70-130	3		30
Trichloroethene	92		92		70-130	0		30
1,2-Dichlorobenzene	88		86		70-130	2		30
1,3-Dichlorobenzene	89		87		70-130	2		30
1,4-Dichlorobenzene	93		91		70-130	2		30
Methyl tert butyl ether	88		87		66-130	1		30
p/m-Xylene	91		89		70-130	2		30
o-Xylene	90		90		70-130	0		30
cis-1,2-Dichloroethene	92		90		70-130	2		30
Dibromomethane	91		92		70-130	1		30
Styrene	93		93		70-130	0		30
Dichlorodifluoromethane	79		77		30-146	3		30
Acetone	77		77		54-140	0		30
Carbon disulfide	87		86		59-130	1		30
2-Butanone	65	Q	68	Q	70-130	5		30
Vinyl acetate	77		76		70-130	1		30
4-Methyl-2-pentanone	87		86		70-130	1		30
1,2,3-Trichloropropane	77		77		68-130	0		30
2-Hexanone	77		80		70-130	4		30
Bromochloromethane	97		95		70-130	2		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05-09,11 Batch: WG1287352-3 WG1287352-4								
2,2-Dichloropropane	89		88		70-130	1		30
1,2-Dibromoethane	89		88		70-130	1		30
1,3-Dichloropropane	83		83		69-130	0		30
1,1,1,2-Tetrachloroethane	89		89		70-130	0		30
Bromobenzene	86		85		70-130	1		30
n-Butylbenzene	85		85		70-130	0		30
sec-Butylbenzene	86		84		70-130	2		30
tert-Butylbenzene	87		85		70-130	2		30
o-Chlorotoluene	83		83		70-130	0		30
p-Chlorotoluene	81		80		70-130	1		30
1,2-Dibromo-3-chloropropane	92		88		68-130	4		30
Hexachlorobutadiene	95		94		67-130	1		30
Isopropylbenzene	85		83		70-130	2		30
p-Isopropyltoluene	88		88		70-130	0		30
Naphthalene	86		85		70-130	1		30
n-Propylbenzene	84		82		70-130	2		30
1,2,3-Trichlorobenzene	92		91		70-130	1		30
1,2,4-Trichlorobenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	87		84		70-130	4		30
1,2,4-Trimethylbenzene	87		85		70-130	2		30
1,4-Dioxane	84		92		65-136	9		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05-09,11 Batch: WG1287352-3 WG1287352-4

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	94		94		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,10 Batch: WG1287355-3 WG1287355-4								
Methylene chloride	99		95		70-130	4		30
1,1-Dichloroethane	86		85		70-130	1		30
Chloroform	97		95		70-130	2		30
Carbon tetrachloride	92		91		70-130	1		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	88		88		70-130	0		30
1,1,2-Trichloroethane	84		86		70-130	2		30
Tetrachloroethene	95		94		70-130	1		30
Chlorobenzene	86		86		70-130	0		30
Trichlorofluoromethane	81		80		70-139	1		30
1,2-Dichloroethane	89		87		70-130	2		30
1,1,1-Trichloroethane	92		91		70-130	1		30
Bromodichloromethane	90		88		70-130	2		30
trans-1,3-Dichloropropene	84		83		70-130	1		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	92		90		70-130	2		30
Bromoform	88		88		70-130	0		30
1,1,2,2-Tetrachloroethane	80		78		70-130	3		30
Benzene	91		90		70-130	1		30
Toluene	86		86		70-130	0		30
Ethylbenzene	87		87		70-130	0		30
Chloromethane	79		77		52-130	3		30
Bromomethane	82		82		57-147	0		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,10 Batch: WG1287355-3 WG1287355-4								
Vinyl chloride	74		71		67-130	4		30
Chloroethane	76		74		50-151	3		30
1,1-Dichloroethene	89		89		65-135	0		30
trans-1,2-Dichloroethene	92		89		70-130	3		30
Trichloroethene	92		92		70-130	0		30
1,2-Dichlorobenzene	88		86		70-130	2		30
1,3-Dichlorobenzene	89		87		70-130	2		30
1,4-Dichlorobenzene	93		91		70-130	2		30
Methyl tert butyl ether	88		87		66-130	1		30
p/m-Xylene	91		89		70-130	2		30
o-Xylene	90		90		70-130	0		30
cis-1,2-Dichloroethene	92		90		70-130	2		30
Dibromomethane	91		92		70-130	1		30
Styrene	93		93		70-130	0		30
Dichlorodifluoromethane	79		77		30-146	3		30
Acetone	77		77		54-140	0		30
Carbon disulfide	87		86		59-130	1		30
2-Butanone	65	Q	68	Q	70-130	5		30
Vinyl acetate	77		76		70-130	1		30
4-Methyl-2-pentanone	87		86		70-130	1		30
1,2,3-Trichloropropane	77		77		68-130	0		30
2-Hexanone	77		80		70-130	4		30
Bromochloromethane	97		95		70-130	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,10 Batch: WG1287355-3 WG1287355-4								
2,2-Dichloropropane	89		88		70-130	1		30
1,2-Dibromoethane	89		88		70-130	1		30
1,3-Dichloropropane	83		83		69-130	0		30
1,1,1,2-Tetrachloroethane	89		89		70-130	0		30
Bromobenzene	86		85		70-130	1		30
n-Butylbenzene	85		85		70-130	0		30
sec-Butylbenzene	86		84		70-130	2		30
tert-Butylbenzene	87		85		70-130	2		30
o-Chlorotoluene	83		83		70-130	0		30
p-Chlorotoluene	81		80		70-130	1		30
1,2-Dibromo-3-chloropropane	92		88		68-130	4		30
Hexachlorobutadiene	95		94		67-130	1		30
Isopropylbenzene	85		83		70-130	2		30
p-Isopropyltoluene	88		88		70-130	0		30
Naphthalene	86		85		70-130	1		30
n-Propylbenzene	84		82		70-130	2		30
1,2,3-Trichlorobenzene	92		91		70-130	1		30
1,2,4-Trichlorobenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	87		84		70-130	4		30
1,2,4-Trimethylbenzene	87		85		70-130	2		30
1,4-Dioxane	84		92		65-136	9		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,10 Batch: WG1287355-3 WG1287355-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	94		95		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	99		99		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
Methylene chloride	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloroethane	ND	25	27	108		26	104		70-130	4		20
Chloroform	ND	25	26	104		27	108		70-130	4		20
Carbon tetrachloride	ND	25	28	112		28	112		63-132	0		20
1,2-Dichloropropane	ND	25	24	96		25	100		70-130	4		20
Dibromochloromethane	ND	25	24	96		25	100		63-130	4		20
1,1,2-Trichloroethane	ND	25	24	96		24	96		70-130	0		20
Tetrachloroethene	ND	25	24	96		24	96		70-130	0		20
Chlorobenzene	ND	25	25	100		25	100		75-130	0		20
Trichlorofluoromethane	ND	25	28	112		27	108		62-150	4		20
1,2-Dichloroethane	ND	25	29	116		29	116		70-130	0		20
1,1,1-Trichloroethane	ND	25	28	112		28	112		67-130	0		20
Bromodichloromethane	ND	25	26	104		26	104		67-130	0		20
trans-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
cis-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloropropene	ND	25	28	112		28	112		70-130	0		20
Bromoform	ND	25	23	92		23	92		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	25	25	100		25	100		67-130	0		20
Benzene	0.84J	25	26	104		26	104		70-130	0		20
Toluene	ND	25	24	96		25	100		70-130	4		20
Ethylbenzene	ND	25	25	100		24	96		70-130	4		20
Chloromethane	ND	25	24	96		24	96		64-130	0		20
Bromomethane	ND	25	6.1J	24	Q	8.3	33	Q	39-139	31	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
Vinyl chloride	ND	25	28	112		27	108		55-140	4		20
Chloroethane	ND	25	28	112		28	112		55-138	0		20
1,1-Dichloroethene	ND	25	26	104		26	104		61-145	0		20
trans-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Trichloroethene	ND	25	26	104		26	104		70-130	0		20
1,2-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,3-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,4-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
Methyl tert butyl ether	ND	25	27	108		27	108		63-130	0		20
p/m-Xylene	510	50	500	0	Q	480	0	Q	70-130	4		20
o-Xylene	ND	50	50	100		50	100		70-130	0		20
cis-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Dibromomethane	ND	25	26	104		25	100		70-130	4		20
1,2,3-Trichloropropane	ND	25	24	96		26	104		64-130	8		20
Styrene	ND	50	50	100		51	102		70-130	2		20
Dichlorodifluoromethane	ND	25	26	104		25	100		36-147	4		20
Acetone	ND	25	26	104		28	112		58-148	7		20
Carbon disulfide	ND	25	25	100		25	100		51-130	0		20
2-Butanone	ND	25	35	140	Q	35	140	Q	63-138	0		20
Vinyl acetate	ND	25	30	120		29	116		70-130	3		20
4-Methyl-2-pentanone	ND	25	26	104		26	104		59-130	0		20
2-Hexanone	ND	25	28	112		28	112		57-130	0		20
Bromochloromethane	ND	25	26	104		26	104		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
2,2-Dichloropropane	ND	25	24	96		23	92		63-133	4		20
1,2-Dibromoethane	ND	25	24	96		24	96		70-130	0		20
1,3-Dichloropropane	ND	25	24	96		24	96		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	25	25	100		25	100		64-130	0		20
Bromobenzene	ND	25	24	96		24	96		70-130	0		20
n-Butylbenzene	ND	25	25	100		25	100		53-136	0		20
sec-Butylbenzene	ND	25	27	108		26	104		70-130	4		20
tert-Butylbenzene	ND	25	26	104		25	100		70-130	4		20
o-Chlorotoluene	ND	25	28	112		32	128		70-130	13		20
p-Chlorotoluene	ND	25	24	96		24	96		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	25	25	100		26	104		41-144	4		20
Hexachlorobutadiene	ND	25	20	80		21	84		63-130	5		20
Isopropylbenzene	29	25	52	92		50	84		70-130	4		20
p-Isopropyltoluene	ND	25	25	100		24	96		70-130	4		20
Naphthalene	6.5	25	29	90		30	94		70-130	3		20
n-Propylbenzene	6.8	25	31	97		30	93		69-130	3		20
1,2,3-Trichlorobenzene	ND	25	23	92		24	96		70-130	4		20
1,2,4-Trichlorobenzene	ND	25	23	92		23	92		70-130	0		20
1,3,5-Trimethylbenzene	4.0J	25	29	116		29	116		64-130	0		20
1,2,4-Trimethylbenzene	15	25	39	96		38	92		70-130	3		20
1,4-Dioxane	ND	1250	1300	104		1400	112		56-162	7		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	113		112		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	94		94		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-01**Client ID:** DPT-40-10-12-20190917**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/17/19 15:50**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-02

Client ID: DPT-40-10-12-20190917FD

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 15:55

Date Received: 09/18/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-03**Client ID:** DPT-40-17-19-20190917**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/17/19 16:00**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.9		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-04

Client ID: DPT-40-19-21-12-20190917

Sample Location: JAMESTOWN, NY

Date Collected: 09/17/19 16:10

Date Received: 09/18/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-05**Client ID:** DPT-34-9-11-20190918**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 09:50**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-06**Client ID:** DPT-34-14-16-20190918**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 10:00**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.6		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-07**Client ID:** DPT-34-14-16-20190918FD**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 10:05**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-08**Client ID:** DPT-34-16-18-20190918**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 10:10**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-09**Client ID:** DPT-35-9-11-20190918**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 12:00**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1942981

Report Date: 09/25/19

SAMPLE RESULTS

Lab ID: L1942981-10

Client ID: DPT-35-11-13-20190918

Sample Location: JAMESTOWN, NY

Date Collected: 09/18/19 12:10

Date Received: 09/18/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19**SAMPLE RESULTS****Lab ID:** L1942981-11**Client ID:** DPT-35-13-15-20190918**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/18/19 12:20**Date Received:** 09/18/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	09/19/19 08:29	121,2540G	RI



Lab Duplicate Analysis
*Batch Quality Control***Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1942981**Report Date:** 09/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG1285985-1 QC Sample: L1942981-01 Client ID: DPT-40-10-12-20190917						
Solids, Total	88.6	88.2	%	0		20

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942981-01A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-01B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-01C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-01D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-01X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-01Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-01Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-02A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-02B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-02C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-02D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-02X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-02Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-02Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-03A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-03B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-03C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-03D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-03X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-03Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-03Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-04A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-04B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942981-04C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-04D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-04X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-04Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-04Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-05A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-05B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-05C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-05D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-05X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-05Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-05Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-06A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-06B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-06C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-06D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-06X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-06Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-06Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-07A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-07B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-07C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-07D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-07X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-07Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-07Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-08A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-08B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1942981-08C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-08D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-08X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-08Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-08Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-09A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-09B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-09C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-09D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-09X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-09Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-09Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-10A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-10B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-10C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-10D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-10X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-10Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-10Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-11A	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-11B	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-11C	5 gram Encore Sampler	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-11D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L1942981-11X	Vial MeOH preserved split	A	NA		2.8	Y	Absent		NYTCL-8260HLW(14)
L1942981-11Y	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-11Z	Vial Water preserved split	A	NA		2.8	Y	Absent	19-SEP-19 11:08	NYTCL-8260HLW(14)
L1942981-12A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1942981-12B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:09251922:33
Lab Number: L1942981
Report Date: 09/25/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1942981
Report Date: 09/25/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1942981**Project Number:** DWJMS004**Report Date:** 09/25/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 2		Date Rec'd in Lab 09/19/19		ALPHA Job # L1942981					
Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Townestown, NY</u> Project # <u>DWJMS004</u> (Use Project name as Project #) <input type="checkbox"/>				Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQulS (1 File) <input type="checkbox"/> EQulS (4 File) <input checked="" type="checkbox"/> Other - Per PO				Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #			
Client Information Client: <u>Jacobs</u> Address: <u>125 Blackstone Ave</u> <u>Townestown, NY</u> Phone: <u>508-397-1904</u> Fax: <u>508-397-1904</u> Email: <u>Dave.Kortjahn@Jacobs.com</u>		Project Manager: <u>Shamus Keohane</u> ALPHAQuote #: <u>PO #148007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:				Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <u>Per PO</u> <input type="checkbox"/> NYC Sewer Discharge				Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:			
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>See Program QA/QC associated with PO</u> Please specify Metals or TAL.						ANALYSIS (See Program QA/QC associated with PO)				Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)			
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Vols (SW8260)		Sample Specific Comments	
42981-01		DPT-40-10-12-20190917		9/17/19 1550		S		DK		X			
-02		DPT-40-10-12-20190917 FD		9/17/19 1555		S		DK		X			
-03		DPT-40-17-19-20190917		9/17/19 1600		S		DK		X			
-04		DPT-40-19-21-20190917		9/17/19 1610		S		DK		X			
-05		DPT-34-9-11-20190918		9/18/19 950		S		DK		X			
-06		DPT-34-14-16-20190918		9/18/19 1000		S		DK		X			
-07		DPT-34-14-16-20190918 FD		9/18/19 1005		S		DK		X			
-08		DPT-34-16-18-20190918		9/18/19 1010		S		DK		X			
-09		DPT-35-9-11-20190918		9/18/19 1200		S		DK		X			
-10		DPT-35-11-13-20190918		9/18/19 1210		S		DK		X			
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type E		Preservative A				Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
		Relinquished By: <u>[Signature]</u> <u>Jim Arl AAL</u>		Date/Time 9/18/19 01:45 9/18/19 16:30		Received By: <u>[Signature]</u> <u>Jim Arl AAL</u>		Date/Time 9/18/19 14:35 9/19/19 01:20					



ANALYTICAL REPORT

Lab Number:	L1943256
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	10/02/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1943256-01	DPT-36-10-12-20190918	SOIL	JAMESTOWN NY	09/18/19 15:30	09/19/19
L1943256-02	DPT-36-20-22-20190918	SOIL	JAMESTOWN NY	09/18/19 15:40	09/19/19
L1943256-03	DPT-36-22-24-20190918	SOIL	JAMESTOWN NY	09/18/19 15:50	09/19/19
L1943256-04	DPT-36-27-28-20190918	SOIL	JAMESTOWN NY	09/18/19 16:00	09/19/19
L1943256-05	DPT-37-10-12-20190919	SOIL	JAMESTOWN NY	09/19/19 10:00	09/19/19
L1943256-06	DPT-37-20-22-20190919	SOIL	JAMESTOWN NY	09/19/19 10:10	09/19/19
L1943256-07	DPT-37-22-24-20190919	SOIL	JAMESTOWN NY	09/19/19 10:20	09/19/19
L1943256-08	DPT-38-10-12-20190919	SOIL	JAMESTOWN NY	09/19/19 11:30	09/19/19
L1943256-09	DPT-38-10-12-20190919FD	SOIL	JAMESTOWN NY	09/19/19 11:35	09/19/19
L1943256-10	DPT-38-18-20-20190919	SOIL	JAMESTOWN NY	09/19/19 11:40	09/19/19
L1943256-11	DPT-38-24-26-20190919	SOIL	JAMESTOWN NY	09/19/19 11:50	09/19/19
L1943256-12	DPT-39-10-12-20190919	SOIL	JAMESTOWN NY	09/19/19 13:50	09/19/19
L1943256-13	DPT-39-18-20-20190919	SOIL	JAMESTOWN NY	09/19/19 13:55	09/19/19
L1943256-14	DPT-39-20-22-20190919	SOIL	JAMESTOWN NY	09/19/19 14:00	09/19/19
L1943256-15	TB-008-20190919	WATER	JAMESTOWN NY	09/19/19 00:00	09/19/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Case Narrative (continued)

Report Submission

October 02, 2019: This final report includes the results of all requested analyses.

September 27, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1943256-02, -03, -04, -06, -07 and -11: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1943256-01, -09, -10, -12, -13 and -14: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1943256-14: The internal standard (IS) response(s) for chlorobenzene-d5 (46%), and 1,4-dichlorobenzene-d4 (34%) were outside the acceptance criteria; however, re-analysis achieved similar results: 1,4-dichlorobenzene-d4 (45%) and the surrogate recovery for 1,2-dichloroethane-d4 (131%). The results of original analysis are reported.

L1943256-15: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1943256-15, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), 1,2,4-Trichlorobenzene (30%D), above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943256-15, did not meet the method required minimum response factor for bromomethane, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Case Narrative (continued)

WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane (31%D) above the 20% CCV criteria, but within overall method allowances.

The WG1288067-3/-4 LCS/LCSD recoveries, associated with L1943256-01, -08, -09, -10, -12, -13 and -14, are above the individual acceptance criteria for chloromethane (164%/163%) and dichlorodifluoromethane (160%/159%), but within the overall method allowances. The results of the associated samples are reported; however, all positive detects are considered to have a potentially high for these compounds.

The initial calibration, associated with L1943256-01, -02, -04 -05, -06, -07, -08, -09, -10, -12, -13 and -14, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane, 4-Methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (75%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943256-01, -08, -09, -10, -12, -13 and -14, did not meet the method required minimum response factor for bromochloromethane, 1,4-dioxane, 4-Methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

The continuing calibration verification standard WG1288067-2 has the percent deviation for Dichlorodifluoromethane (58%), chloromethane (64%), Vinyl chloride (25%) above the 20% CCV criteria, but within overall method allowances.

The WG1288366-3/-4 LCS/LCSD recoveries, associated with L1943256-05, are above the individual acceptance criteria for chloromethane (227%/222%), dichlorodifluoromethane (201%/199%), acetone (144%/146%) and 2-butanone (134%/142%), but within the overall method allowances. The results of the associated samples are reported; however, all positive detects are considered to have a potentially high for these compounds.

The continuing calibration verification standard WG1288385-2 has the percent deviation for dichlorodifluoromethane (83%D), chloromethane (115%D), bromomethane (30%D), chloroethane (29%D), carbon disulfide (21%D), acetone (41%D), vinyl acetate (33%D), and 2-butanone (42%D) above the 20% CCV criteria, but within overall method allowances.

The WG1288385-3/-4 LCS/LCSD recoveries, associated with L1943256-02, -04, -06 and -07, are above the

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Case Narrative (continued)

individual acceptance criteria for chloromethane (227%/222%), dichlorodifluoromethane (201%/199%), acetone (144%/146%) and 2-butanone (134%/142%), but within the overall method allowances. The results of the associated samples are reported; however, all positive detects are considered to have a potentially high for these compounds.

The continuing calibration, associated with L1943256-02, -04, -05, -06 and -07, did not meet the method required minimum response factor for Bromomethane, chloroethane, Bromochloromethane, 1,4-dioxane, 4-Methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

The continuing calibration verification standard WG1288929-2 has the percent deviation for Dichlorodifluoromethane (28%) and chloroethane (41%) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 10/02/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-01
 Client ID: DPT-36-10-12-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:30
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/24/19 11:11

Analyst: JC

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.5	2.1	1
1,1-Dichloroethane	ND		ug/kg	0.90	0.13	1
Chloroform	0.20	J	ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.90	0.21	1
1,2-Dichloropropane	ND		ug/kg	0.90	0.11	1
Dibromochloromethane	ND		ug/kg	0.90	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.90	0.24	1
Tetrachloroethene	ND		ug/kg	0.45	0.18	1
Chlorobenzene	ND		ug/kg	0.45	0.11	1
Trichlorofluoromethane	ND		ug/kg	3.6	0.63	1
1,2-Dichloroethane	ND		ug/kg	0.90	0.23	1
1,1,1-Trichloroethane	ND		ug/kg	0.45	0.15	1
Bromodichloromethane	ND		ug/kg	0.45	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.90	0.25	1
cis-1,3-Dichloropropene	ND		ug/kg	0.45	0.14	1
1,3-Dichloropropene, Total	ND		ug/kg	0.45	0.14	1
1,1-Dichloropropene	ND		ug/kg	0.45	0.14	1
Bromoform	ND		ug/kg	3.6	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.45	0.15	1
Benzene	ND		ug/kg	0.45	0.15	1
Toluene	ND		ug/kg	0.90	0.49	1
Ethylbenzene	ND		ug/kg	0.90	0.13	1
Chloromethane	ND		ug/kg	3.6	0.84	1
Bromomethane	ND		ug/kg	1.8	0.52	1
Vinyl chloride	ND		ug/kg	0.90	0.30	1
Chloroethane	ND		ug/kg	1.8	0.41	1
1,1-Dichloroethene	ND		ug/kg	0.90	0.21	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.12	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-01
 Client ID: DPT-36-10-12-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:30
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.26	J	ug/kg	0.45	0.12	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	0.15	1
Methyl tert butyl ether	1.8		ug/kg	1.8	0.18	1
p/m-Xylene	ND		ug/kg	1.8	0.50	1
o-Xylene	ND		ug/kg	0.90	0.26	1
Xylenes, Total	ND		ug/kg	0.90	0.26	1
cis-1,2-Dichloroethene	ND		ug/kg	0.90	0.16	1
1,2-Dichloroethene, Total	ND		ug/kg	0.90	0.12	1
Dibromomethane	ND		ug/kg	1.8	0.21	1
Styrene	ND		ug/kg	0.90	0.18	1
Dichlorodifluoromethane	ND		ug/kg	9.0	0.83	1
Acetone	480	E	ug/kg	9.0	4.3	1
Carbon disulfide	ND		ug/kg	9.0	4.1	1
2-Butanone	5.9	J	ug/kg	9.0	2.0	1
Vinyl acetate	ND		ug/kg	9.0	1.9	1
4-Methyl-2-pentanone	ND		ug/kg	9.0	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	0.11	1
2-Hexanone	ND		ug/kg	9.0	1.1	1
Bromochloromethane	ND		ug/kg	1.8	0.18	1
2,2-Dichloropropane	ND		ug/kg	1.8	0.18	1
1,2-Dibromoethane	ND		ug/kg	0.90	0.25	1
1,3-Dichloropropane	ND		ug/kg	1.8	0.15	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.45	0.12	1
Bromobenzene	ND		ug/kg	1.8	0.13	1
n-Butylbenzene	ND		ug/kg	0.90	0.15	1
sec-Butylbenzene	ND		ug/kg	0.90	0.13	1
tert-Butylbenzene	ND		ug/kg	1.8	0.11	1
o-Chlorotoluene	ND		ug/kg	1.8	0.17	1
p-Chlorotoluene	ND		ug/kg	1.8	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.7	0.90	1
Hexachlorobutadiene	ND		ug/kg	3.6	0.15	1
Isopropylbenzene	ND		ug/kg	0.90	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.90	0.10	1
Naphthalene	ND		ug/kg	3.6	0.59	1
n-Propylbenzene	ND		ug/kg	0.90	0.15	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-01

Date Collected: 09/18/19 15:30

Client ID: DPT-36-10-12-20190918

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	0.29	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	0.24	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	0.17	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	0.30	1
1,4-Dioxane	ND		ug/kg	72	32.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-02 D
 Client ID: DPT-36-20-22-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:40
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 21:37
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	7500	3400	20
1,1-Dichloroethane	ND		ug/kg	1500	220	20
Chloroform	380	J	ug/kg	2200	210	20
Carbon tetrachloride	ND		ug/kg	1500	340	20
1,2-Dichloropropane	ND		ug/kg	1500	190	20
Dibromochloromethane	ND		ug/kg	1500	210	20
1,1,2-Trichloroethane	ND		ug/kg	1500	400	20
Tetrachloroethene	ND		ug/kg	750	290	20
Chlorobenzene	ND		ug/kg	750	190	20
Trichlorofluoromethane	ND		ug/kg	6000	1000	20
1,2-Dichloroethane	ND		ug/kg	1500	380	20
1,1,1-Trichloroethane	ND		ug/kg	750	250	20
Bromodichloromethane	ND		ug/kg	750	160	20
trans-1,3-Dichloropropene	ND		ug/kg	1500	410	20
cis-1,3-Dichloropropene	ND		ug/kg	750	240	20
1,3-Dichloropropene, Total	ND		ug/kg	750	240	20
1,1-Dichloropropene	ND		ug/kg	750	240	20
Bromoform	ND		ug/kg	6000	370	20
1,1,2,2-Tetrachloroethane	ND		ug/kg	750	250	20
Benzene	ND		ug/kg	750	250	20
Toluene	ND		ug/kg	1500	810	20
Ethylbenzene	ND		ug/kg	1500	210	20
Chloromethane	ND		ug/kg	6000	1400	20
Bromomethane	ND		ug/kg	3000	870	20
Vinyl chloride	ND		ug/kg	1500	500	20
Chloroethane	ND		ug/kg	3000	680	20
1,1-Dichloroethene	ND		ug/kg	1500	360	20
trans-1,2-Dichloroethene	ND		ug/kg	2200	200	20

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-02 D
 Client ID: DPT-36-20-22-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:40
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	340000		ug/kg	750	200	20
1,2-Dichlorobenzene	ND		ug/kg	3000	220	20
1,3-Dichlorobenzene	ND		ug/kg	3000	220	20
1,4-Dichlorobenzene	ND		ug/kg	3000	260	20
Methyl tert butyl ether	ND		ug/kg	3000	300	20
p/m-Xylene	ND		ug/kg	3000	840	20
o-Xylene	ND		ug/kg	1500	440	20
Xylenes, Total	ND		ug/kg	1500	440	20
cis-1,2-Dichloroethene	19000		ug/kg	1500	260	20
1,2-Dichloroethene, Total	19000		ug/kg	1500	200	20
Dibromomethane	ND		ug/kg	3000	360	20
Styrene	ND		ug/kg	1500	290	20
Dichlorodifluoromethane	ND		ug/kg	15000	1400	20
Acetone	ND		ug/kg	15000	7200	20
Carbon disulfide	ND		ug/kg	15000	6800	20
2-Butanone	ND		ug/kg	15000	3300	20
Vinyl acetate	ND		ug/kg	15000	3200	20
4-Methyl-2-pentanone	ND		ug/kg	15000	1900	20
1,2,3-Trichloropropane	ND		ug/kg	3000	190	20
2-Hexanone	ND		ug/kg	15000	1800	20
Bromochloromethane	ND		ug/kg	3000	310	20
2,2-Dichloropropane	ND		ug/kg	3000	300	20
1,2-Dibromoethane	ND		ug/kg	1500	420	20
1,3-Dichloropropane	ND		ug/kg	3000	250	20
1,1,1,2-Tetrachloroethane	ND		ug/kg	750	200	20
Bromobenzene	ND		ug/kg	3000	220	20
n-Butylbenzene	ND		ug/kg	1500	250	20
sec-Butylbenzene	ND		ug/kg	1500	220	20
tert-Butylbenzene	ND		ug/kg	3000	180	20
o-Chlorotoluene	ND		ug/kg	3000	280	20
p-Chlorotoluene	ND		ug/kg	3000	160	20
1,2-Dibromo-3-chloropropane	ND		ug/kg	4500	1500	20
Hexachlorobutadiene	ND		ug/kg	6000	250	20
Isopropylbenzene	ND		ug/kg	1500	160	20
p-Isopropyltoluene	ND		ug/kg	1500	160	20
Naphthalene	ND		ug/kg	6000	970	20
n-Propylbenzene	ND		ug/kg	1500	260	20

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-02 D

Date Collected: 09/18/19 15:40

Client ID: DPT-36-20-22-20190918

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	3000	480	20
1,2,4-Trichlorobenzene	ND		ug/kg	3000	410	20
1,3,5-Trimethylbenzene	ND		ug/kg	3000	290	20
1,2,4-Trimethylbenzene	830	J	ug/kg	3000	500	20
1,4-Dioxane	ND		ug/kg	120000	52000	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	109		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-03 D
 Client ID: DPT-36-22-24-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 23:19
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	3500	1600	10
1,1-Dichloroethane	ND		ug/kg	700	100	10
Chloroform	140	J	ug/kg	1000	98.	10
Carbon tetrachloride	ND		ug/kg	700	160	10
1,2-Dichloropropane	ND		ug/kg	700	87.	10
Dibromochloromethane	ND		ug/kg	700	98.	10
1,1,2-Trichloroethane	ND		ug/kg	700	190	10
Tetrachloroethene	ND		ug/kg	350	140	10
Chlorobenzene	ND		ug/kg	350	88.	10
Trichlorofluoromethane	ND		ug/kg	2800	480	10
1,2-Dichloroethane	ND		ug/kg	700	180	10
1,1,1-Trichloroethane	ND		ug/kg	350	120	10
Bromodichloromethane	ND		ug/kg	350	76.	10
trans-1,3-Dichloropropene	ND		ug/kg	700	190	10
cis-1,3-Dichloropropene	ND		ug/kg	350	110	10
1,3-Dichloropropene, Total	ND		ug/kg	350	110	10
1,1-Dichloropropene	ND		ug/kg	350	110	10
Bromoform	ND		ug/kg	2800	170	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	350	120	10
Benzene	ND		ug/kg	350	120	10
Toluene	ND		ug/kg	700	380	10
Ethylbenzene	ND		ug/kg	700	98.	10
Chloromethane	ND		ug/kg	2800	650	10
Bromomethane	ND		ug/kg	1400	400	10
Vinyl chloride	ND		ug/kg	700	230	10
Chloroethane	ND		ug/kg	1400	320	10
1,1-Dichloroethene	ND		ug/kg	700	160	10
trans-1,2-Dichloroethene	ND		ug/kg	1000	95.	10

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-03 D
 Client ID: DPT-36-22-24-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	170000		ug/kg	350	95.	10
1,2-Dichlorobenzene	ND		ug/kg	1400	100	10
1,3-Dichlorobenzene	ND		ug/kg	1400	100	10
1,4-Dichlorobenzene	ND		ug/kg	1400	120	10
Methyl tert butyl ether	ND		ug/kg	1400	140	10
p/m-Xylene	ND		ug/kg	1400	390	10
o-Xylene	ND		ug/kg	700	200	10
Xylenes, Total	ND		ug/kg	700	200	10
cis-1,2-Dichloroethene	10000		ug/kg	700	120	10
1,2-Dichloroethene, Total	10000		ug/kg	700	95.	10
Dibromomethane	ND		ug/kg	1400	160	10
Styrene	ND		ug/kg	700	140	10
Dichlorodifluoromethane	ND		ug/kg	7000	640	10
Acetone	ND		ug/kg	7000	3400	10
Carbon disulfide	ND		ug/kg	7000	3200	10
2-Butanone	ND		ug/kg	7000	1500	10
Vinyl acetate	ND		ug/kg	7000	1500	10
4-Methyl-2-pentanone	ND		ug/kg	7000	890	10
1,2,3-Trichloropropane	ND		ug/kg	1400	88.	10
2-Hexanone	ND		ug/kg	7000	820	10
Bromochloromethane	ND		ug/kg	1400	140	10
2,2-Dichloropropane	ND		ug/kg	1400	140	10
1,2-Dibromoethane	ND		ug/kg	700	190	10
1,3-Dichloropropane	ND		ug/kg	1400	120	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	350	92.	10
Bromobenzene	ND		ug/kg	1400	100	10
n-Butylbenzene	ND		ug/kg	700	120	10
sec-Butylbenzene	ND		ug/kg	700	100	10
tert-Butylbenzene	ND		ug/kg	1400	82.	10
o-Chlorotoluene	ND		ug/kg	1400	130	10
p-Chlorotoluene	ND		ug/kg	1400	75.	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	2100	700	10
Hexachlorobutadiene	ND		ug/kg	2800	120	10
Isopropylbenzene	ND		ug/kg	700	76.	10
p-Isopropyltoluene	ND		ug/kg	700	76.	10
Naphthalene	ND		ug/kg	2800	450	10
n-Propylbenzene	ND		ug/kg	700	120	10



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-03 D
 Client ID: DPT-36-22-24-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1400	220	10
1,2,4-Trichlorobenzene	ND		ug/kg	1400	190	10
1,3,5-Trimethylbenzene	ND		ug/kg	1400	130	10
1,2,4-Trimethylbenzene	ND		ug/kg	1400	230	10
1,4-Dioxane	ND		ug/kg	56000	24000	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-04 D
 Client ID: DPT-36-27-28-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 16:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 22:03
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	7300	3300	20
1,1-Dichloroethane	ND		ug/kg	1400	210	20
Chloroform	300	J	ug/kg	2200	200	20
Carbon tetrachloride	ND		ug/kg	1400	330	20
1,2-Dichloropropane	ND		ug/kg	1400	180	20
Dibromochloromethane	ND		ug/kg	1400	200	20
1,1,2-Trichloroethane	ND		ug/kg	1400	390	20
Tetrachloroethene	ND		ug/kg	730	280	20
Chlorobenzene	ND		ug/kg	730	180	20
Trichlorofluoromethane	ND		ug/kg	5800	1000	20
1,2-Dichloroethane	ND		ug/kg	1400	370	20
1,1,1-Trichloroethane	ND		ug/kg	730	240	20
Bromodichloromethane	ND		ug/kg	730	160	20
trans-1,3-Dichloropropene	ND		ug/kg	1400	400	20
cis-1,3-Dichloropropene	ND		ug/kg	730	230	20
1,3-Dichloropropene, Total	ND		ug/kg	730	230	20
1,1-Dichloropropene	ND		ug/kg	730	230	20
Bromoform	ND		ug/kg	5800	360	20
1,1,2,2-Tetrachloroethane	ND		ug/kg	730	240	20
Benzene	ND		ug/kg	730	240	20
Toluene	ND		ug/kg	1400	790	20
Ethylbenzene	ND		ug/kg	1400	200	20
Chloromethane	ND		ug/kg	5800	1400	20
Bromomethane	ND		ug/kg	2900	840	20
Vinyl chloride	ND		ug/kg	1400	490	20
Chloroethane	ND		ug/kg	2900	660	20
1,1-Dichloroethene	ND		ug/kg	1400	350	20
trans-1,2-Dichloroethene	ND		ug/kg	2200	200	20

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-04 D
 Client ID: DPT-36-27-28-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 16:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	280000		ug/kg	730	200	20
1,2-Dichlorobenzene	ND		ug/kg	2900	210	20
1,3-Dichlorobenzene	ND		ug/kg	2900	220	20
1,4-Dichlorobenzene	ND		ug/kg	2900	250	20
Methyl tert butyl ether	ND		ug/kg	2900	290	20
p/m-Xylene	ND		ug/kg	2900	810	20
o-Xylene	ND		ug/kg	1400	420	20
Xylenes, Total	ND		ug/kg	1400	420	20
cis-1,2-Dichloroethene	17000		ug/kg	1400	250	20
1,2-Dichloroethene, Total	17000		ug/kg	1400	200	20
Dibromomethane	ND		ug/kg	2900	350	20
Styrene	ND		ug/kg	1400	280	20
Dichlorodifluoromethane	ND		ug/kg	14000	1300	20
Acetone	ND		ug/kg	14000	7000	20
Carbon disulfide	ND		ug/kg	14000	6600	20
2-Butanone	ND		ug/kg	14000	3200	20
Vinyl acetate	ND		ug/kg	14000	3100	20
4-Methyl-2-pentanone	ND		ug/kg	14000	1900	20
1,2,3-Trichloropropane	ND		ug/kg	2900	180	20
2-Hexanone	ND		ug/kg	14000	1700	20
Bromochloromethane	ND		ug/kg	2900	300	20
2,2-Dichloropropane	ND		ug/kg	2900	290	20
1,2-Dibromoethane	ND		ug/kg	1400	410	20
1,3-Dichloropropane	ND		ug/kg	2900	240	20
1,1,1,2-Tetrachloroethane	ND		ug/kg	730	190	20
Bromobenzene	ND		ug/kg	2900	210	20
n-Butylbenzene	ND		ug/kg	1400	240	20
sec-Butylbenzene	ND		ug/kg	1400	210	20
tert-Butylbenzene	ND		ug/kg	2900	170	20
o-Chlorotoluene	ND		ug/kg	2900	280	20
p-Chlorotoluene	ND		ug/kg	2900	160	20
1,2-Dibromo-3-chloropropane	ND		ug/kg	4400	1400	20
Hexachlorobutadiene	ND		ug/kg	5800	240	20
Isopropylbenzene	ND		ug/kg	1400	160	20
p-Isopropyltoluene	ND		ug/kg	1400	160	20
Naphthalene	ND		ug/kg	5800	940	20
n-Propylbenzene	320	J	ug/kg	1400	250	20



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-04 D
 Client ID: DPT-36-27-28-20190918
 Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 16:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2900	470	20
1,2,4-Trichlorobenzene	ND		ug/kg	2900	400	20
1,3,5-Trimethylbenzene	700	J	ug/kg	2900	280	20
1,2,4-Trimethylbenzene	2600	J	ug/kg	2900	490	20
1,4-Dioxane	ND		ug/kg	120000	51000	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	108		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-05
 Client ID: DPT-37-10-12-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:45
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.9	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.99	0.14	1
Chloroform	0.23	J	ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	0.99	0.23	1
1,2-Dichloropropane	ND		ug/kg	0.99	0.12	1
Dibromochloromethane	ND		ug/kg	0.99	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	0.99	0.26	1
Tetrachloroethene	ND		ug/kg	0.49	0.19	1
Chlorobenzene	ND		ug/kg	0.49	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.9	0.68	1
1,2-Dichloroethane	ND		ug/kg	0.99	0.25	1
1,1,1-Trichloroethane	ND		ug/kg	0.49	0.16	1
Bromodichloromethane	ND		ug/kg	0.49	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	0.99	0.27	1
cis-1,3-Dichloropropene	ND		ug/kg	0.49	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.49	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.49	0.16	1
Bromoform	ND		ug/kg	3.9	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.49	0.16	1
Benzene	ND		ug/kg	0.49	0.16	1
Toluene	ND		ug/kg	0.99	0.54	1
Ethylbenzene	ND		ug/kg	0.99	0.14	1
Chloromethane	1.5	J	ug/kg	3.9	0.92	1
Bromomethane	ND		ug/kg	2.0	0.57	1
Vinyl chloride	ND		ug/kg	0.99	0.33	1
Chloroethane	ND		ug/kg	2.0	0.45	1
1,1-Dichloroethene	ND		ug/kg	0.99	0.23	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-05

Date Collected: 09/19/19 10:00

Client ID: DPT-37-10-12-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	48		ug/kg	0.49	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	2.0		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.55	1
o-Xylene	ND		ug/kg	0.99	0.29	1
Xylenes, Total	ND		ug/kg	0.99	0.29	1
cis-1,2-Dichloroethene	3.1		ug/kg	0.99	0.17	1
1,2-Dichloroethene, Total	3.1		ug/kg	0.99	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.23	1
Styrene	ND		ug/kg	0.99	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.9	0.90	1
Acetone	240		ug/kg	9.9	4.7	1
Carbon disulfide	ND		ug/kg	9.9	4.5	1
2-Butanone	ND		ug/kg	9.9	2.2	1
Vinyl acetate	ND		ug/kg	9.9	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	9.9	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.12	1
2-Hexanone	ND		ug/kg	9.9	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.20	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	0.99	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.49	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.14	1
n-Butylbenzene	ND		ug/kg	0.99	0.16	1
sec-Butylbenzene	ND		ug/kg	0.99	0.14	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	0.98	1
Hexachlorobutadiene	ND		ug/kg	3.9	0.17	1
Isopropylbenzene	ND		ug/kg	0.99	0.11	1
p-Isopropyltoluene	ND		ug/kg	0.99	0.11	1
Naphthalene	ND		ug/kg	3.9	0.64	1
n-Propylbenzene	ND		ug/kg	0.99	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-05

Date Collected: 09/19/19 10:00

Client ID: DPT-37-10-12-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33	1
1,4-Dioxane	ND		ug/kg	79	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	107		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-06 D
 Client ID: DPT-37-20-22-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:10
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 23:22
 Analyst: JC
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	790	360	2
1,1-Dichloroethane	ND		ug/kg	160	23.	2
Chloroform	38	J	ug/kg	240	22.	2
Carbon tetrachloride	ND		ug/kg	160	36.	2
1,2-Dichloropropane	ND		ug/kg	160	20.	2
Dibromochloromethane	ND		ug/kg	160	22.	2
1,1,2-Trichloroethane	ND		ug/kg	160	42.	2
Tetrachloroethene	ND		ug/kg	79	31.	2
Chlorobenzene	ND		ug/kg	79	20.	2
Trichlorofluoromethane	ND		ug/kg	630	110	2
1,2-Dichloroethane	ND		ug/kg	160	40.	2
1,1,1-Trichloroethane	ND		ug/kg	79	26.	2
Bromodichloromethane	ND		ug/kg	79	17.	2
trans-1,3-Dichloropropene	ND		ug/kg	160	43.	2
cis-1,3-Dichloropropene	ND		ug/kg	79	25.	2
1,3-Dichloropropene, Total	ND		ug/kg	79	25.	2
1,1-Dichloropropene	ND		ug/kg	79	25.	2
Bromoform	ND		ug/kg	630	39.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	79	26.	2
Benzene	43	J	ug/kg	79	26.	2
Toluene	ND		ug/kg	160	86.	2
Ethylbenzene	ND		ug/kg	160	22.	2
Chloromethane	ND		ug/kg	630	150	2
Bromomethane	ND		ug/kg	320	92.	2
Vinyl chloride	76	J	ug/kg	160	53.	2
Chloroethane	ND		ug/kg	320	71.	2
1,1-Dichloroethene	ND		ug/kg	160	37.	2
trans-1,2-Dichloroethene	ND		ug/kg	240	22.	2

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-06 D
 Client ID: DPT-37-20-22-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:10
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	26000		ug/kg	79	22.	2
1,2-Dichlorobenzene	ND		ug/kg	320	23.	2
1,3-Dichlorobenzene	ND		ug/kg	320	23.	2
1,4-Dichlorobenzene	ND		ug/kg	320	27.	2
Methyl tert butyl ether	ND		ug/kg	320	32.	2
p/m-Xylene	ND		ug/kg	320	88.	2
o-Xylene	ND		ug/kg	160	46.	2
Xylenes, Total	ND		ug/kg	160	46.	2
cis-1,2-Dichloroethene	3400		ug/kg	160	28.	2
1,2-Dichloroethene, Total	3400		ug/kg	160	22.	2
Dibromomethane	ND		ug/kg	320	37.	2
Styrene	ND		ug/kg	160	31.	2
Dichlorodifluoromethane	ND		ug/kg	1600	140	2
Acetone	ND		ug/kg	1600	760	2
Carbon disulfide	ND		ug/kg	1600	720	2
2-Butanone	ND		ug/kg	1600	350	2
Vinyl acetate	ND		ug/kg	1600	340	2
4-Methyl-2-pentanone	ND		ug/kg	1600	200	2
1,2,3-Trichloropropane	ND		ug/kg	320	20.	2
2-Hexanone	ND		ug/kg	1600	180	2
Bromochloromethane	ND		ug/kg	320	32.	2
2,2-Dichloropropane	ND		ug/kg	320	32.	2
1,2-Dibromoethane	ND		ug/kg	160	44.	2
1,3-Dichloropropane	ND		ug/kg	320	26.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	79	21.	2
Bromobenzene	ND		ug/kg	320	23.	2
n-Butylbenzene	ND		ug/kg	160	26.	2
sec-Butylbenzene	ND		ug/kg	160	23.	2
tert-Butylbenzene	ND		ug/kg	320	18.	2
o-Chlorotoluene	ND		ug/kg	320	30.	2
p-Chlorotoluene	ND		ug/kg	320	17.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	470	160	2
Hexachlorobutadiene	ND		ug/kg	630	27.	2
Isopropylbenzene	ND		ug/kg	160	17.	2
p-Isopropyltoluene	ND		ug/kg	160	17.	2
Naphthalene	ND		ug/kg	630	100	2
n-Propylbenzene	ND		ug/kg	160	27.	2

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-06 D
 Client ID: DPT-37-20-22-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:10
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	320	51.	2
1,2,4-Trichlorobenzene	ND		ug/kg	320	43.	2
1,3,5-Trimethylbenzene	ND		ug/kg	320	30.	2
1,2,4-Trimethylbenzene	ND		ug/kg	320	53.	2
1,4-Dioxane	ND		ug/kg	13000	5500	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	109		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-07 D
 Client ID: DPT-37-22-24-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:20
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 22:55
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1300	610	4
1,1-Dichloroethane	ND		ug/kg	260	38.	4
Chloroform	66	J	ug/kg	400	37.	4
Carbon tetrachloride	ND		ug/kg	260	61.	4
1,2-Dichloropropane	ND		ug/kg	260	33.	4
Dibromochloromethane	ND		ug/kg	260	37.	4
1,1,2-Trichloroethane	ND		ug/kg	260	71.	4
Tetrachloroethene	ND		ug/kg	130	52.	4
Chlorobenzene	ND		ug/kg	130	34.	4
Trichlorofluoromethane	ND		ug/kg	1100	180	4
1,2-Dichloroethane	ND		ug/kg	260	68.	4
1,1,1-Trichloroethane	ND		ug/kg	130	44.	4
Bromodichloromethane	ND		ug/kg	130	29.	4
trans-1,3-Dichloropropene	ND		ug/kg	260	72.	4
cis-1,3-Dichloropropene	ND		ug/kg	130	42.	4
1,3-Dichloropropene, Total	ND		ug/kg	130	42.	4
1,1-Dichloropropene	ND		ug/kg	130	42.	4
Bromoform	ND		ug/kg	1100	65.	4
1,1,2,2-Tetrachloroethane	ND		ug/kg	130	44.	4
Benzene	70	J	ug/kg	130	44.	4
Toluene	ND		ug/kg	260	140	4
Ethylbenzene	ND		ug/kg	260	37.	4
Chloromethane	ND		ug/kg	1100	250	4
Bromomethane	ND		ug/kg	530	150	4
Vinyl chloride	160	J	ug/kg	260	89.	4
Chloroethane	ND		ug/kg	530	120	4
1,1-Dichloroethene	ND		ug/kg	260	63.	4
trans-1,2-Dichloroethene	ND		ug/kg	400	36.	4

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-07 D
 Client ID: DPT-37-22-24-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:20
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	48000		ug/kg	130	36.	4
1,2-Dichlorobenzene	ND		ug/kg	530	38.	4
1,3-Dichlorobenzene	ND		ug/kg	530	39.	4
1,4-Dichlorobenzene	ND		ug/kg	530	45.	4
Methyl tert butyl ether	ND		ug/kg	530	53.	4
p/m-Xylene	ND		ug/kg	530	150	4
o-Xylene	ND		ug/kg	260	77.	4
Xylenes, Total	ND		ug/kg	260	77.	4
cis-1,2-Dichloroethene	5300		ug/kg	260	46.	4
1,2-Dichloroethene, Total	5300		ug/kg	260	36.	4
Dibromomethane	ND		ug/kg	530	63.	4
Styrene	ND		ug/kg	260	52.	4
Dichlorodifluoromethane	ND		ug/kg	2600	240	4
Acetone	ND		ug/kg	2600	1300	4
Carbon disulfide	ND		ug/kg	2600	1200	4
2-Butanone	ND		ug/kg	2600	590	4
Vinyl acetate	ND		ug/kg	2600	570	4
4-Methyl-2-pentanone	ND		ug/kg	2600	340	4
1,2,3-Trichloropropane	ND		ug/kg	530	34.	4
2-Hexanone	ND		ug/kg	2600	310	4
Bromochloromethane	ND		ug/kg	530	54.	4
2,2-Dichloropropane	ND		ug/kg	530	54.	4
1,2-Dibromoethane	ND		ug/kg	260	74.	4
1,3-Dichloropropane	ND		ug/kg	530	44.	4
1,1,1,2-Tetrachloroethane	ND		ug/kg	130	35.	4
Bromobenzene	ND		ug/kg	530	38.	4
n-Butylbenzene	ND		ug/kg	260	44.	4
sec-Butylbenzene	ND		ug/kg	260	39.	4
tert-Butylbenzene	ND		ug/kg	530	31.	4
o-Chlorotoluene	ND		ug/kg	530	51.	4
p-Chlorotoluene	ND		ug/kg	530	29.	4
1,2-Dibromo-3-chloropropane	ND		ug/kg	800	260	4
Hexachlorobutadiene	ND		ug/kg	1100	45.	4
Isopropylbenzene	ND		ug/kg	260	29.	4
p-Isopropyltoluene	ND		ug/kg	260	29.	4
Naphthalene	ND		ug/kg	1100	170	4
n-Propylbenzene	ND		ug/kg	260	45.	4



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-07 D
 Client ID: DPT-37-22-24-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:20
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	530	85.	4
1,2,4-Trichlorobenzene	ND		ug/kg	530	72.	4
1,3,5-Trimethylbenzene	ND		ug/kg	530	51.	4
1,2,4-Trimethylbenzene	ND		ug/kg	530	88.	4
1,4-Dioxane	ND		ug/kg	21000	9300	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	129		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	110		70-130

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-08
 Client ID: DPT-38-10-12-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:30
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/24/19 14:15

Analyst: JC

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.1	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	0.24	J	ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.51	0.20	1
Chlorobenzene	ND		ug/kg	0.51	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.1	0.71	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.51	0.17	1
Bromodichloromethane	ND		ug/kg	0.51	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.51	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.51	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.51	0.16	1
Bromoform	ND		ug/kg	4.1	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.51	0.17	1
Benzene	ND		ug/kg	0.51	0.17	1
Toluene	ND		ug/kg	1.0	0.55	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.1	0.95	1
Bromomethane	ND		ug/kg	2.0	0.59	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.46	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-08

Date Collected: 09/19/19 11:30

Client ID: DPT-38-10-12-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	11		ug/kg	0.51	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	2.1		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.57	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	4.1		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	4.1		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.93	1
Acetone	58		ug/kg	10	4.9	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.51	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.20	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.1	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.1	0.66	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-08

Date Collected: 09/19/19 11:30

Client ID: DPT-38-10-12-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.33	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	82	36.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-09
 Client ID: DPT-38-10-12-20190919FD
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:35
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 14:41
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.95	0.14	1
Chloroform	0.34	J	ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.95	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.95	0.12	1
Dibromochloromethane	ND		ug/kg	0.95	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.95	0.25	1
Tetrachloroethene	ND		ug/kg	0.48	0.19	1
Chlorobenzene	ND		ug/kg	0.48	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.8	0.66	1
1,2-Dichloroethane	ND		ug/kg	0.95	0.24	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	0.16	1
Bromodichloromethane	ND		ug/kg	0.48	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.95	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.48	0.15	1
Bromoform	ND		ug/kg	3.8	0.23	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	0.16	1
Benzene	ND		ug/kg	0.48	0.16	1
Toluene	ND		ug/kg	0.95	0.52	1
Ethylbenzene	ND		ug/kg	0.95	0.13	1
Chloromethane	1.2	J	ug/kg	3.8	0.89	1
Bromomethane	ND		ug/kg	1.9	0.55	1
Vinyl chloride	ND		ug/kg	0.95	0.32	1
Chloroethane	ND		ug/kg	1.9	0.43	1
1,1-Dichloroethene	ND		ug/kg	0.95	0.23	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.13	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-09

Date Collected: 09/19/19 11:35

Client ID: DPT-38-10-12-20190919FD

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	8.5		ug/kg	0.48	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	2.4		ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.53	1
o-Xylene	ND		ug/kg	0.95	0.28	1
Xylenes, Total	ND		ug/kg	0.95	0.28	1
cis-1,2-Dichloroethene	2.4		ug/kg	0.95	0.17	1
1,2-Dichloroethene, Total	2.4		ug/kg	0.95	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.23	1
Styrene	ND		ug/kg	0.95	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.5	0.87	1
Acetone	480	E	ug/kg	9.5	4.6	1
Carbon disulfide	ND		ug/kg	9.5	4.3	1
2-Butanone	ND		ug/kg	9.5	2.1	1
Vinyl acetate	ND		ug/kg	9.5	2.0	1
4-Methyl-2-pentanone	ND		ug/kg	9.5	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.5	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.20	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.19	1
1,2-Dibromoethane	ND		ug/kg	0.95	0.26	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	0.12	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.95	0.16	1
sec-Butylbenzene	ND		ug/kg	0.95	0.14	1
tert-Butylbenzene	ND		ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.8	0.95	1
Hexachlorobutadiene	ND		ug/kg	3.8	0.16	1
Isopropylbenzene	ND		ug/kg	0.95	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.95	0.10	1
Naphthalene	ND		ug/kg	3.8	0.62	1
n-Propylbenzene	ND		ug/kg	0.95	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS****Lab ID:** L1943256-09**Date Collected:** 09/19/19 11:35**Client ID:** DPT-38-10-12-20190919FD**Date Received:** 09/19/19**Sample Location:** JAMESTOWN NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.31	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.32	1
1,4-Dioxane	ND		ug/kg	76	33.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-10
 Client ID: DPT-38-18-20-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:40
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 15:08
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.3	2.9	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.18	1
Chloroform	0.32	J	ug/kg	1.9	0.18	1
Carbon tetrachloride	ND		ug/kg	1.2	0.29	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.16	1
Dibromochloromethane	ND		ug/kg	1.2	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.34	1
Tetrachloroethene	ND		ug/kg	0.63	0.25	1
Chlorobenzene	ND		ug/kg	0.63	0.16	1
Trichlorofluoromethane	ND		ug/kg	5.0	0.88	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.32	1
1,1,1-Trichloroethane	ND		ug/kg	0.63	0.21	1
Bromodichloromethane	ND		ug/kg	0.63	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.34	1
cis-1,3-Dichloropropene	ND		ug/kg	0.63	0.20	1
1,3-Dichloropropene, Total	ND		ug/kg	0.63	0.20	1
1,1-Dichloropropene	ND		ug/kg	0.63	0.20	1
Bromoform	ND		ug/kg	5.0	0.31	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.63	0.21	1
Benzene	ND		ug/kg	0.63	0.21	1
Toluene	ND		ug/kg	1.2	0.68	1
Ethylbenzene	ND		ug/kg	1.2	0.18	1
Chloromethane	1.7	J	ug/kg	5.0	1.2	1
Bromomethane	ND		ug/kg	2.5	0.73	1
Vinyl chloride	ND		ug/kg	1.2	0.42	1
Chloroethane	ND		ug/kg	2.5	0.57	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.30	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	0.17	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-10
 Client ID: DPT-38-18-20-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:40
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.28	J	ug/kg	0.63	0.17	1
1,2-Dichlorobenzene	ND		ug/kg	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/kg	2.5	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.5	0.22	1
Methyl tert butyl ether	2.2	J	ug/kg	2.5	0.25	1
p/m-Xylene	ND		ug/kg	2.5	0.70	1
o-Xylene	ND		ug/kg	1.2	0.37	1
Xylenes, Total	ND		ug/kg	1.2	0.37	1
cis-1,2-Dichloroethene	0.26	J	ug/kg	1.2	0.22	1
1,2-Dichloroethene, Total	0.26	J	ug/kg	1.2	0.17	1
Dibromomethane	ND		ug/kg	2.5	0.30	1
Styrene	ND		ug/kg	1.2	0.25	1
Dichlorodifluoromethane	ND		ug/kg	12	1.2	1
Acetone	440	E	ug/kg	12	6.1	1
Carbon disulfide	ND		ug/kg	12	5.7	1
2-Butanone	ND		ug/kg	12	2.8	1
Vinyl acetate	ND		ug/kg	12	2.7	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.6	1
1,2,3-Trichloropropane	ND		ug/kg	2.5	0.16	1
2-Hexanone	ND		ug/kg	12	1.5	1
Bromochloromethane	ND		ug/kg	2.5	0.26	1
2,2-Dichloropropane	ND		ug/kg	2.5	0.25	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.35	1
1,3-Dichloropropane	ND		ug/kg	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.63	0.17	1
Bromobenzene	ND		ug/kg	2.5	0.18	1
n-Butylbenzene	ND		ug/kg	1.2	0.21	1
sec-Butylbenzene	ND		ug/kg	1.2	0.18	1
tert-Butylbenzene	ND		ug/kg	2.5	0.15	1
o-Chlorotoluene	ND		ug/kg	2.5	0.24	1
p-Chlorotoluene	ND		ug/kg	2.5	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.8	1.2	1
Hexachlorobutadiene	ND		ug/kg	5.0	0.21	1
Isopropylbenzene	ND		ug/kg	1.2	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.14	1
Naphthalene	ND		ug/kg	5.0	0.82	1
n-Propylbenzene	ND		ug/kg	1.2	0.22	1



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-10

Date Collected: 09/19/19 11:40

Client ID: DPT-38-18-20-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.5	0.40	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.5	0.34	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.5	0.24	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.5	0.42	1
1,4-Dioxane	ND		ug/kg	100	44.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-11 D
 Client ID: DPT-38-24-26-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 23:46
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	610	280	2
1,1-Dichloroethane	ND		ug/kg	120	18.	2
Chloroform	27	J	ug/kg	180	17.	2
Carbon tetrachloride	ND		ug/kg	120	28.	2
1,2-Dichloropropane	ND		ug/kg	120	15.	2
Dibromochloromethane	ND		ug/kg	120	17.	2
1,1,2-Trichloroethane	ND		ug/kg	120	33.	2
Tetrachloroethene	ND		ug/kg	61	24.	2
Chlorobenzene	ND		ug/kg	61	16.	2
Trichlorofluoromethane	ND		ug/kg	490	85.	2
1,2-Dichloroethane	ND		ug/kg	120	32.	2
1,1,1-Trichloroethane	ND		ug/kg	61	20.	2
Bromodichloromethane	ND		ug/kg	61	13.	2
trans-1,3-Dichloropropene	ND		ug/kg	120	33.	2
cis-1,3-Dichloropropene	ND		ug/kg	61	19.	2
1,3-Dichloropropene, Total	ND		ug/kg	61	19.	2
1,1-Dichloropropene	ND		ug/kg	61	20.	2
Bromoform	ND		ug/kg	490	30.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	61	20.	2
Benzene	24	J	ug/kg	61	20.	2
Toluene	ND		ug/kg	120	67.	2
Ethylbenzene	ND		ug/kg	120	17.	2
Chloromethane	ND		ug/kg	490	110	2
Bromomethane	ND		ug/kg	240	71.	2
Vinyl chloride	95	J	ug/kg	120	41.	2
Chloroethane	ND		ug/kg	240	55.	2
1,1-Dichloroethene	ND		ug/kg	120	29.	2
trans-1,2-Dichloroethene	32	J	ug/kg	180	17.	2

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-11 D

Date Collected: 09/19/19 11:50

Client ID: DPT-38-24-26-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	26000		ug/kg	61	17.	2
1,2-Dichlorobenzene	ND		ug/kg	240	18.	2
1,3-Dichlorobenzene	ND		ug/kg	240	18.	2
1,4-Dichlorobenzene	ND		ug/kg	240	21.	2
Methyl tert butyl ether	ND		ug/kg	240	25.	2
p/m-Xylene	ND		ug/kg	240	69.	2
o-Xylene	ND		ug/kg	120	36.	2
Xylenes, Total	ND		ug/kg	120	36.	2
cis-1,2-Dichloroethene	11000		ug/kg	120	21.	2
1,2-Dichloroethene, Total	11000	J	ug/kg	120	17.	2
Dibromomethane	ND		ug/kg	240	29.	2
Styrene	ND		ug/kg	120	24.	2
Dichlorodifluoromethane	ND		ug/kg	1200	110	2
Acetone	ND		ug/kg	1200	590	2
Carbon disulfide	ND		ug/kg	1200	560	2
2-Butanone	ND		ug/kg	1200	270	2
Vinyl acetate	ND		ug/kg	1200	260	2
4-Methyl-2-pentanone	ND		ug/kg	1200	160	2
1,2,3-Trichloropropane	ND		ug/kg	240	16.	2
2-Hexanone	ND		ug/kg	1200	140	2
Bromochloromethane	ND		ug/kg	240	25.	2
2,2-Dichloropropane	ND		ug/kg	240	25.	2
1,2-Dibromoethane	ND		ug/kg	120	34.	2
1,3-Dichloropropane	ND		ug/kg	240	20.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	61	16.	2
Bromobenzene	ND		ug/kg	240	18.	2
n-Butylbenzene	ND		ug/kg	120	20.	2
sec-Butylbenzene	ND		ug/kg	120	18.	2
tert-Butylbenzene	ND		ug/kg	240	14.	2
o-Chlorotoluene	ND		ug/kg	240	23.	2
p-Chlorotoluene	ND		ug/kg	240	13.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	370	120	2
Hexachlorobutadiene	ND		ug/kg	490	21.	2
Isopropylbenzene	ND		ug/kg	120	13.	2
p-Isopropyltoluene	ND		ug/kg	120	13.	2
Naphthalene	ND		ug/kg	490	80.	2
n-Propylbenzene	ND		ug/kg	120	21.	2

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-11 D
 Client ID: DPT-38-24-26-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	240	40.	2
1,2,4-Trichlorobenzene	ND		ug/kg	240	33.	2
1,3,5-Trimethylbenzene	ND		ug/kg	240	24.	2
1,2,4-Trimethylbenzene	ND		ug/kg	240	41.	2
1,4-Dioxane	ND		ug/kg	9800	4300	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-12
 Client ID: DPT-39-10-12-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 13:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 16:00
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.3	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	0.35	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.53	0.21	1
Chlorobenzene	ND		ug/kg	0.53	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.74	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.53	0.18	1
Bromodichloromethane	ND		ug/kg	0.53	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.53	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.53	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.53	0.17	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.53	0.18	1
Benzene	ND		ug/kg	0.53	0.18	1
Toluene	ND		ug/kg	1.0	0.58	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	1.6	J	ug/kg	4.2	0.99	1
Bromomethane	ND		ug/kg	2.1	0.62	1
Vinyl chloride	ND		ug/kg	1.0	0.36	1
Chloroethane	ND		ug/kg	2.1	0.48	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-12
 Client ID: DPT-39-10-12-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 13:50
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	9.0		ug/kg	0.53	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	2.8		ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.59	1
o-Xylene	ND		ug/kg	1.0	0.31	1
Xylenes, Total	ND		ug/kg	1.0	0.31	1
cis-1,2-Dichloroethene	2.5		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	2.5		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.21	1
Dichlorodifluoromethane	ND		ug/kg	10	0.97	1
Acetone	400	E	ug/kg	10	5.1	1
Carbon disulfide	ND		ug/kg	10	4.8	1
2-Butanone	ND		ug/kg	10	2.4	1
Vinyl acetate	ND		ug/kg	10	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.53	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.18	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.12	1
Naphthalene	ND		ug/kg	4.2	0.69	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-12

Date Collected: 09/19/19 13:50

Client ID: DPT-39-10-12-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	85	37.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-13
 Client ID: DPT-39-18-20-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 13:55
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 16:27
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.3	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	0.25	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.53	0.21	1
Chlorobenzene	ND		ug/kg	0.53	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.73	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.53	0.18	1
Bromodichloromethane	ND		ug/kg	0.53	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.53	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.53	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.53	0.17	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.53	0.18	1
Benzene	ND		ug/kg	0.53	0.18	1
Toluene	ND		ug/kg	1.0	0.57	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	1.8	J	ug/kg	4.2	0.98	1
Bromomethane	ND		ug/kg	2.1	0.61	1
Vinyl chloride	0.54	J	ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.48	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	0.29	J	ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-13
 Client ID: DPT-39-18-20-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 13:55
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	3.8		ug/kg	0.53	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	2.0	J	ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.59	1
o-Xylene	ND		ug/kg	1.0	0.31	1
Xylenes, Total	ND		ug/kg	1.0	0.31	1
cis-1,2-Dichloroethene	43		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	43	J	ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.21	1
Dichlorodifluoromethane	ND		ug/kg	10	0.97	1
Acetone	480	E	ug/kg	10	5.1	1
Carbon disulfide	ND		ug/kg	10	4.8	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.53	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.18	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.12	1
Naphthalene	ND		ug/kg	4.2	0.69	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1



Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-13

Date Collected: 09/19/19 13:55

Client ID: DPT-39-18-20-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	84	37.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-14
 Client ID: DPT-39-20-22-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 14:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 16:53
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	2.5	J	ug/kg	5.4	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	0.31	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.3	0.75	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.3	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.59	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	1.8	J	ug/kg	4.3	1.0	1
Bromomethane	ND		ug/kg	2.2	0.63	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	0.77	J	ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-14

Date Collected: 09/19/19 14:00

Client ID: DPT-39-20-22-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	5.0		ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.18	1
Methyl tert butyl ether	2.9		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	73		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	74	J	ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	0.99	1
Acetone	900	E	ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	4.9	1
2-Butanone	17		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.3	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.3	0.70	1
n-Propylbenzene	ND		ug/kg	1.1	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-14

Date Collected: 09/19/19 14:00

Client ID: DPT-39-20-22-20190919

Date Received: 09/19/19

Sample Location: JAMESTOWN NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	87	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-15
 Client ID: TB-008-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 00:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:40
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-15
 Client ID: TB-008-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 00:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.2		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**SAMPLE RESULTS**

Lab ID: L1943256-15
 Client ID: TB-008-20190919
 Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 00:00
 Date Received: 09/19/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1287267-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1287267-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/21/19 10:15
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1287267-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:00
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,08-10,12-14 Batch: WG1288067-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.24	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:00
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,08-10,12-14 Batch: WG1288067-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19



Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:00
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,08-10,12-14 Batch: WG1288067-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.26	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19



Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	107		70-130



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04,06-07 Batch: WG1288385-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	13	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04,06-07 Batch: WG1288385-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6



Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04,06-07 Batch: WG1288385-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	107		70-130



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,11 Batch: WG1288929-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	14	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	51	J	ug/kg	200	47.
Bromomethane	62	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,11 Batch: WG1288929-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,11 Batch: WG1288929-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	11	J	ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1287267-3 WG1287267-4								
Methylene chloride	94		90		70-130	4		20
1,1-Dichloroethane	99		97		70-130	2		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	92		93		70-130	1		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	97		93		75-130	4		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	100		95		67-130	5		20
trans-1,3-Dichloropropene	97		94		70-130	3		20
cis-1,3-Dichloropropene	98		96		70-130	2		20
1,1-Dichloropropene	100		97		70-130	3		20
Bromoform	89		89		54-136	0		20
1,1,1,2-Tetrachloroethane	90		94		67-130	4		20
Benzene	95		92		70-130	3		20
Toluene	95		91		70-130	4		20
Ethylbenzene	95		92		70-130	3		20
Chloromethane	88		85		64-130	3		20
Bromomethane	67		62		39-139	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1287267-3 WG1287267-4								
Vinyl chloride	100		92		55-140	8		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	100		99		63-130	1		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	97		91		70-130	6		20
Dibromomethane	97		96		70-130	1		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	93		90		36-147	3		20
Acetone	94		97		58-148	3		20
Carbon disulfide	94		89		51-130	5		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	96		96		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1287267-3 WG1287267-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	90		91		70-130	1		20
1,3-Dichloropropane	94		91		70-130	3		20
1,1,1,2-Tetrachloroethane	95		93		64-130	2		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		98		70-130	2		20
tert-Butylbenzene	97		92		70-130	5		20
o-Chlorotoluene	98		94		70-130	4		20
p-Chlorotoluene	97		95		70-130	2		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	82		80		63-130	2		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	96		93		70-130	3		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	96		93		69-130	3		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		96		64-130	4		20
1,2,4-Trimethylbenzene	100		97		70-130	3		20
1,4-Dioxane	98		98		56-162	0		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1287267-3 WG1287267-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,08-10,12-14 Batch: WG1288067-3 WG1288067-4								
Methylene chloride	88		86		70-130	2		30
1,1-Dichloroethane	96		96		70-130	0		30
Chloroform	85		85		70-130	0		30
Carbon tetrachloride	85		86		70-130	1		30
1,2-Dichloropropane	99		97		70-130	2		30
Dibromochloromethane	86		86		70-130	0		30
1,1,2-Trichloroethane	86		88		70-130	2		30
Tetrachloroethene	81		84		70-130	4		30
Chlorobenzene	81		81		70-130	0		30
Trichlorofluoromethane	110		110		70-139	0		30
1,2-Dichloroethane	99		98		70-130	1		30
1,1,1-Trichloroethane	83		84		70-130	1		30
Bromodichloromethane	82		83		70-130	1		30
trans-1,3-Dichloropropene	83		83		70-130	0		30
cis-1,3-Dichloropropene	84		82		70-130	2		30
1,1-Dichloropropene	83		83		70-130	0		30
Bromoform	90		88		70-130	2		30
1,1,2,2-Tetrachloroethane	86		83		70-130	4		30
Benzene	80		80		70-130	0		30
Toluene	81		82		70-130	1		30
Ethylbenzene	81		83		70-130	2		30
Chloromethane	164	Q	163	Q	52-130	1		30
Bromomethane	92		90		57-147	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,08-10,12-14 Batch: WG1288067-3 WG1288067-4								
Vinyl chloride	118		118		67-130	0		30
Chloroethane	96		94		50-151	2		30
1,1-Dichloroethene	88		89		65-135	1		30
trans-1,2-Dichloroethene	87		85		70-130	2		30
Trichloroethene	83		81		70-130	2		30
1,2-Dichlorobenzene	85		83		70-130	2		30
1,3-Dichlorobenzene	84		84		70-130	0		30
1,4-Dichlorobenzene	85		84		70-130	1		30
Methyl tert butyl ether	87		85		66-130	2		30
p/m-Xylene	80		81		70-130	1		30
o-Xylene	78		80		70-130	3		30
cis-1,2-Dichloroethene	87		85		70-130	2		30
Dibromomethane	88		90		70-130	2		30
Styrene	78		78		70-130	0		30
Dichlorodifluoromethane	160	Q	159	Q	30-146	1		30
Acetone	118		121		54-140	3		30
Carbon disulfide	86		86		59-130	0		30
2-Butanone	124		115		70-130	8		30
Vinyl acetate	111		107		70-130	4		30
4-Methyl-2-pentanone	105		104		70-130	1		30
1,2,3-Trichloropropane	90		88		68-130	2		30
2-Hexanone	96		98		70-130	2		30
Bromochloromethane	93		90		70-130	3		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,08-10,12-14 Batch: WG1288067-3 WG1288067-4								
2,2-Dichloropropane	82		80		70-130	2		30
1,2-Dibromoethane	90		89		70-130	1		30
1,3-Dichloropropane	87		86		69-130	1		30
1,1,1,2-Tetrachloroethane	82		82		70-130	0		30
Bromobenzene	85		84		70-130	1		30
n-Butylbenzene	82		82		70-130	0		30
sec-Butylbenzene	80		81		70-130	1		30
tert-Butylbenzene	79		80		70-130	1		30
o-Chlorotoluene	81		81		70-130	0		30
p-Chlorotoluene	81		81		70-130	0		30
1,2-Dibromo-3-chloropropane	94		88		68-130	7		30
Hexachlorobutadiene	80		82		67-130	2		30
Isopropylbenzene	80		80		70-130	0		30
p-Isopropyltoluene	80		80		70-130	0		30
Naphthalene	87		83		70-130	5		30
n-Propylbenzene	81		82		70-130	1		30
1,2,3-Trichlorobenzene	88		87		70-130	1		30
1,2,4-Trichlorobenzene	90		86		70-130	5		30
1,3,5-Trimethylbenzene	81		82		70-130	1		30
1,2,4-Trimethylbenzene	81		82		70-130	1		30
1,4-Dioxane	97		96		65-136	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,08-10,12-14 Batch: WG1288067-3 WG1288067-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	93		95		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	101		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
Methylene chloride	89		90		70-130	1		30
1,1-Dichloroethane	108		106		70-130	2		30
Chloroform	104		103		70-130	1		30
Carbon tetrachloride	111		106		70-130	5		30
1,2-Dichloropropane	109		107		70-130	2		30
Dibromochloromethane	100		96		70-130	4		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	96		91		70-130	5		30
Chlorobenzene	89		87		70-130	2		30
Trichlorofluoromethane	134		130		70-139	3		30
1,2-Dichloroethane	126		130		70-130	3		30
1,1,1-Trichloroethane	107		105		70-130	2		30
Bromodichloromethane	102		101		70-130	1		30
trans-1,3-Dichloropropene	92		90		70-130	2		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	94		91		70-130	3		30
Bromoform	98		98		70-130	0		30
1,1,2,2-Tetrachloroethane	85		84		70-130	1		30
Benzene	87		88		70-130	1		30
Toluene	89		86		70-130	3		30
Ethylbenzene	90		88		70-130	2		30
Chloromethane	227	Q	222	Q	52-130	2		30
Bromomethane	82		80		57-147	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
Vinyl chloride	128		126		67-130	2		30
Chloroethane	79		79		50-151	0		30
1,1-Dichloroethene	88		86		65-135	2		30
trans-1,2-Dichloroethene	93		88		70-130	6		30
Trichloroethene	95		92		70-130	3		30
1,2-Dichlorobenzene	93		91		70-130	2		30
1,3-Dichlorobenzene	93		92		70-130	1		30
1,4-Dichlorobenzene	92		91		70-130	1		30
Methyl tert butyl ether	92		93		66-130	1		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	88		86		70-130	2		30
cis-1,2-Dichloroethene	94		93		70-130	1		30
Dibromomethane	104		105		70-130	1		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	201	Q	199	Q	30-146	1		30
Acetone	144	Q	146	Q	54-140	1		30
Carbon disulfide	83		81		59-130	2		30
2-Butanone	134	Q	142	Q	70-130	6		30
Vinyl acetate	126		128		70-130	2		30
4-Methyl-2-pentanone	102		106		70-130	4		30
1,2,3-Trichloropropane	92		91		68-130	1		30
2-Hexanone	112		111		70-130	1		30
Bromochloromethane	102		99		70-130	3		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
2,2-Dichloropropane	99		98		70-130	1		30
1,2-Dibromoethane	96		94		70-130	2		30
1,3-Dichloropropane	90		89		69-130	1		30
1,1,1,2-Tetrachloroethane	94		91		70-130	3		30
Bromobenzene	94		92		70-130	2		30
n-Butylbenzene	89		87		70-130	2		30
sec-Butylbenzene	87		86		70-130	1		30
tert-Butylbenzene	87		86		70-130	1		30
o-Chlorotoluene	90		86		70-130	5		30
p-Chlorotoluene	88		88		70-130	0		30
1,2-Dibromo-3-chloropropane	94		94		68-130	0		30
Hexachlorobutadiene	91		90		67-130	1		30
Isopropylbenzene	88		86		70-130	2		30
p-Isopropyltoluene	88		87		70-130	1		30
Naphthalene	88		89		70-130	1		30
n-Propylbenzene	88		86		70-130	2		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	95		94		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30
1,4-Dioxane	105		106		65-136	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	121		121		70-130
Toluene-d8	91		90		70-130
4-Bromofluorobenzene	89		90		70-130
Dibromofluoromethane	106		106		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04,06-07 Batch: WG1288385-3 WG1288385-4								
Methylene chloride	89		90		70-130	1		30
1,1-Dichloroethane	108		106		70-130	2		30
Chloroform	104		103		70-130	1		30
Carbon tetrachloride	111		106		70-130	5		30
1,2-Dichloropropane	109		107		70-130	2		30
Dibromochloromethane	100		96		70-130	4		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	96		91		70-130	5		30
Chlorobenzene	89		87		70-130	2		30
Trichlorofluoromethane	134		130		70-139	3		30
1,2-Dichloroethane	126		130		70-130	3		30
1,1,1-Trichloroethane	107		105		70-130	2		30
Bromodichloromethane	102		101		70-130	1		30
trans-1,3-Dichloropropene	92		90		70-130	2		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	94		91		70-130	3		30
Bromoform	98		98		70-130	0		30
1,1,2,2-Tetrachloroethane	85		84		70-130	1		30
Benzene	87		88		70-130	1		30
Toluene	89		86		70-130	3		30
Ethylbenzene	90		88		70-130	2		30
Chloromethane	227	Q	222	Q	52-130	2		30
Bromomethane	82		80		57-147	2		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04,06-07 Batch: WG1288385-3 WG1288385-4								
Vinyl chloride	128		126		67-130	2		30
Chloroethane	79		79		50-151	0		30
1,1-Dichloroethene	88		86		65-135	2		30
trans-1,2-Dichloroethene	93		88		70-130	6		30
Trichloroethene	95		92		70-130	3		30
1,2-Dichlorobenzene	93		91		70-130	2		30
1,3-Dichlorobenzene	93		92		70-130	1		30
1,4-Dichlorobenzene	92		91		70-130	1		30
Methyl tert butyl ether	92		93		66-130	1		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	88		86		70-130	2		30
cis-1,2-Dichloroethene	94		93		70-130	1		30
Dibromomethane	104		105		70-130	1		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	201	Q	199	Q	30-146	1		30
Acetone	144	Q	146	Q	54-140	1		30
Carbon disulfide	83		81		59-130	2		30
2-Butanone	134	Q	142	Q	70-130	6		30
Vinyl acetate	126		128		70-130	2		30
4-Methyl-2-pentanone	102		106		70-130	4		30
1,2,3-Trichloropropane	92		91		68-130	1		30
2-Hexanone	112		111		70-130	1		30
Bromochloromethane	102		99		70-130	3		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04,06-07 Batch: WG1288385-3 WG1288385-4								
2,2-Dichloropropane	99		98		70-130	1		30
1,2-Dibromoethane	96		94		70-130	2		30
1,3-Dichloropropane	90		89		69-130	1		30
1,1,1,2-Tetrachloroethane	94		91		70-130	3		30
Bromobenzene	94		92		70-130	2		30
n-Butylbenzene	89		87		70-130	2		30
sec-Butylbenzene	87		86		70-130	1		30
tert-Butylbenzene	87		86		70-130	1		30
o-Chlorotoluene	90		86		70-130	5		30
p-Chlorotoluene	88		88		70-130	0		30
1,2-Dibromo-3-chloropropane	94		94		68-130	0		30
Hexachlorobutadiene	91		90		67-130	1		30
Isopropylbenzene	88		86		70-130	2		30
p-Isopropyltoluene	88		87		70-130	1		30
Naphthalene	88		89		70-130	1		30
n-Propylbenzene	88		86		70-130	2		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	95		94		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30
1,4-Dioxane	105		106		65-136	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04,06-07 Batch: WG1288385-3 WG1288385-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	120		120		70-130
Toluene-d8	91		90		70-130
4-Bromofluorobenzene	89		90		70-130
Dibromofluoromethane	106		106		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,11 Batch: WG1288929-3 WG1288929-4								
Methylene chloride	99		99		70-130	0		30
1,1-Dichloroethane	98		98		70-130	0		30
Chloroform	92		93		70-130	1		30
Carbon tetrachloride	95		94		70-130	1		30
1,2-Dichloropropane	101		100		70-130	1		30
Dibromochloromethane	96		97		70-130	1		30
1,1,2-Trichloroethane	96		96		70-130	0		30
Tetrachloroethene	96		96		70-130	0		30
Chlorobenzene	96		97		70-130	1		30
Trichlorofluoromethane	86		86		70-139	0		30
1,2-Dichloroethane	96		96		70-130	0		30
1,1,1-Trichloroethane	95		94		70-130	1		30
Bromodichloromethane	101		101		70-130	0		30
trans-1,3-Dichloropropene	97		97		70-130	0		30
cis-1,3-Dichloropropene	105		104		70-130	1		30
1,1-Dichloropropene	96		95		70-130	1		30
Bromoform	97		96		70-130	1		30
1,1,2,2-Tetrachloroethane	94		94		70-130	0		30
Benzene	100		99		70-130	1		30
Toluene	93		95		70-130	2		30
Ethylbenzene	94		94		70-130	0		30
Chloromethane	96		96		52-130	0		30
Bromomethane	105		101		57-147	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,11 Batch: WG1288929-3 WG1288929-4								
Vinyl chloride	91		92		67-130	1		30
Chloroethane	76		76		50-151	0		30
1,1-Dichloroethene	98		97		65-135	1		30
trans-1,2-Dichloroethene	99		99		70-130	0		30
Trichloroethene	99		98		70-130	1		30
1,2-Dichlorobenzene	95		96		70-130	1		30
1,3-Dichlorobenzene	96		95		70-130	1		30
1,4-Dichlorobenzene	96		94		70-130	2		30
Methyl tert butyl ether	98		98		66-130	0		30
p/m-Xylene	98		98		70-130	0		30
o-Xylene	98		100		70-130	2		30
cis-1,2-Dichloroethene	100		100		70-130	0		30
Dibromomethane	101		99		70-130	2		30
Styrene	96		96		70-130	0		30
Dichlorodifluoromethane	87		86		30-146	1		30
Acetone	94		92		54-140	2		30
Carbon disulfide	95		95		59-130	0		30
2-Butanone	101		99		70-130	2		30
Vinyl acetate	100		97		70-130	3		30
4-Methyl-2-pentanone	94		93		70-130	1		30
1,2,3-Trichloropropane	90		89		68-130	1		30
2-Hexanone	83		83		70-130	0		30
Bromochloromethane	103		104		70-130	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,11 Batch: WG1288929-3 WG1288929-4								
2,2-Dichloropropane	96		95		70-130	1		30
1,2-Dibromoethane	98		97		70-130	1		30
1,3-Dichloropropane	95		96		69-130	1		30
1,1,1,2-Tetrachloroethane	98		100		70-130	2		30
Bromobenzene	94		95		70-130	1		30
n-Butylbenzene	96		93		70-130	3		30
sec-Butylbenzene	93		94		70-130	1		30
tert-Butylbenzene	94		94		70-130	0		30
o-Chlorotoluene	93		92		70-130	1		30
p-Chlorotoluene	92		92		70-130	0		30
1,2-Dibromo-3-chloropropane	84		84		68-130	0		30
Hexachlorobutadiene	96		96		67-130	0		30
Isopropylbenzene	92		92		70-130	0		30
p-Isopropyltoluene	96		95		70-130	1		30
Naphthalene	98		97		70-130	1		30
n-Propylbenzene	93		92		70-130	1		30
1,2,3-Trichlorobenzene	98		98		70-130	0		30
1,2,4-Trichlorobenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	93		93		70-130	0		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30
1,4-Dioxane	104		101		65-136	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,11 Batch: WG1288929-3 WG1288929-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		92		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	100		99		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
Methylene chloride	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloroethane	ND	25	27	108		26	104		70-130	4		20
Chloroform	ND	25	26	104		27	108		70-130	4		20
Carbon tetrachloride	ND	25	28	112		28	112		63-132	0		20
1,2-Dichloropropane	ND	25	24	96		25	100		70-130	4		20
Dibromochloromethane	ND	25	24	96		25	100		63-130	4		20
1,1,2-Trichloroethane	ND	25	24	96		24	96		70-130	0		20
Tetrachloroethene	ND	25	24	96		24	96		70-130	0		20
Chlorobenzene	ND	25	25	100		25	100		75-130	0		20
Trichlorofluoromethane	ND	25	28	112		27	108		62-150	4		20
1,2-Dichloroethane	ND	25	29	116		29	116		70-130	0		20
1,1,1-Trichloroethane	ND	25	28	112		28	112		67-130	0		20
Bromodichloromethane	ND	25	26	104		26	104		67-130	0		20
trans-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
cis-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloropropene	ND	25	28	112		28	112		70-130	0		20
Bromoform	ND	25	23	92		23	92		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	25	25	100		25	100		67-130	0		20
Benzene	0.84J	25	26	104		26	104		70-130	0		20
Toluene	ND	25	24	96		25	100		70-130	4		20
Ethylbenzene	ND	25	25	100		24	96		70-130	4		20
Chloromethane	ND	25	24	96		24	96		64-130	0		20
Bromomethane	ND	25	6.1J	24	Q	8.3	33	Q	39-139	31	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
Vinyl chloride	ND	25	28	112		27	108		55-140	4		20
Chloroethane	ND	25	28	112		28	112		55-138	0		20
1,1-Dichloroethene	ND	25	26	104		26	104		61-145	0		20
trans-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Trichloroethene	ND	25	26	104		26	104		70-130	0		20
1,2-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,3-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,4-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
Methyl tert butyl ether	ND	25	27	108		27	108		63-130	0		20
p/m-Xylene	510	50	500	0	Q	480	0	Q	70-130	4		20
o-Xylene	ND	50	50	100		50	100		70-130	0		20
cis-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Dibromomethane	ND	25	26	104		25	100		70-130	4		20
1,2,3-Trichloropropane	ND	25	24	96		26	104		64-130	8		20
Styrene	ND	50	50	100		51	102		70-130	2		20
Dichlorodifluoromethane	ND	25	26	104		25	100		36-147	4		20
Acetone	ND	25	26	104		28	112		58-148	7		20
Carbon disulfide	ND	25	25	100		25	100		51-130	0		20
2-Butanone	ND	25	35	140	Q	35	140	Q	63-138	0		20
Vinyl acetate	ND	25	30	120		29	116		70-130	3		20
4-Methyl-2-pentanone	ND	25	26	104		26	104		59-130	0		20
2-Hexanone	ND	25	28	112		28	112		57-130	0		20
Bromochloromethane	ND	25	26	104		26	104		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
2,2-Dichloropropane	ND	25	24	96		23	92		63-133	4		20
1,2-Dibromoethane	ND	25	24	96		24	96		70-130	0		20
1,3-Dichloropropane	ND	25	24	96		24	96		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	25	25	100		25	100		64-130	0		20
Bromobenzene	ND	25	24	96		24	96		70-130	0		20
n-Butylbenzene	ND	25	25	100		25	100		53-136	0		20
sec-Butylbenzene	ND	25	27	108		26	104		70-130	4		20
tert-Butylbenzene	ND	25	26	104		25	100		70-130	4		20
o-Chlorotoluene	ND	25	28	112		32	128		70-130	13		20
p-Chlorotoluene	ND	25	24	96		24	96		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	25	25	100		26	104		41-144	4		20
Hexachlorobutadiene	ND	25	20	80		21	84		63-130	5		20
Isopropylbenzene	29	25	52	92		50	84		70-130	4		20
p-Isopropyltoluene	ND	25	25	100		24	96		70-130	4		20
Naphthalene	6.5	25	29	90		30	94		70-130	3		20
n-Propylbenzene	6.8	25	31	97		30	93		69-130	3		20
1,2,3-Trichlorobenzene	ND	25	23	92		24	96		70-130	4		20
1,2,4-Trichlorobenzene	ND	25	23	92		23	92		70-130	0		20
1,3,5-Trimethylbenzene	4.0J	25	29	116		29	116		64-130	0		20
1,2,4-Trimethylbenzene	15	25	39	96		38	92		70-130	3		20
1,4-Dioxane	ND	1250	1300	104		1400	112		56-162	7		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	113		112		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	94		94		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-01
Client ID: DPT-36-10-12-20190918
Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:30
Date Received: 09/19/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.068		%	0.050	0.050	1	-	09/27/19 09:16	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Gravel	27.8		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Gravel	26.7		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Gravel	54.5		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Sand	14.3		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Medium Sand	11.9		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Sand	6.60		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Sand	32.8		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Fines	12.7		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-02
Client ID: DPT-36-20-22-20190918
Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:40
Date Received: 09/19/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.454		%	0.050	0.050	1	-	09/27/19 09:16	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Sand	0.100		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Medium Sand	0.800		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Sand	0.700		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Sand	1.60		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Fines	98.4		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	76.2		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-03
Client ID: DPT-36-22-24-20190918
Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 15:50
Date Received: 09/19/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.300		%	0.050	0.050	1	-	09/27/19 09:16	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Gravel	5.80		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Gravel	3.20		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Gravel	9.00		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Medium Sand	0.100		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Fine Sand	12.1		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Sand	12.2		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
% Total Fines	78.8		%	0.100	NA	1	-	09/26/19 10:44	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-04

Client ID: DPT-36-27-28-20190918

Sample Location: JAMESTOWN NY

Date Collected: 09/18/19 16:00

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.3		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-05

Client ID: DPT-37-10-12-20190919

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:00

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19**SAMPLE RESULTS****Lab ID:** L1943256-06**Client ID:** DPT-37-20-22-20190919**Sample Location:** JAMESTOWN NY**Date Collected:** 09/19/19 10:10**Date Received:** 09/19/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.9		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-07

Client ID: DPT-37-22-24-20190919

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 10:20

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19**SAMPLE RESULTS****Lab ID:** L1943256-08**Client ID:** DPT-38-10-12-20190919**Sample Location:** JAMESTOWN NY**Date Collected:** 09/19/19 11:30**Date Received:** 09/19/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-09

Client ID: DPT-38-10-12-20190919FD

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:35

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.0		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19**SAMPLE RESULTS****Lab ID:** L1943256-10**Client ID:** DPT-38-18-20-20190919**Sample Location:** JAMESTOWN NY**Date Collected:** 09/19/19 11:40**Date Received:** 09/19/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-11

Client ID: DPT-38-24-26-20190919

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 11:50

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19**SAMPLE RESULTS****Lab ID:** L1943256-12**Client ID:** DPT-39-10-12-20190919**Sample Location:** JAMESTOWN NY**Date Collected:** 09/19/19 13:50**Date Received:** 09/19/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-13

Client ID: DPT-39-18-20-20190919

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 13:55

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.5		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

SAMPLE RESULTS

Lab ID: L1943256-14

Client ID: DPT-39-20-22-20190919

Sample Location: JAMESTOWN NY

Date Collected: 09/19/19 14:00

Date Received: 09/19/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	09/20/19 11:06	121,2540G	RI



Project Name: ESSEX HOPE

Lab Number: L1943256

Project Number: DWJMS004

Report Date: 10/02/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01-03 Batch: WG1287417-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	09/27/19 09:16	13,-	SP

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943256**Report Date:** 10/02/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 Batch: WG1287417-2								
Total Organic Carbon	111		-		75-125	-		25

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943256

Report Date: 10/02/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1287417-4 WG1287417-5 QC Sample: L1942514-14 Client ID: MS Sample												
Total Organic Carbon	2.04	1.19	3.45	119		2.62	83		75-125	27	Q	25

Lab Duplicate Analysis *Batch Quality Control*

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1286566-1 QC Sample: L1943256-01 Client ID: DPT-36-10-12-20190918						
Solids, Total	89.9	89.1	%	1		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1287417-3 QC Sample: L1942514-14 Client ID: DUP Sample						
Total Organic Carbon	2.04	2.11	%	3		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1288918-1 QC Sample: L1943256-03 Client ID: DPT-36-22-24-20190918						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	5.80	ND	%	NC		20
% Fine Gravel	3.20	ND	%	NC		20
% Total Gravel	9.00	ND	%	NC		20
% Coarse Sand	ND	0.100	%	NC		20
% Medium Sand	0.100	0.100	%	0		20
% Fine Sand	12.1	14.1	%	15		20
% Total Sand	12.2	14.3	%	16		20
% Total Fines	78.8	85.7	%	8		20

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943256-01A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-01B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-01C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-01D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-01E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		A2-TOC-LK(14)
L1943256-01F	Plastic 8oz unpreserved for Grain Size	A	NA		2.9	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L1943256-01X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-01Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-01Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-02A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-02B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-02C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-02D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-02E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		A2-TOC-LK(14)
L1943256-02F	Plastic 8oz unpreserved for Grain Size	A	NA		2.9	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L1943256-02X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-02Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-02Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-03A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943256-03B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-03C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-03D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-03E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		A2-TOC-LK(14)
L1943256-03F	Plastic 8oz unpreserved for Grain Size	A	NA		2.9	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1943256-03X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-03Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-03Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-04A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-04B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-04C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-04D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-04X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-04Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-04Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-05A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-05B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-05C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-05D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-05X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-05Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-05Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-06A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-06B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-06C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-06D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943256-06X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-06Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-06Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-07A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-07B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-07C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-07D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-07X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-07Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-07Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-08A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-08B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-08C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-08D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-08X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-08Y	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-08Z	Vial Water preserved split	A	NA		2.9	Y	Absent	20-SEP-19 09:17	NYTCL-8260HLW(14)
L1943256-09A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-09B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-09C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-09D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-09X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-09Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-09Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-10A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-10B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-10C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-10D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

Project Name: ESSEX HOPE**Lab Number:** L1943256**Project Number:** DWJMS004**Report Date:** 10/02/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943256-10X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-10Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-10Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-11A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-11B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-11C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-11D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-11X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-11Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-11Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-12A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-12B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-12C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-12D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-12X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-12Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-12Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-13A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-13B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-13C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-13D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L1943256-13X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-13Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-13Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-14A	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-14B	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-14C	5 gram Encore Sampler	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-14D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10021912:08
Lab Number: L1943256
Report Date: 10/02/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943256-14X	Vial MeOH preserved split	A	NA		2.9	Y	Absent		NYTCL-8260HLW(14)
L1943256-14Y	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-14Z	Vial Water preserved split	A	NA		2.9	Y	Absent	21-SEP-19 07:03	NYTCL-8260HLW(14)
L1943256-15A	Vial HCl preserved	A	NA		2.9	Y	Absent		NYTCL-8260(14)
L1943256-15B	Vial HCl preserved	A	NA		2.9	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943256
Report Date: 10/02/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

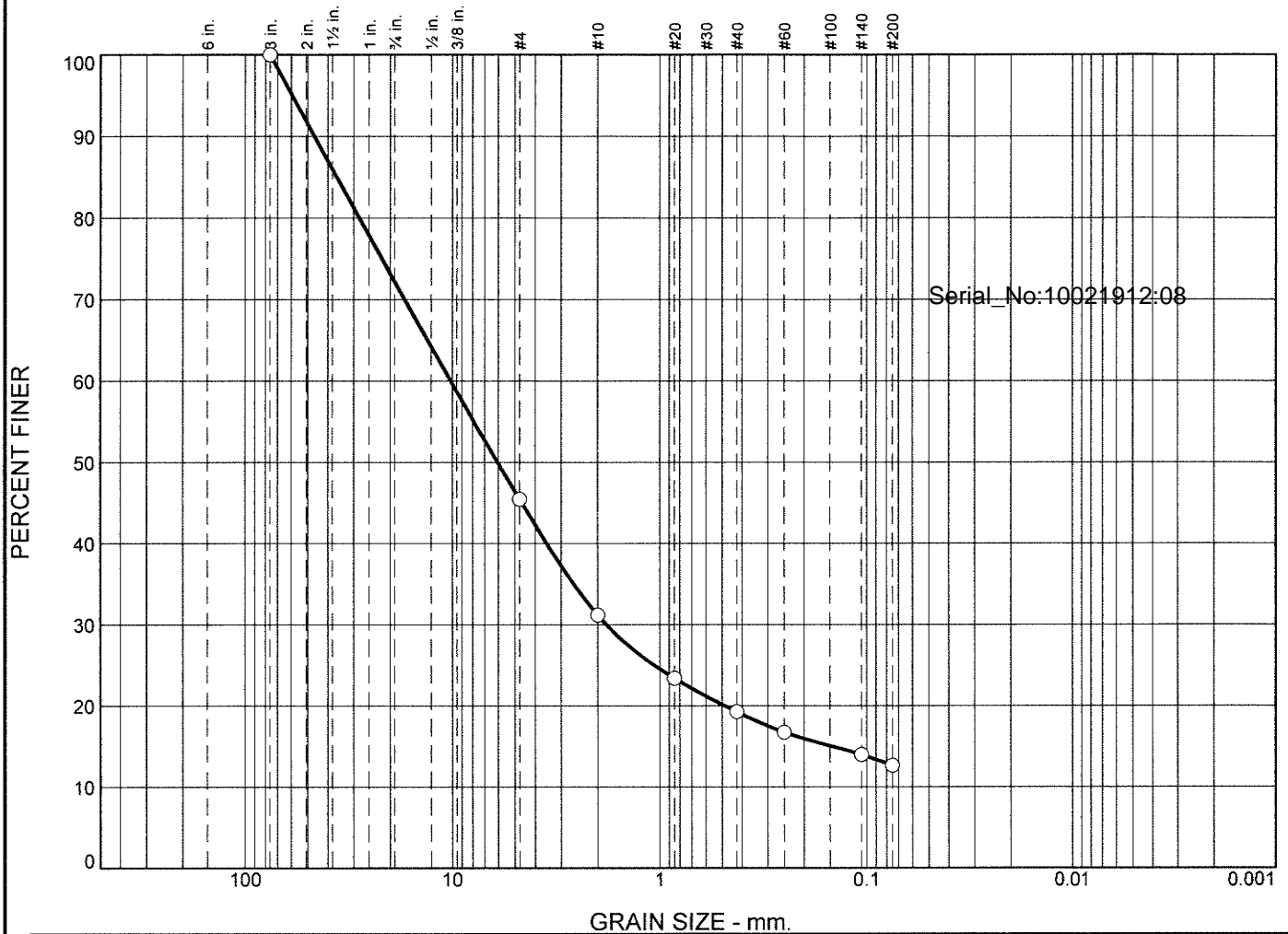
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:10021912:08

ASTM D6913/D7928 GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"	% Gravel		% Sand			% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	27.8	26.7	14.3	11.9	6.6	12.7				
Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
			36.2004	10.2181	6.0531	1.8141	0.1459			

Material Description							USCS	AASHTO

Project No. Project: ○ Source of Sample: DPT-36-10-12-20190918 Sample Number: L1943256-01 Date: ○	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-36-10-12-20190918

Sample Number: L1943256-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =100.23

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
100.23	0.00	3"	0.00	0.00	100.0
		#4	54.66	0.00	45.5
		#10	14.30	0.00	31.2
		#20	7.79	0.00	23.4
		#40	4.15	0.00	19.3
		#60	2.53	0.00	16.8
		#140	2.78	0.00	14.0
		#200	1.32	0.00	12.7

Serial_No:10021912:08

Fractional Components

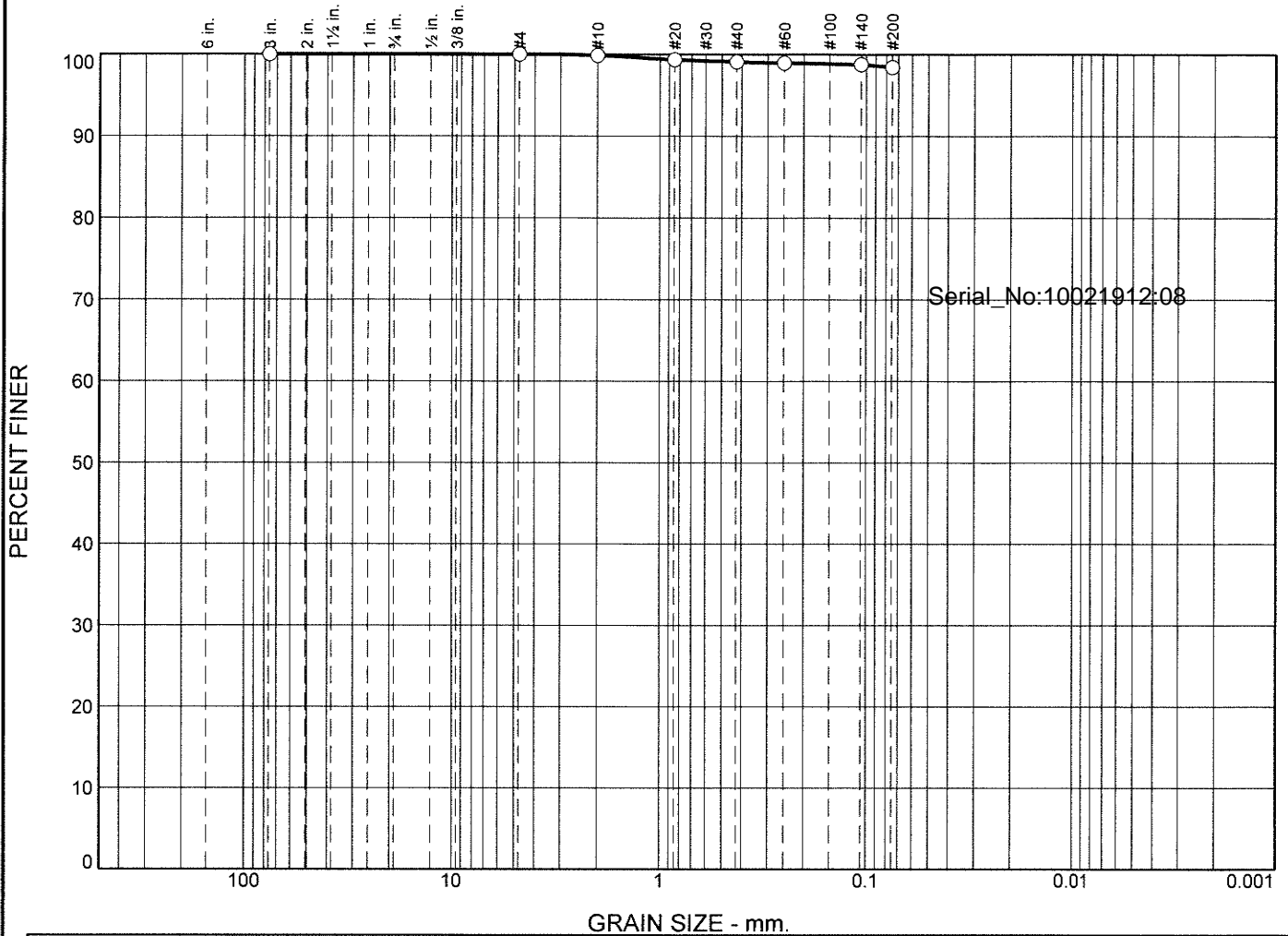
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	27.8	26.7	54.5	14.3	11.9	6.6	32.8			12.7

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.1459	0.4844	1.8141	3.5180	6.0531	10.2181	28.2041	36.2004	46.4186	59.4830

Fineness Modulus
5.25

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"	% Gravel		% Sand			% Fines					
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	0.0	0.1	0.8	0.7	98.4					

Colloids	LL	PL	D85	D60	D50	D30	D15	D10	C _c	C _u

Project No. Client: Project: <input type="radio"/> Source of Sample: DPT-36-20-22-20190918 Sample Number: L1943256-02 Date: <input type="radio"/>		Remarks:
Alpha Analytical Mansfield, MA		
Figure		

GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-36-20-22-20190918

Sample Number: L1943256-02

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =79.16

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.16	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.11	0.00	99.9
		#20	0.41	0.00	99.3
		#40	0.20	0.00	99.1
		#60	0.11	0.00	99.0
		#140	0.12	0.00	98.8
		#200	0.30	0.00	98.4

Serial_No:10021912:08

Fractional Components

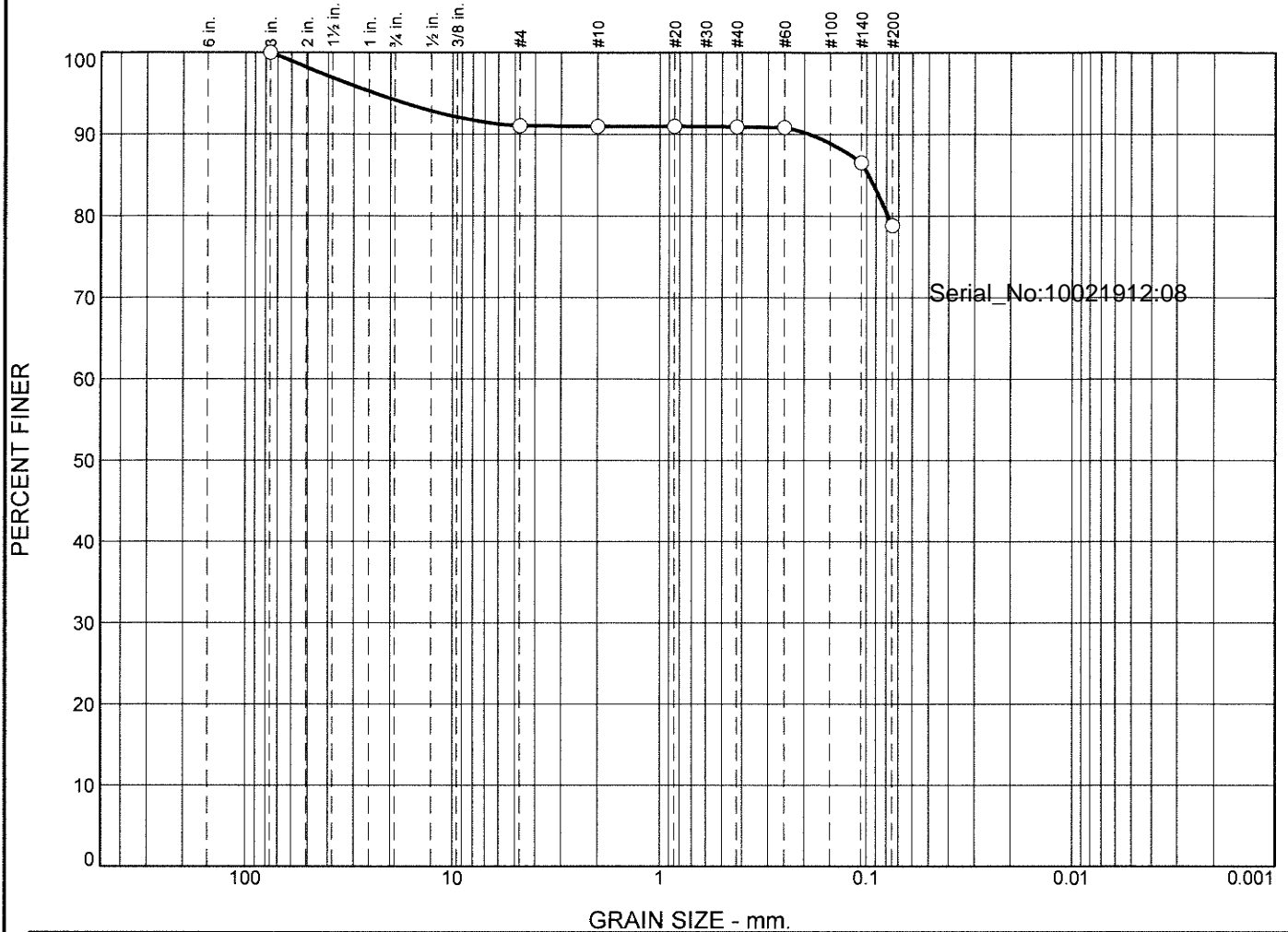
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.8	0.7	1.6			98.4

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.04

Alpha Analytical

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines			
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0		5.8	3.2	0.0	0.1	12.1	78.8			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>				0.0976							

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-36-22-24-20190918 Sample Number: L1943256-03 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-36-22-24-20190918

Sample Number: L1943256-03

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =86.04

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.04	0.00	3"	0.00	0.00	100.0
		#4	7.75	0.00	91.0
		#10	0.01	0.00	91.0
		#20	0.02	0.00	91.0
		#40	0.06	0.00	90.9
		#60	0.06	0.00	90.8
		#140	3.67	0.00	86.6
		#200	6.64	0.00	78.8

Serial_No:10021912:08

Fractional Components

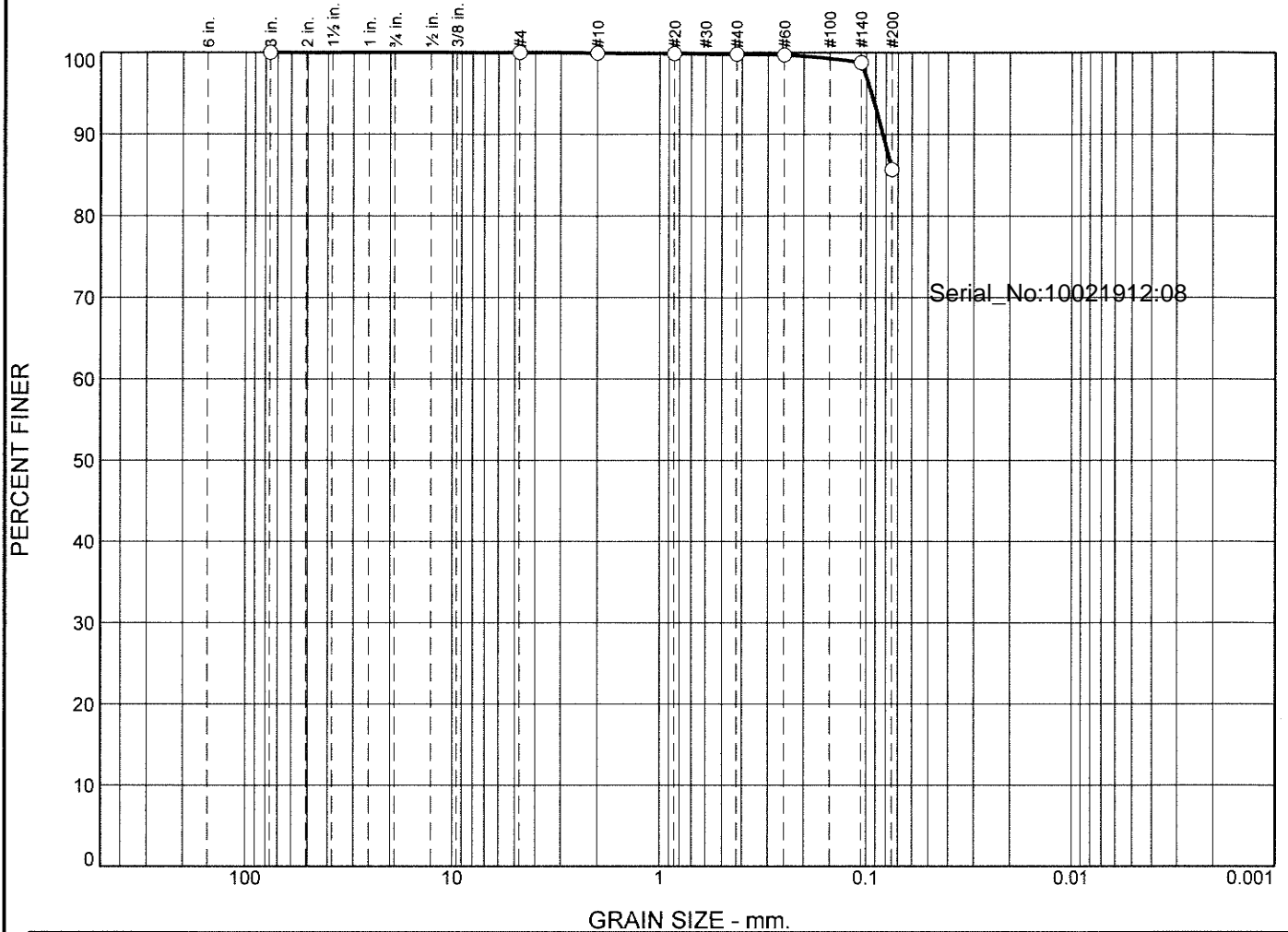
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	5.8	3.2	9.0	0.0	0.1	12.1	12.2			78.8

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.0786	0.0976	0.1894	23.7999

Fineness Modulus
0.73

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"	% Gravel		% Sand			% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	0.0	0.1	0.1	14.1	85.7				
Colloids	LL	PL	D85	D60	D50	D30	D15	D10	C _c	C _u

Material Description							USCS	AASHTO

Project No. Project: Source: DPT-36-22-24-20190918 Sample No.: WG1288918-1 Date: <input type="text"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
---	---	--

GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-36-22-24-20190918

Sample Number: WG1288918-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =84.39

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.39	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.07	0.00	99.9
		#20	0.05	0.00	99.9
		#40	0.05	0.00	99.8
		#60	0.08	0.00	99.7
		#140	0.79	0.00	98.8
		#200	11.05	0.00	85.7

Serial_No:10021912:08

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	14.1	14.3			85.7

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
										0.0829	0.0940

Fineness Modulus
0.01

Alpha Analytical

Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 2		Date Rec'd in Lab 9/20/19		ALPHA Job # L1943256	
		Project Information Project Name: <u>Essay Hope</u> Project Location: <u>Jamestown NY</u> Project # <u>DWJMS004</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per Po</u>		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #			
Client Information Client: <u>JACOBS</u> Address: <u>125 BLACKSTONE AVE</u> <u>Jamestown NY</u> Phone: <u>508-397-1904</u> Fax: Email: <u>Dave Keenan @ Jacobs</u>		Project Manager: <u>Shamus Keohane</u> ALPHAQuote #: <u>Po # 148007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Rush (only if pre approved) <input type="checkbox"/>		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per Po</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:			
These samples have been previously analyzed by Alpha <input type="checkbox"/>						ANALYSIS <u>VOCs (8260)</u> <u>GRAIN SIZE</u> <u>TOTAL ORGANIC CARBON</u>		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)	
Other project specific requirements/comments: <u>SRE Program QA/QC associated w Po</u>						Sample Specific Comments		Total Bottles	
Please specify Metals or TAL.									
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials	
43256 - 01		DPT-36-10-12-20190918		09/18/19 1530		Soil		DK	
43256 - 02		DPT-36-20-22-20190918		1540					
- 03		DPT-36-22-24-20190918		1550					
- 04		DPT-36-27-28-20190918		1600					
- 05		DPT-37-10-12-20190919		09/19/19 1000					
- 06		DPT-37-20-22-20190919		1010					
- 07		DPT-37-22-24-20190919		1020					
- 08		DPT-38-10-12-20190919		1130					
- 09		DPT-38-10-12-20190919FD		1135					
- 10		DPT-38-18-20-20190919		1140					
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type E P A		Preservative A A A	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By: <u>Audrey Tiley AAL</u>		Date/Time 9/19/19 1500 9/19/19 16:30		Received By: <u>Audrey Tiley AAL</u> <u>[Signature]</u>		Date/Time 9/19/19 15:00 9/20/19 00:58	
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)									

ALPHA Job #
41943256

9/30/19



ANALYTICAL REPORT

Lab Number:	L1943458
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	09/27/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1943458-01	EB-003-20190919	WATER	JAMESTOWN, NY	09/19/19 15:20	09/20/19
L1943458-02	DPT-33-10-12-20190920	SOIL	JAMESTOWN, NY	09/20/19 09:15	09/20/19
L1943458-03	DPT-33-24-26-20190920	SOIL	JAMESTOWN, NY	09/20/19 09:25	09/20/19
L1943458-04	DPT-33-26-28-20190920	SOIL	JAMESTOWN, NY	09/20/19 09:35	09/20/19
L1943458-05	DPT-32-11-13-20190920	SOIL	JAMESTOWN, NY	09/20/19 10:50	09/20/19
L1943458-06	DPT-32-20-22-20190920	SOIL	JAMESTOWN, NY	09/20/19 11:00	09/20/19
L1943458-07	DPT-32-22-24-20190920	SOIL	JAMESTOWN, NY	09/20/19 11:10	09/20/19
L1943458-08	DPT-32-22-24-20190920FD	SOIL	JAMESTOWN, NY	09/20/19 11:20	09/20/19
L1943458-09	TB-009-20190920	WATER	JAMESTOWN, NY	09/20/19 00:00	09/20/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1943458-02 and -05: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1943458-03, -04, -06, -07, and -08: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1943458-05: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (40%) and the surrogate recoveries for 1,2-dichloroethane-d4 (141%) and 4-bromofluorobenzene (153%) were outside the acceptance criteria; however, re-analysis achieved similar results: 1,4-dichlorobenzene-d4 (45%) and 4-bromofluorobenzene (242%). The results of original analysis are reported.

L1943458-09: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1288366-3/-4 LCS/LCSD recoveries, associated with L1943458-05, are above the individual acceptance criteria for chloromethane (227%/222%), dichlorodifluoromethane (201%/199%), acetone (144%/146%) and 2-butanone (134%/142%), but within the overall method allowances. The results of the associated samples are reported.

The WG1288385-3/-4 LCS/LCSD recoveries, associated with L1943458-03, -04, -06, -07, and -08, are above the individual acceptance criteria for chloromethane (227%/222%), dichlorodifluoromethane (201%/199%), acetone (144%/146%) and 2-butanone (134%/142%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1943458-01 and -09, did not meet the method required minimum response factor for the calibration standards for bromomethane, 2-butanone, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

Case Narrative (continued)

The initial calibration verification standard has the percent deviation for bromomethane (68%D), styrene (32%D), and 1,2,4-Trichlorobenzene (30%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943458-01 and -09, did not meet the method required minimum response factor for bromomethane, chloromethane, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

WG1287267-2: The continuing calibration verification standard has the percent deviation for bromomethane (49%D), Hexachlorobutadiene (23%D), and chloromethane (27%D) above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1943458-05, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane, 4-Methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (75%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943458-05, did not meet the method required minimum response factor for Bromomethane, chloroethane, Bromochloromethane, 1,4-dioxane, 4-Methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The continuing calibration verification standard WG1288385-2 has the percent deviation for dichlorodifluoromethane (83%D), chloromethane (115%D), bromomethane (30%D), chloroethane (29%D), carbon disulfide (21%D), acetone (41%D), vinyl acetate (33%D), and 2-butanone (42%D) above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1943458-03, -04, -06, -07, and -08, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane, 4-Methyl-2-pentanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (75%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943458-03, -04, -06, -07, and -08, did not meet the method

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**Case Narrative (continued)**


required minimum response factor for Bromomethane, chloroethane, Bromochloromethane, 1,4-dioxane, 4-Methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

The continuing calibration verification standard WG1288385-2 has the percent deviation for dichlorodifluoromethane (83%D), chloromethane (115%D), bromomethane (30%D), chloroethane (29%D), carbon disulfide (21%D), acetone (41%D), vinyl acetate (33%D), and 2-butanone (42%D) above the 20% CCV criteria, but within overall method allowances.

The continuing calibration verification standard WG1288929-2 has the percent deviation for Dichlorodifluoromethane (28%) and chloroethane (41%) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 09/27/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-01
 Client ID: EB-003-20190919
 Sample Location: JAMESTOWN, NY

Date Collected: 09/19/19 15:20
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:40
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-01

Date Collected: 09/19/19 15:20

Client ID: EB-003-20190919

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.44	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-01

Date Collected: 09/19/19 15:20

Client ID: EB-003-20190919

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-02
 Client ID: DPT-33-10-12-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:15
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 22:24
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.4	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	0.23	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.13	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.3	0.75	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.3	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.58	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.3	1.0	1
Bromomethane	ND		ug/kg	2.2	0.62	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-02

Date Collected: 09/20/19 09:15

Client ID: DPT-33-10-12-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.38	J	ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.18	1
Methyl tert butyl ether	2.2		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.60	1
o-Xylene	ND		ug/kg	1.1	0.31	1
Xylenes, Total	ND		ug/kg	1.1	0.31	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	0.98	1
Acetone	370	E	ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	4.9	1
2-Butanone	4.0	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.20	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.3	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.3	0.70	1
n-Propylbenzene	ND		ug/kg	1.1	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-02

Date Collected: 09/20/19 09:15

Client ID: DPT-33-10-12-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	86	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-03 D
 Client ID: DPT-33-24-26-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:25
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 03:17
 Analyst: JC
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1900	860	5
1,1-Dichloroethane	ND		ug/kg	380	54.	5
Chloroform	87	J	ug/kg	560	53.	5
Carbon tetrachloride	ND		ug/kg	380	86.	5
1,2-Dichloropropane	ND		ug/kg	380	47.	5
Dibromochloromethane	ND		ug/kg	380	53.	5
1,1,2-Trichloroethane	ND		ug/kg	380	100	5
Tetrachloroethene	ND		ug/kg	190	74.	5
Chlorobenzene	ND		ug/kg	190	48.	5
Trichlorofluoromethane	ND		ug/kg	1500	260	5
1,2-Dichloroethane	ND		ug/kg	380	97.	5
1,1,1-Trichloroethane	ND		ug/kg	190	63.	5
Bromodichloromethane	ND		ug/kg	190	41.	5
trans-1,3-Dichloropropene	ND		ug/kg	380	100	5
cis-1,3-Dichloropropene	ND		ug/kg	190	59.	5
1,3-Dichloropropene, Total	ND		ug/kg	190	59.	5
1,1-Dichloropropene	ND		ug/kg	190	60.	5
Bromoform	ND		ug/kg	1500	92.	5
1,1,2,2-Tetrachloroethane	ND		ug/kg	190	62.	5
Benzene	ND		ug/kg	190	62.	5
Toluene	ND		ug/kg	380	200	5
Ethylbenzene	ND		ug/kg	380	53.	5
Chloromethane	ND		ug/kg	1500	350	5
Bromomethane	ND		ug/kg	750	220	5
Vinyl chloride	ND		ug/kg	380	130	5
Chloroethane	ND		ug/kg	750	170	5
1,1-Dichloroethene	ND		ug/kg	380	90.	5
trans-1,2-Dichloroethene	ND		ug/kg	560	52.	5

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-03 D
 Client ID: DPT-33-24-26-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:25
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	57000		ug/kg	190	52.	5
1,2-Dichlorobenzene	ND		ug/kg	750	54.	5
1,3-Dichlorobenzene	ND		ug/kg	750	56.	5
1,4-Dichlorobenzene	ND		ug/kg	750	64.	5
Methyl tert butyl ether	ND		ug/kg	750	76.	5
p/m-Xylene	ND		ug/kg	750	210	5
o-Xylene	ND		ug/kg	380	110	5
Xylenes, Total	ND		ug/kg	380	110	5
cis-1,2-Dichloroethene	2300		ug/kg	380	66.	5
1,2-Dichloroethene, Total	2300		ug/kg	380	52.	5
Dibromomethane	ND		ug/kg	750	90.	5
Styrene	ND		ug/kg	380	74.	5
Dichlorodifluoromethane	ND		ug/kg	3800	340	5
Acetone	ND		ug/kg	3800	1800	5
Carbon disulfide	ND		ug/kg	3800	1700	5
2-Butanone	ND		ug/kg	3800	840	5
Vinyl acetate	ND		ug/kg	3800	810	5
4-Methyl-2-pentanone	ND		ug/kg	3800	480	5
1,2,3-Trichloropropane	ND		ug/kg	750	48.	5
2-Hexanone	ND		ug/kg	3800	440	5
Bromochloromethane	ND		ug/kg	750	77.	5
2,2-Dichloropropane	ND		ug/kg	750	76.	5
1,2-Dibromoethane	ND		ug/kg	380	100	5
1,3-Dichloropropane	ND		ug/kg	750	63.	5
1,1,1,2-Tetrachloroethane	ND		ug/kg	190	50.	5
Bromobenzene	ND		ug/kg	750	54.	5
n-Butylbenzene	ND		ug/kg	380	63.	5
sec-Butylbenzene	ND		ug/kg	380	55.	5
tert-Butylbenzene	ND		ug/kg	750	44.	5
o-Chlorotoluene	ND		ug/kg	750	72.	5
p-Chlorotoluene	ND		ug/kg	750	41.	5
1,2-Dibromo-3-chloropropane	ND		ug/kg	1100	380	5
Hexachlorobutadiene	ND		ug/kg	1500	64.	5
Isopropylbenzene	ND		ug/kg	380	41.	5
p-Isopropyltoluene	ND		ug/kg	380	41.	5
Naphthalene	ND		ug/kg	1500	240	5
n-Propylbenzene	ND		ug/kg	380	64.	5

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-03 D
 Client ID: DPT-33-24-26-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:25
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	750	120	5
1,2,4-Trichlorobenzene	ND		ug/kg	750	100	5
1,3,5-Trimethylbenzene	ND		ug/kg	750	73.	5
1,2,4-Trimethylbenzene	ND		ug/kg	750	120	5
1,4-Dioxane	ND		ug/kg	30000	13000	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-04 D
 Client ID: DPT-33-26-28-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:35
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/25/19 03:43

Analyst: JC

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1400	660	4
1,1-Dichloroethane	ND		ug/kg	290	42.	4
Chloroform	67	J	ug/kg	430	40.	4
Carbon tetrachloride	ND		ug/kg	290	66.	4
1,2-Dichloropropane	ND		ug/kg	290	36.	4
Dibromochloromethane	ND		ug/kg	290	40.	4
1,1,2-Trichloroethane	ND		ug/kg	290	77.	4
Tetrachloroethene	ND		ug/kg	140	57.	4
Chlorobenzene	ND		ug/kg	140	37.	4
Trichlorofluoromethane	ND		ug/kg	1200	200	4
1,2-Dichloroethane	ND		ug/kg	290	74.	4
1,1,1-Trichloroethane	ND		ug/kg	140	48.	4
Bromodichloromethane	ND		ug/kg	140	32.	4
trans-1,3-Dichloropropene	ND		ug/kg	290	79.	4
cis-1,3-Dichloropropene	ND		ug/kg	140	46.	4
1,3-Dichloropropene, Total	ND		ug/kg	140	46.	4
1,1-Dichloropropene	ND		ug/kg	140	46.	4
Bromoform	ND		ug/kg	1200	71.	4
1,1,2,2-Tetrachloroethane	ND		ug/kg	140	48.	4
Benzene	ND		ug/kg	140	48.	4
Toluene	ND		ug/kg	290	160	4
Ethylbenzene	ND		ug/kg	290	41.	4
Chloromethane	ND		ug/kg	1200	270	4
Bromomethane	ND		ug/kg	580	170	4
Vinyl chloride	ND		ug/kg	290	97.	4
Chloroethane	ND		ug/kg	580	130	4
1,1-Dichloroethene	ND		ug/kg	290	69.	4
trans-1,2-Dichloroethene	ND		ug/kg	430	40.	4

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-04 D

Date Collected: 09/20/19 09:35

Client ID: DPT-33-26-28-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	48000		ug/kg	140	40.	4
1,2-Dichlorobenzene	ND		ug/kg	580	42.	4
1,3-Dichlorobenzene	ND		ug/kg	580	43.	4
1,4-Dichlorobenzene	ND		ug/kg	580	50.	4
Methyl tert butyl ether	ND		ug/kg	580	58.	4
p/m-Xylene	ND		ug/kg	580	160	4
o-Xylene	ND		ug/kg	290	84.	4
Xylenes, Total	ND		ug/kg	290	84.	4
cis-1,2-Dichloroethene	2600		ug/kg	290	51.	4
1,2-Dichloroethene, Total	2600		ug/kg	290	40.	4
Dibromomethane	ND		ug/kg	580	69.	4
Styrene	ND		ug/kg	290	57.	4
Dichlorodifluoromethane	ND		ug/kg	2900	260	4
Acetone	ND		ug/kg	2900	1400	4
Carbon disulfide	ND		ug/kg	2900	1300	4
2-Butanone	ND		ug/kg	2900	640	4
Vinyl acetate	ND		ug/kg	2900	620	4
4-Methyl-2-pentanone	ND		ug/kg	2900	370	4
1,2,3-Trichloropropane	ND		ug/kg	580	37.	4
2-Hexanone	ND		ug/kg	2900	340	4
Bromochloromethane	ND		ug/kg	580	59.	4
2,2-Dichloropropane	ND		ug/kg	580	58.	4
1,2-Dibromoethane	ND		ug/kg	290	81.	4
1,3-Dichloropropane	ND		ug/kg	580	48.	4
1,1,1,2-Tetrachloroethane	ND		ug/kg	140	38.	4
Bromobenzene	ND		ug/kg	580	42.	4
n-Butylbenzene	ND		ug/kg	290	48.	4
sec-Butylbenzene	ND		ug/kg	290	42.	4
tert-Butylbenzene	ND		ug/kg	580	34.	4
o-Chlorotoluene	ND		ug/kg	580	55.	4
p-Chlorotoluene	ND		ug/kg	580	31.	4
1,2-Dibromo-3-chloropropane	ND		ug/kg	870	290	4
Hexachlorobutadiene	ND		ug/kg	1200	49.	4
Isopropylbenzene	ND		ug/kg	290	32.	4
p-Isopropyltoluene	ND		ug/kg	290	32.	4
Naphthalene	ND		ug/kg	1200	190	4
n-Propylbenzene	ND		ug/kg	290	50.	4

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-04 D

Date Collected: 09/20/19 09:35

Client ID: DPT-33-26-28-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	580	93.	4
1,2,4-Trichlorobenzene	ND		ug/kg	580	79.	4
1,3,5-Trimethylbenzene	ND		ug/kg	580	56.	4
1,2,4-Trimethylbenzene	ND		ug/kg	580	97.	4
1,4-Dioxane	ND		ug/kg	23000	10000	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-05
 Client ID: DPT-32-11-13-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 10:50
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 02:51
 Analyst: JC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	0.26	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.21	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-05
 Client ID: DPT-32-11-13-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 10:50
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	2.4		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	1500	E	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	1.6		ug/kg	1.1	0.18	1
sec-Butylbenzene	2.9		ug/kg	1.1	0.16	1
tert-Butylbenzene	1.5	J	ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	0.66	J	ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-05

Date Collected: 09/20/19 10:50

Client ID: DPT-32-11-13-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	141	Q	70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	115		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-06 D
 Client ID: DPT-32-20-22-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:00
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 04:09
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	6900	3200	20
1,1-Dichloroethane	ND		ug/kg	1400	200	20
Chloroform	310	J	ug/kg	2100	190	20
Carbon tetrachloride	ND		ug/kg	1400	320	20
1,2-Dichloropropane	ND		ug/kg	1400	170	20
Dibromochloromethane	ND		ug/kg	1400	190	20
1,1,2-Trichloroethane	ND		ug/kg	1400	370	20
Tetrachloroethene	ND		ug/kg	690	270	20
Chlorobenzene	ND		ug/kg	690	180	20
Trichlorofluoromethane	ND		ug/kg	5500	960	20
1,2-Dichloroethane	ND		ug/kg	1400	360	20
1,1,1-Trichloroethane	ND		ug/kg	690	230	20
Bromodichloromethane	ND		ug/kg	690	150	20
trans-1,3-Dichloropropene	ND		ug/kg	1400	380	20
cis-1,3-Dichloropropene	ND		ug/kg	690	220	20
1,3-Dichloropropene, Total	ND		ug/kg	690	220	20
1,1-Dichloropropene	ND		ug/kg	690	220	20
Bromoform	ND		ug/kg	5500	340	20
1,1,2,2-Tetrachloroethane	ND		ug/kg	690	230	20
Benzene	ND		ug/kg	690	230	20
Toluene	ND		ug/kg	1400	750	20
Ethylbenzene	ND		ug/kg	1400	190	20
Chloromethane	ND		ug/kg	5500	1300	20
Bromomethane	ND		ug/kg	2800	800	20
Vinyl chloride	ND		ug/kg	1400	460	20
Chloroethane	ND		ug/kg	2800	620	20
1,1-Dichloroethene	ND		ug/kg	1400	330	20
trans-1,2-Dichloroethene	ND		ug/kg	2100	190	20

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-06 D
 Client ID: DPT-32-20-22-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:00
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	190000		ug/kg	690	190	20
1,2-Dichlorobenzene	ND		ug/kg	2800	200	20
1,3-Dichlorobenzene	ND		ug/kg	2800	200	20
1,4-Dichlorobenzene	ND		ug/kg	2800	240	20
Methyl tert butyl ether	ND		ug/kg	2800	280	20
p/m-Xylene	ND		ug/kg	2800	770	20
o-Xylene	ND		ug/kg	1400	400	20
Xylenes, Total	ND		ug/kg	1400	400	20
cis-1,2-Dichloroethene	17000		ug/kg	1400	240	20
1,2-Dichloroethene, Total	17000		ug/kg	1400	190	20
Dibromomethane	ND		ug/kg	2800	330	20
Styrene	ND		ug/kg	1400	270	20
Dichlorodifluoromethane	ND		ug/kg	14000	1300	20
Acetone	ND		ug/kg	14000	6600	20
Carbon disulfide	ND		ug/kg	14000	6300	20
2-Butanone	ND		ug/kg	14000	3100	20
Vinyl acetate	ND		ug/kg	14000	3000	20
4-Methyl-2-pentanone	ND		ug/kg	14000	1800	20
1,2,3-Trichloropropane	ND		ug/kg	2800	180	20
2-Hexanone	ND		ug/kg	14000	1600	20
Bromochloromethane	ND		ug/kg	2800	280	20
2,2-Dichloropropane	ND		ug/kg	2800	280	20
1,2-Dibromoethane	ND		ug/kg	1400	380	20
1,3-Dichloropropane	ND		ug/kg	2800	230	20
1,1,1,2-Tetrachloroethane	ND		ug/kg	690	180	20
Bromobenzene	ND		ug/kg	2800	200	20
n-Butylbenzene	ND		ug/kg	1400	230	20
sec-Butylbenzene	ND		ug/kg	1400	200	20
tert-Butylbenzene	ND		ug/kg	2800	160	20
o-Chlorotoluene	ND		ug/kg	2800	260	20
p-Chlorotoluene	ND		ug/kg	2800	150	20
1,2-Dibromo-3-chloropropane	ND		ug/kg	4100	1400	20
Hexachlorobutadiene	ND		ug/kg	5500	230	20
Isopropylbenzene	ND		ug/kg	1400	150	20
p-Isopropyltoluene	ND		ug/kg	1400	150	20
Naphthalene	ND		ug/kg	5500	900	20
n-Propylbenzene	ND		ug/kg	1400	240	20



Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-06 D

Date Collected: 09/20/19 11:00

Client ID: DPT-32-20-22-20190920

Date Received: 09/20/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2800	440	20
1,2,4-Trichlorobenzene	ND		ug/kg	2800	380	20
1,3,5-Trimethylbenzene	ND		ug/kg	2800	270	20
1,2,4-Trimethylbenzene	ND		ug/kg	2800	460	20
1,4-Dioxane	ND		ug/kg	110000	48000	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-07 D
 Client ID: DPT-32-22-24-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:10
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 04:37
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	3500	1600	10
1,1-Dichloroethane	ND		ug/kg	710	100	10
Chloroform	160	J	ug/kg	1100	99.	10
Carbon tetrachloride	ND		ug/kg	710	160	10
1,2-Dichloropropane	ND		ug/kg	710	88.	10
Dibromochloromethane	ND		ug/kg	710	99.	10
1,1,2-Trichloroethane	ND		ug/kg	710	190	10
Tetrachloroethene	ND		ug/kg	350	140	10
Chlorobenzene	ND		ug/kg	350	90.	10
Trichlorofluoromethane	ND		ug/kg	2800	490	10
1,2-Dichloroethane	ND		ug/kg	710	180	10
1,1,1-Trichloroethane	ND		ug/kg	350	120	10
Bromodichloromethane	ND		ug/kg	350	77.	10
trans-1,3-Dichloropropene	ND		ug/kg	710	190	10
cis-1,3-Dichloropropene	ND		ug/kg	350	110	10
1,3-Dichloropropene, Total	ND		ug/kg	350	110	10
1,1-Dichloropropene	ND		ug/kg	350	110	10
Bromoform	ND		ug/kg	2800	170	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	350	120	10
Benzene	ND		ug/kg	350	120	10
Toluene	ND		ug/kg	710	380	10
Ethylbenzene	ND		ug/kg	710	100	10
Chloromethane	ND		ug/kg	2800	660	10
Bromomethane	ND		ug/kg	1400	410	10
Vinyl chloride	ND		ug/kg	710	240	10
Chloroethane	ND		ug/kg	1400	320	10
1,1-Dichloroethene	ND		ug/kg	710	170	10
trans-1,2-Dichloroethene	ND		ug/kg	1100	97.	10

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-07 D
 Client ID: DPT-32-22-24-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:10
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	140000		ug/kg	350	97.	10
1,2-Dichlorobenzene	ND		ug/kg	1400	100	10
1,3-Dichlorobenzene	ND		ug/kg	1400	100	10
1,4-Dichlorobenzene	ND		ug/kg	1400	120	10
Methyl tert butyl ether	ND		ug/kg	1400	140	10
p/m-Xylene	ND		ug/kg	1400	400	10
o-Xylene	ND		ug/kg	710	200	10
Xylenes, Total	ND		ug/kg	710	200	10
cis-1,2-Dichloroethene	12000		ug/kg	710	120	10
1,2-Dichloroethene, Total	12000		ug/kg	710	97.	10
Dibromomethane	ND		ug/kg	1400	170	10
Styrene	ND		ug/kg	710	140	10
Dichlorodifluoromethane	ND		ug/kg	7100	650	10
Acetone	ND		ug/kg	7100	3400	10
Carbon disulfide	ND		ug/kg	7100	3200	10
2-Butanone	ND		ug/kg	7100	1600	10
Vinyl acetate	ND		ug/kg	7100	1500	10
4-Methyl-2-pentanone	ND		ug/kg	7100	900	10
1,2,3-Trichloropropane	ND		ug/kg	1400	90.	10
2-Hexanone	ND		ug/kg	7100	830	10
Bromochloromethane	ND		ug/kg	1400	140	10
2,2-Dichloropropane	ND		ug/kg	1400	140	10
1,2-Dibromoethane	ND		ug/kg	710	200	10
1,3-Dichloropropane	ND		ug/kg	1400	120	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	350	93.	10
Bromobenzene	ND		ug/kg	1400	100	10
n-Butylbenzene	ND		ug/kg	710	120	10
sec-Butylbenzene	ND		ug/kg	710	100	10
tert-Butylbenzene	ND		ug/kg	1400	83.	10
o-Chlorotoluene	ND		ug/kg	1400	140	10
p-Chlorotoluene	ND		ug/kg	1400	76.	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	2100	700	10
Hexachlorobutadiene	ND		ug/kg	2800	120	10
Isopropylbenzene	ND		ug/kg	710	77.	10
p-Isopropyltoluene	ND		ug/kg	710	77.	10
Naphthalene	ND		ug/kg	2800	460	10
n-Propylbenzene	ND		ug/kg	710	120	10



Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-07 D
 Client ID: DPT-32-22-24-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:10
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1400	230	10
1,2,4-Trichlorobenzene	ND		ug/kg	1400	190	10
1,3,5-Trimethylbenzene	ND		ug/kg	1400	140	10
1,2,4-Trimethylbenzene	ND		ug/kg	1400	240	10
1,4-Dioxane	ND		ug/kg	56000	25000	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-08 D
 Client ID: DPT-32-22-24-20190920FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:20
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/25/19 05:03
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	3500	1600	10
1,1-Dichloroethane	ND		ug/kg	700	100	10
Chloroform	180	J	ug/kg	1000	98.	10
Carbon tetrachloride	ND		ug/kg	700	160	10
1,2-Dichloropropane	ND		ug/kg	700	88.	10
Dibromochloromethane	ND		ug/kg	700	98.	10
1,1,2-Trichloroethane	ND		ug/kg	700	190	10
Tetrachloroethene	ND		ug/kg	350	140	10
Chlorobenzene	ND		ug/kg	350	89.	10
Trichlorofluoromethane	ND		ug/kg	2800	490	10
1,2-Dichloroethane	ND		ug/kg	700	180	10
1,1,1-Trichloroethane	ND		ug/kg	350	120	10
Bromodichloromethane	ND		ug/kg	350	76.	10
trans-1,3-Dichloropropene	ND		ug/kg	700	190	10
cis-1,3-Dichloropropene	ND		ug/kg	350	110	10
1,3-Dichloropropene, Total	ND		ug/kg	350	110	10
1,1-Dichloropropene	ND		ug/kg	350	110	10
Bromoform	ND		ug/kg	2800	170	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	350	120	10
Benzene	ND		ug/kg	350	120	10
Toluene	ND		ug/kg	700	380	10
Ethylbenzene	ND		ug/kg	700	99.	10
Chloromethane	ND		ug/kg	2800	650	10
Bromomethane	ND		ug/kg	1400	410	10
Vinyl chloride	ND		ug/kg	700	240	10
Chloroethane	ND		ug/kg	1400	320	10
1,1-Dichloroethene	ND		ug/kg	700	170	10
trans-1,2-Dichloroethene	ND		ug/kg	1000	96.	10

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-08 D
 Client ID: DPT-32-22-24-20190920FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:20
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	150000		ug/kg	350	96.	10
1,2-Dichlorobenzene	ND		ug/kg	1400	100	10
1,3-Dichlorobenzene	ND		ug/kg	1400	100	10
1,4-Dichlorobenzene	ND		ug/kg	1400	120	10
Methyl tert butyl ether	ND		ug/kg	1400	140	10
p/m-Xylene	ND		ug/kg	1400	390	10
o-Xylene	ND		ug/kg	700	200	10
Xylenes, Total	ND		ug/kg	700	200	10
cis-1,2-Dichloroethene	13000		ug/kg	700	120	10
1,2-Dichloroethene, Total	13000		ug/kg	700	96.	10
Dibromomethane	ND		ug/kg	1400	170	10
Styrene	ND		ug/kg	700	140	10
Dichlorodifluoromethane	ND		ug/kg	7000	640	10
Acetone	ND		ug/kg	7000	3400	10
Carbon disulfide	ND		ug/kg	7000	3200	10
2-Butanone	ND		ug/kg	7000	1600	10
Vinyl acetate	ND		ug/kg	7000	1500	10
4-Methyl-2-pentanone	ND		ug/kg	7000	900	10
1,2,3-Trichloropropane	ND		ug/kg	1400	89.	10
2-Hexanone	ND		ug/kg	7000	830	10
Bromochloromethane	ND		ug/kg	1400	140	10
2,2-Dichloropropane	ND		ug/kg	1400	140	10
1,2-Dibromoethane	ND		ug/kg	700	200	10
1,3-Dichloropropane	ND		ug/kg	1400	120	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	350	93.	10
Bromobenzene	ND		ug/kg	1400	100	10
n-Butylbenzene	ND		ug/kg	700	120	10
sec-Butylbenzene	ND		ug/kg	700	100	10
tert-Butylbenzene	ND		ug/kg	1400	83.	10
o-Chlorotoluene	ND		ug/kg	1400	130	10
p-Chlorotoluene	ND		ug/kg	1400	76.	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	2100	700	10
Hexachlorobutadiene	ND		ug/kg	2800	120	10
Isopropylbenzene	ND		ug/kg	700	76.	10
p-Isopropyltoluene	ND		ug/kg	700	76.	10
Naphthalene	ND		ug/kg	2800	460	10
n-Propylbenzene	ND		ug/kg	700	120	10

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-08 D
 Client ID: DPT-32-22-24-20190920FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 11:20
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1400	220	10
1,2,4-Trichlorobenzene	ND		ug/kg	1400	190	10
1,3,5-Trimethylbenzene	ND		ug/kg	1400	140	10
1,2,4-Trimethylbenzene	ND		ug/kg	1400	230	10
1,4-Dioxane	ND		ug/kg	56000	25000	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	103		70-130

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-09
 Client ID: TB-009-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 00:00
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/24/19 10:05
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS**

Lab ID: L1943458-09
 Client ID: TB-009-20190920
 Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 00:00
 Date Received: 09/20/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.3		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-09**Date Collected:** 09/20/19 00:00**Client ID:** TB-009-20190920**Date Received:** 09/20/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,09 Batch: WG1287267-12					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,09 Batch: WG1287267-12					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,09 Batch: WG1287267-12					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.26	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1288366-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	107		70-130



Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,06-08 Batch: WG1288385-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	13	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	ND		ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,06-08 Batch: WG1288385-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6



Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/24/19 20:18
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,06-08 Batch: WG1288385-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	107		70-130

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1289400-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.28	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	1.0	J	ug/kg	4.0	0.93
Bromomethane	1.2	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1289400-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE

Lab Number: L1943458

Project Number: DWJMS004

Report Date: 09/27/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/25/19 21:23
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1289400-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	0.22	J	ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 Batch: WG1287267-10 WG1287267-11								
Methylene chloride	88		91		70-130	3		20
1,1-Dichloroethane	96		95		70-130	1		20
Chloroform	94		93		70-130	1		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	90		90		70-130	0		20
Dibromochloromethane	89		87		63-130	2		20
1,1,2-Trichloroethane	89		86		70-130	3		20
Tetrachloroethene	91		89		70-130	2		20
Chlorobenzene	92		91		75-130	1		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	97		96		67-130	1		20
trans-1,3-Dichloropropene	93		91		70-130	2		20
cis-1,3-Dichloropropene	94		94		70-130	0		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	85		83		54-136	2		20
1,1,2,2-Tetrachloroethane	95		89		67-130	7		20
Benzene	92		91		70-130	1		20
Toluene	92		92		70-130	0		20
Ethylbenzene	93		91		70-130	2		20
Chloromethane	81		80		64-130	1		20
Bromomethane	48		46		39-139	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 Batch: WG1287267-10 WG1287267-11								
Vinyl chloride	93		91		55-140	2		20
Chloroethane	97		95		55-138	2		20
1,1-Dichloroethene	92		90		61-145	2		20
trans-1,2-Dichloroethene	94		92		70-130	2		20
Trichloroethene	94		96		70-130	2		20
1,2-Dichlorobenzene	95		92		70-130	3		20
1,3-Dichlorobenzene	95		94		70-130	1		20
1,4-Dichlorobenzene	97		94		70-130	3		20
Methyl tert butyl ether	99		98		63-130	1		20
p/m-Xylene	95		90		70-130	5		20
o-Xylene	95		90		70-130	5		20
cis-1,2-Dichloroethene	92		90		70-130	2		20
Dibromomethane	96		94		70-130	2		20
1,2,3-Trichloropropane	100		98		64-130	2		20
Styrene	95		90		70-130	5		20
Dichlorodifluoromethane	79		77		36-147	3		20
Acetone	110		110		58-148	0		20
Carbon disulfide	90		88		51-130	2		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	100		100		70-130	0		20
4-Methyl-2-pentanone	98		88		59-130	11		20
2-Hexanone	100		99		57-130	1		20
Bromochloromethane	93		95		70-130	2		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 Batch: WG1287267-10 WG1287267-11								
2,2-Dichloropropane	100		100		63-133	0		20
1,2-Dibromoethane	89		88		70-130	1		20
1,3-Dichloropropane	92		89		70-130	3		20
1,1,1,2-Tetrachloroethane	90		89		64-130	1		20
Bromobenzene	93		92		70-130	1		20
n-Butylbenzene	99		95		53-136	4		20
sec-Butylbenzene	99		97		70-130	2		20
tert-Butylbenzene	93		93		70-130	0		20
o-Chlorotoluene	94		92		70-130	2		20
p-Chlorotoluene	94		93		70-130	1		20
1,2-Dibromo-3-chloropropane	100		92		41-144	8		20
Hexachlorobutadiene	78		77		63-130	1		20
Isopropylbenzene	98		96		70-130	2		20
p-Isopropyltoluene	94		92		70-130	2		20
Naphthalene	100		95		70-130	5		20
n-Propylbenzene	96		92		69-130	4		20
1,2,3-Trichlorobenzene	96		92		70-130	4		20
1,2,4-Trichlorobenzene	93		90		70-130	3		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	97		95		70-130	2		20
1,4-Dioxane	96		92		56-162	4		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 Batch: WG1287267-10 WG1287267-11

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		117		70-130
Toluene-d8	94		94		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
Methylene chloride	89		90		70-130	1		30
1,1-Dichloroethane	108		106		70-130	2		30
Chloroform	104		103		70-130	1		30
Carbon tetrachloride	111		106		70-130	5		30
1,2-Dichloropropane	109		107		70-130	2		30
Dibromochloromethane	100		96		70-130	4		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	96		91		70-130	5		30
Chlorobenzene	89		87		70-130	2		30
Trichlorofluoromethane	134		130		70-139	3		30
1,2-Dichloroethane	126		130		70-130	3		30
1,1,1-Trichloroethane	107		105		70-130	2		30
Bromodichloromethane	102		101		70-130	1		30
trans-1,3-Dichloropropene	92		90		70-130	2		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	94		91		70-130	3		30
Bromoform	98		98		70-130	0		30
1,1,2,2-Tetrachloroethane	85		84		70-130	1		30
Benzene	87		88		70-130	1		30
Toluene	89		86		70-130	3		30
Ethylbenzene	90		88		70-130	2		30
Chloromethane	227	Q	222	Q	52-130	2		30
Bromomethane	82		80		57-147	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
Vinyl chloride	128		126		67-130	2		30
Chloroethane	79		79		50-151	0		30
1,1-Dichloroethene	88		86		65-135	2		30
trans-1,2-Dichloroethene	93		88		70-130	6		30
Trichloroethene	95		92		70-130	3		30
1,2-Dichlorobenzene	93		91		70-130	2		30
1,3-Dichlorobenzene	93		92		70-130	1		30
1,4-Dichlorobenzene	92		91		70-130	1		30
Methyl tert butyl ether	92		93		66-130	1		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	88		86		70-130	2		30
cis-1,2-Dichloroethene	94		93		70-130	1		30
Dibromomethane	104		105		70-130	1		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	201	Q	199	Q	30-146	1		30
Acetone	144	Q	146	Q	54-140	1		30
Carbon disulfide	83		81		59-130	2		30
2-Butanone	134	Q	142	Q	70-130	6		30
Vinyl acetate	126		128		70-130	2		30
4-Methyl-2-pentanone	102		106		70-130	4		30
1,2,3-Trichloropropane	92		91		68-130	1		30
2-Hexanone	112		111		70-130	1		30
Bromochloromethane	102		99		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4								
2,2-Dichloropropane	99		98		70-130	1		30
1,2-Dibromoethane	96		94		70-130	2		30
1,3-Dichloropropane	90		89		69-130	1		30
1,1,1,2-Tetrachloroethane	94		91		70-130	3		30
Bromobenzene	94		92		70-130	2		30
n-Butylbenzene	89		87		70-130	2		30
sec-Butylbenzene	87		86		70-130	1		30
tert-Butylbenzene	87		86		70-130	1		30
o-Chlorotoluene	90		86		70-130	5		30
p-Chlorotoluene	88		88		70-130	0		30
1,2-Dibromo-3-chloropropane	94		94		68-130	0		30
Hexachlorobutadiene	91		90		67-130	1		30
Isopropylbenzene	88		86		70-130	2		30
p-Isopropyltoluene	88		87		70-130	1		30
Naphthalene	88		89		70-130	1		30
n-Propylbenzene	88		86		70-130	2		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	95		94		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30
1,4-Dioxane	105		106		65-136	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1288366-3 WG1288366-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	121		121		70-130
Toluene-d8	91		90		70-130
4-Bromofluorobenzene	89		90		70-130
Dibromofluoromethane	106		106		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,06-08 Batch: WG1288385-3 WG1288385-4								
Methylene chloride	89		90		70-130	1		30
1,1-Dichloroethane	108		106		70-130	2		30
Chloroform	104		103		70-130	1		30
Carbon tetrachloride	111		106		70-130	5		30
1,2-Dichloropropane	109		107		70-130	2		30
Dibromochloromethane	100		96		70-130	4		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	96		91		70-130	5		30
Chlorobenzene	89		87		70-130	2		30
Trichlorofluoromethane	134		130		70-139	3		30
1,2-Dichloroethane	126		130		70-130	3		30
1,1,1-Trichloroethane	107		105		70-130	2		30
Bromodichloromethane	102		101		70-130	1		30
trans-1,3-Dichloropropene	92		90		70-130	2		30
cis-1,3-Dichloropropene	93		92		70-130	1		30
1,1-Dichloropropene	94		91		70-130	3		30
Bromoform	98		98		70-130	0		30
1,1,2,2-Tetrachloroethane	85		84		70-130	1		30
Benzene	87		88		70-130	1		30
Toluene	89		86		70-130	3		30
Ethylbenzene	90		88		70-130	2		30
Chloromethane	227	Q	222	Q	52-130	2		30
Bromomethane	82		80		57-147	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,06-08 Batch: WG1288385-3 WG1288385-4								
Vinyl chloride	128		126		67-130	2		30
Chloroethane	79		79		50-151	0		30
1,1-Dichloroethene	88		86		65-135	2		30
trans-1,2-Dichloroethene	93		88		70-130	6		30
Trichloroethene	95		92		70-130	3		30
1,2-Dichlorobenzene	93		91		70-130	2		30
1,3-Dichlorobenzene	93		92		70-130	1		30
1,4-Dichlorobenzene	92		91		70-130	1		30
Methyl tert butyl ether	92		93		66-130	1		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	88		86		70-130	2		30
cis-1,2-Dichloroethene	94		93		70-130	1		30
Dibromomethane	104		105		70-130	1		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	201	Q	199	Q	30-146	1		30
Acetone	144	Q	146	Q	54-140	1		30
Carbon disulfide	83		81		59-130	2		30
2-Butanone	134	Q	142	Q	70-130	6		30
Vinyl acetate	126		128		70-130	2		30
4-Methyl-2-pentanone	102		106		70-130	4		30
1,2,3-Trichloropropane	92		91		68-130	1		30
2-Hexanone	112		111		70-130	1		30
Bromochloromethane	102		99		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,06-08 Batch: WG1288385-3 WG1288385-4								
2,2-Dichloropropane	99		98		70-130	1		30
1,2-Dibromoethane	96		94		70-130	2		30
1,3-Dichloropropane	90		89		69-130	1		30
1,1,1,2-Tetrachloroethane	94		91		70-130	3		30
Bromobenzene	94		92		70-130	2		30
n-Butylbenzene	89		87		70-130	2		30
sec-Butylbenzene	87		86		70-130	1		30
tert-Butylbenzene	87		86		70-130	1		30
o-Chlorotoluene	90		86		70-130	5		30
p-Chlorotoluene	88		88		70-130	0		30
1,2-Dibromo-3-chloropropane	94		94		68-130	0		30
Hexachlorobutadiene	91		90		67-130	1		30
Isopropylbenzene	88		86		70-130	2		30
p-Isopropyltoluene	88		87		70-130	1		30
Naphthalene	88		89		70-130	1		30
n-Propylbenzene	88		86		70-130	2		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	95		94		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30
1,4-Dioxane	105		106		65-136	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,06-08 Batch: WG1288385-3 WG1288385-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	120		120		70-130
Toluene-d8	91		90		70-130
4-Bromofluorobenzene	89		90		70-130
Dibromofluoromethane	106		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1289400-3 WG1289400-4								
Methylene chloride	99		99		70-130	0		30
1,1-Dichloroethane	98		98		70-130	0		30
Chloroform	92		93		70-130	1		30
Carbon tetrachloride	95		94		70-130	1		30
1,2-Dichloropropane	101		100		70-130	1		30
Dibromochloromethane	96		97		70-130	1		30
1,1,2-Trichloroethane	96		96		70-130	0		30
Tetrachloroethene	96		96		70-130	0		30
Chlorobenzene	96		97		70-130	1		30
Trichlorofluoromethane	86		86		70-139	0		30
1,2-Dichloroethane	96		96		70-130	0		30
1,1,1-Trichloroethane	95		94		70-130	1		30
Bromodichloromethane	101		101		70-130	0		30
trans-1,3-Dichloropropene	97		97		70-130	0		30
cis-1,3-Dichloropropene	105		104		70-130	1		30
1,1-Dichloropropene	96		95		70-130	1		30
Bromoform	97		96		70-130	1		30
1,1,2,2-Tetrachloroethane	94		94		70-130	0		30
Benzene	100		99		70-130	1		30
Toluene	93		95		70-130	2		30
Ethylbenzene	94		94		70-130	0		30
Chloromethane	96		96		52-130	0		30
Bromomethane	105		101		57-147	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1289400-3 WG1289400-4								
Vinyl chloride	91		92		67-130	1		30
Chloroethane	76		76		50-151	0		30
1,1-Dichloroethene	98		97		65-135	1		30
trans-1,2-Dichloroethene	99		99		70-130	0		30
Trichloroethene	99		98		70-130	1		30
1,2-Dichlorobenzene	95		96		70-130	1		30
1,3-Dichlorobenzene	96		95		70-130	1		30
1,4-Dichlorobenzene	96		94		70-130	2		30
Methyl tert butyl ether	98		98		66-130	0		30
p/m-Xylene	98		98		70-130	0		30
o-Xylene	98		100		70-130	2		30
cis-1,2-Dichloroethene	100		100		70-130	0		30
Dibromomethane	101		99		70-130	2		30
Styrene	96		96		70-130	0		30
Dichlorodifluoromethane	87		86		30-146	1		30
Acetone	94		92		54-140	2		30
Carbon disulfide	95		95		59-130	0		30
2-Butanone	101		99		70-130	2		30
Vinyl acetate	100		97		70-130	3		30
4-Methyl-2-pentanone	94		93		70-130	1		30
1,2,3-Trichloropropane	90		89		68-130	1		30
2-Hexanone	83		83		70-130	0		30
Bromochloromethane	103		104		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1289400-3 WG1289400-4								
2,2-Dichloropropane	96		95		70-130	1		30
1,2-Dibromoethane	98		97		70-130	1		30
1,3-Dichloropropane	95		96		69-130	1		30
1,1,1,2-Tetrachloroethane	98		100		70-130	2		30
Bromobenzene	94		95		70-130	1		30
n-Butylbenzene	96		93		70-130	3		30
sec-Butylbenzene	93		94		70-130	1		30
tert-Butylbenzene	94		94		70-130	0		30
o-Chlorotoluene	93		92		70-130	1		30
p-Chlorotoluene	92		92		70-130	0		30
1,2-Dibromo-3-chloropropane	84		84		68-130	0		30
Hexachlorobutadiene	96		96		67-130	0		30
Isopropylbenzene	92		92		70-130	0		30
p-Isopropyltoluene	96		95		70-130	1		30
Naphthalene	98		97		70-130	1		30
n-Propylbenzene	93		92		70-130	1		30
1,2,3-Trichlorobenzene	98		98		70-130	0		30
1,2,4-Trichlorobenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	93		93		70-130	0		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30
1,4-Dioxane	104		101		65-136	3		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1289400-3 WG1289400-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		92		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	100		99		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Sample Associated sample(s): 01,09 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS												
Methylene chloride	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloroethane	ND	25	27	108		26	104		70-130	4		20
Chloroform	ND	25	26	104		27	108		70-130	4		20
Carbon tetrachloride	ND	25	28	112		28	112		63-132	0		20
1,2-Dichloropropane	ND	25	24	96		25	100		70-130	4		20
Dibromochloromethane	ND	25	24	96		25	100		63-130	4		20
1,1,2-Trichloroethane	ND	25	24	96		24	96		70-130	0		20
Tetrachloroethene	ND	25	24	96		24	96		70-130	0		20
Chlorobenzene	ND	25	25	100		25	100		75-130	0		20
Trichlorofluoromethane	ND	25	28	112		27	108		62-150	4		20
1,2-Dichloroethane	ND	25	29	116		29	116		70-130	0		20
1,1,1-Trichloroethane	ND	25	28	112		28	112		67-130	0		20
Bromodichloromethane	ND	25	26	104		26	104		67-130	0		20
trans-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
cis-1,3-Dichloropropene	ND	25	24	96		24	96		70-130	0		20
1,1-Dichloropropene	ND	25	28	112		28	112		70-130	0		20
Bromoform	ND	25	23	92		23	92		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	25	25	100		25	100		67-130	0		20
Benzene	0.84J	25	26	104		26	104		70-130	0		20
Toluene	ND	25	24	96		25	100		70-130	4		20
Ethylbenzene	ND	25	25	100		24	96		70-130	4		20
Chloromethane	ND	25	24	96		24	96		64-130	0		20
Bromomethane	ND	25	6.1J	24	Q	8.3	33	Q	39-139	31	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Sample Associated sample(s): 01,09 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS												
Vinyl chloride	ND	25	28	112		27	108		55-140	4		20
Chloroethane	ND	25	28	112		28	112		55-138	0		20
1,1-Dichloroethene	ND	25	26	104		26	104		61-145	0		20
trans-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Trichloroethene	ND	25	26	104		26	104		70-130	0		20
1,2-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,3-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
1,4-Dichlorobenzene	ND	25	25	100		25	100		70-130	0		20
Methyl tert butyl ether	ND	25	27	108		27	108		63-130	0		20
p/m-Xylene	510	50	500	0	Q	480	0	Q	70-130	4		20
o-Xylene	ND	50	50	100		50	100		70-130	0		20
cis-1,2-Dichloroethene	ND	25	25	100		26	104		70-130	4		20
Dibromomethane	ND	25	26	104		25	100		70-130	4		20
1,2,3-Trichloropropane	ND	25	24	96		26	104		64-130	8		20
Styrene	ND	50	50	100		51	102		70-130	2		20
Dichlorodifluoromethane	ND	25	26	104		25	100		36-147	4		20
Acetone	ND	25	26	104		28	112		58-148	7		20
Carbon disulfide	ND	25	25	100		25	100		51-130	0		20
2-Butanone	ND	25	35	140	Q	35	140	Q	63-138	0		20
Vinyl acetate	ND	25	30	120		29	116		70-130	3		20
4-Methyl-2-pentanone	ND	25	26	104		26	104		59-130	0		20
2-Hexanone	ND	25	28	112		28	112		57-130	0		20
Bromochloromethane	ND	25	26	104		26	104		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample												
2,2-Dichloropropane	ND	25	24	96		23	92		63-133	4		20
1,2-Dibromoethane	ND	25	24	96		24	96		70-130	0		20
1,3-Dichloropropane	ND	25	24	96		24	96		70-130	0		20
1,1,1,2-Tetrachloroethane	ND	25	25	100		25	100		64-130	0		20
Bromobenzene	ND	25	24	96		24	96		70-130	0		20
n-Butylbenzene	ND	25	25	100		25	100		53-136	0		20
sec-Butylbenzene	ND	25	27	108		26	104		70-130	4		20
tert-Butylbenzene	ND	25	26	104		25	100		70-130	4		20
o-Chlorotoluene	ND	25	28	112		32	128		70-130	13		20
p-Chlorotoluene	ND	25	24	96		24	96		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	25	25	100		26	104		41-144	4		20
Hexachlorobutadiene	ND	25	20	80		21	84		63-130	5		20
Isopropylbenzene	29	25	52	92		50	84		70-130	4		20
p-Isopropyltoluene	ND	25	25	100		24	96		70-130	4		20
Naphthalene	6.5	25	29	90		30	94		70-130	3		20
n-Propylbenzene	6.8	25	31	97		30	93		69-130	3		20
1,2,3-Trichlorobenzene	ND	25	23	92		24	96		70-130	4		20
1,2,4-Trichlorobenzene	ND	25	23	92		23	92		70-130	0		20
1,3,5-Trimethylbenzene	4.0J	25	29	116		29	116		64-130	0		20
1,2,4-Trimethylbenzene	15	25	39	96		38	92		70-130	3		20
1,4-Dioxane	ND	1250	1300	104		1400	112		56-162	7		20

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09 QC Batch ID: WG1287267-6 WG1287267-7 QC Sample: L1942979-04 Client ID: MS Sample

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		112		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	94		94		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-02**Client ID:** DPT-33-10-12-20190920**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/20/19 09:15**Date Received:** 09/20/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-03**Client ID:** DPT-33-24-26-20190920**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/20/19 09:25**Date Received:** 09/20/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-04

Client ID: DPT-33-26-28-20190920

Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 09:35

Date Received: 09/20/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943458

Report Date: 09/27/19

SAMPLE RESULTS

Lab ID: L1943458-05

Client ID: DPT-32-11-13-20190920

Sample Location: JAMESTOWN, NY

Date Collected: 09/20/19 10:50

Date Received: 09/20/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-06**Client ID:** DPT-32-20-22-20190920**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/20/19 11:00**Date Received:** 09/20/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-07**Client ID:** DPT-32-22-24-20190920**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/20/19 11:10**Date Received:** 09/20/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.3		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943458**Report Date:** 09/27/19**SAMPLE RESULTS****Lab ID:** L1943458-08**Client ID:** DPT-32-22-24-20190920FD**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/20/19 11:20**Date Received:** 09/20/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	09/21/19 14:39	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Duplicate Analysis
*Batch Quality Control***Lab Number:** L1943458**Report Date:** 09/27/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-08 QC Batch ID: WG1287034-1 QC Sample: L1943458-02 Client ID: DPT-33-10-12-20190920						
Solids, Total	87.1	87.4	%	0		20

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943458-01A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L1943458-01B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L1943458-01C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L1943458-02A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-02B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-02C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-02D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-02X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-02Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-02Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-03A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-03B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-03C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-03D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-03X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-03Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-03Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-04A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-04B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-04C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-04D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-04X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-04Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943458-04Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-05A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-05B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-05C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-05D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-05X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-05Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-05Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-06A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-06B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-06C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-06D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-06X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-06Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-06Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-07A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-07B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-07C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-07D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-07X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-07Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-07Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-08A	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-08B	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-08C	5 gram Encore Sampler	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-08D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L1943458-08X	Vial MeOH preserved split	A	NA		4.2	Y	Absent		NYTCL-8260HLW(14)
L1943458-08Y	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:09271918:38
Lab Number: L1943458
Report Date: 09/27/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943458-08Z	Vial Water preserved split	A	NA		4.2	Y	Absent	21-SEP-19 17:47	NYTCL-8260HLW(14)
L1943458-09A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L1943458-09B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943458
Report Date: 09/27/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1943458**Project Number:** DWJMS004**Report Date:** 09/27/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 9/21/19		ALPHA Job # L1943458							
		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jamestown, NY</u> Project # <u>DWJMS 004</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per PO</u>		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #									
Client Information Client: <u>Jacobs</u> Address: <u>125 Blackstone Ave</u> <u>Jamestown, NY</u> Phone: <u>508-397-1904</u> Fax: Email: <u>Dave.Kortjane@jacobs.com</u>		Project Manager: <u>Shamus Kechane</u> ALPHAQuote #: <u>PO # 148007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per PO</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:									
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>Program QA/QC associated w/ PO</u> Please specify Metals or TAL.						ANALYSIS		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)							
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		VOCs (8260)		Sample Specific Comments		Total Bottles	
43458-01		EB-003-20190919		9/19/19 1520		W		DK		X		3 HCL vials		3	
-02		DPT-33-10-12-20190920		9/20/19 915		S		DK		X				4	
-03		DPT-33-24-26-20190920		9/20/19 925		S		DK		X				4	
-04		DPT-33-26-28-20190920		9/20/19 935		S		DK		X				4	
-05		DPT-32-11-13-20190920		9/20/19 1050		S		DK		X				4	
-06		DPT-32-20-22-20190920		9/20/19 1100		S		DK		X				4	
-07		DPT-32-22-24-20190920		9/20/19 1110		S		DK		X				4	
-08		DPT-32-22-24-20190920 FD		9/20/19 1120		S		DK		X				4	
-09		TB-009-20190920		9/20/19 -		W		Lab		X		2 HCL vials		2	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type E		Preservative A		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)					
Relinquished By: <u>[Signature]</u>		Date/Time: <u>9/20/19 1140</u>		Received By: <u>[Signature]</u>		Date/Time: <u>9/20/19 1145</u>									
Relinquished By: <u>[Signature]</u>		Date/Time: <u>9/20/19 1450</u>		Received By: <u>[Signature]</u>		Date/Time: <u>9/21/19 09:05</u>									



ANALYTICAL REPORT

Lab Number:	L1943826
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	10/04/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1943826-01	DPT-49-8-9-20190923	SOIL	JAMESTOWN, NY	09/23/19 13:20	09/23/19
L1943826-02	DPT-49-14-16-20190923	SOIL	JAMESTOWN, NY	09/23/19 13:25	09/23/19
L1943826-03	DPT-49-19-21-20190923	SOIL	JAMESTOWN, NY	09/23/19 13:30	09/23/19
L1943826-04	DPT-50-10-12-20190923	SOIL	JAMESTOWN, NY	09/23/19 14:40	09/23/19
L1943826-05	DPT-50-18-20-20190923	SOIL	JAMESTOWN, NY	09/23/19 14:50	09/23/19
L1943826-06	DPT-50-22-24-20190923	SOIL	JAMESTOWN, NY	09/23/19 15:00	09/23/19
L1943826-07	DPT-50-27-28-20190923	SOIL	JAMESTOWN, NY	09/23/19 15:10	09/23/19
L1943826-08	TB-010-20190923	WATER	JAMESTOWN, NY	09/23/19 00:00	09/23/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Case Narrative (continued)

Report Submission

October 04, 2019: This final report includes the results of all requested analyses.

September 30, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1943826-03: The collection date and time on the chain of custody was 23-SEP-19 13:40; however, the collection date/time on the container label was 23-SEP-19 13:30. At the client's request, the collection date/time is reported as 23-SEP-19 13:30.

Volatile Organics

L1943826-02 and -05: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1943826-03 and -06: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1943826-07: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of target compounds in the sample.

L1943826-08: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1289537-4 LCSD recovery, associated with L1943826-08, is below the individual acceptance criteria for bromomethane (35%), but within the overall method allowances. The results of the associated sample are reported.

The WG1289402-6/-7 MS/MSD recoveries, performed on L1943826-03, are outside the acceptance criteria for chloroethane (43%/41%); however, the associated LCS/LCSD recoveries are within overall method

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Case Narrative (continued)

allowances. No further action was required.

The initial calibration, associated with L1943826-01 through -07, did not meet the method required minimum response factor for the calibration standard for 1,4-dioxane

The initial calibration, associated with L1943826-08, did not meet the method required minimum response factor for the calibration standards for cis-1,3-dichloropropene, 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

The initial calibration verification standard has the percent deviation for bromomethane (41%D) and dichlorodifluoromethane (47%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1943826-01 through -07, did not meet the method required minimum response factor for 1,4-dioxane.

The continuing calibration, associated with L1943826-08, did not meet the method required minimum response factor for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

WG1289402-2 and WG1289405-2: The continuing calibration verification standard has the percent deviation for bromomethane (28%D) and chloroethane (29%D) above the 20% CCV criteria, but within overall method allowances.

WG1289537-2: The continuing calibration verification standard has the percent deviation for chloromethane (35%D), bromomethane (45%D), chloroethane (37%D), methyl tert butyl ether (40%D), dichlorodifluoromethane (27%D), vinyl acetate (37%D), and 2,2-dichloropropane (21%D), above the 20% CCV criteria, but within overall method allowances.

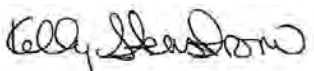
WG1290189-2: The continuing calibration verification standard has the percent deviation for bromomethane (30%D) and chloroethane (31%D) above the 20% CCV criteria, but within overall method allowances.

Total Organic Carbon

WG1287973: The required batch QC was prepared; however, the native sample required a different reporting method; therefore, the associated QC results could not be reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 10/04/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-01
 Client ID: DPT-49-8-9-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:20
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/27/19 16:18

Analyst: MV

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.0	2.3	1
1,1-Dichloroethane	ND		ug/kg	0.99	0.14	1
Chloroform	0.20	J	ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	0.99	0.23	1
1,2-Dichloropropane	ND		ug/kg	0.99	0.12	1
Dibromochloromethane	ND		ug/kg	0.99	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	0.99	0.26	1
Tetrachloroethene	ND		ug/kg	0.50	0.19	1
Chlorobenzene	ND		ug/kg	0.50	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.69	1
1,2-Dichloroethane	ND		ug/kg	0.99	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17	1
Bromodichloromethane	ND		ug/kg	0.50	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	0.99	0.27	1
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.50	0.16	1
Bromoform	ND		ug/kg	4.0	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.16	1
Benzene	ND		ug/kg	0.50	0.16	1
Toluene	ND		ug/kg	0.99	0.54	1
Ethylbenzene	ND		ug/kg	0.99	0.14	1
Chloromethane	ND		ug/kg	4.0	0.93	1
Bromomethane	ND		ug/kg	2.0	0.58	1
Vinyl chloride	ND		ug/kg	0.99	0.33	1
Chloroethane	ND		ug/kg	2.0	0.45	1
1,1-Dichloroethene	ND		ug/kg	0.99	0.24	1
trans-1,2-Dichloroethene	0.56	J	ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-01
 Client ID: DPT-49-8-9-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:20
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.67		ug/kg	0.50	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	2.0		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.56	1
o-Xylene	ND		ug/kg	0.99	0.29	1
Xylenes, Total	ND		ug/kg	0.99	0.29	1
cis-1,2-Dichloroethene	ND		ug/kg	0.99	0.17	1
1,2-Dichloroethene, Total	0.56	J	ug/kg	0.99	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	0.99	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.9	0.91	1
Acetone	290		ug/kg	9.9	4.8	1
Carbon disulfide	ND		ug/kg	9.9	4.5	1
2-Butanone	7.1	J	ug/kg	9.9	2.2	1
Vinyl acetate	ND		ug/kg	9.9	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	9.9	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	9.9	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.20	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	0.99	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.14	1
n-Butylbenzene	ND		ug/kg	0.99	0.17	1
sec-Butylbenzene	ND		ug/kg	0.99	0.14	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	0.99	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	0.99	0.11	1
p-Isopropyltoluene	ND		ug/kg	0.99	0.11	1
Naphthalene	0.74	J	ug/kg	4.0	0.65	1
n-Propylbenzene	ND		ug/kg	0.99	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-01

Date Collected: 09/23/19 13:20

Client ID: DPT-49-8-9-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33	1
1,4-Dioxane	ND		ug/kg	80	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-02
 Client ID: DPT-49-14-16-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:25
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/26/19 14:00
 Analyst: MV
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.6	2.6	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.1	0.26	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.30	1
Tetrachloroethene	ND		ug/kg	0.56	0.22	1
Chlorobenzene	ND		ug/kg	0.56	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.77	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.29	1
1,1,1-Trichloroethane	ND		ug/kg	0.56	0.19	1
Bromodichloromethane	ND		ug/kg	0.56	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.56	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.56	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.56	0.18	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.56	0.18	1
Benzene	0.26	J	ug/kg	0.56	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.65	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	0.29	J	ug/kg	1.7	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-02

Date Collected: 09/23/19 13:25

Client ID: DPT-49-14-16-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.56	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	1.3	J	ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.20	1
1,2-Dichloroethene, Total	0.29	J	ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	350	E	ug/kg	11	5.4	1
Carbon disulfide	ND		ug/kg	11	5.1	1
2-Butanone	4.8	J	ug/kg	11	2.5	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.56	0.15	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.19	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.72	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-02

Date Collected: 09/23/19 13:25

Client ID: DPT-49-14-16-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	89	39.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-03 D
 Client ID: DPT-49-19-21-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:30
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/26/19 10:22

Analyst: MV

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1300	610	4
1,1-Dichloroethane	ND		ug/kg	260	38.	4
Chloroform	43	J	ug/kg	400	37.	4
Carbon tetrachloride	ND		ug/kg	260	61.	4
1,2-Dichloropropane	ND		ug/kg	260	33.	4
Dibromochloromethane	ND		ug/kg	260	37.	4
1,1,2-Trichloroethane	ND		ug/kg	260	71.	4
Tetrachloroethene	ND		ug/kg	130	52.	4
Chlorobenzene	ND		ug/kg	130	34.	4
Trichlorofluoromethane	ND		ug/kg	1100	180	4
1,2-Dichloroethane	ND		ug/kg	260	68.	4
1,1,1-Trichloroethane	ND		ug/kg	130	44.	4
Bromodichloromethane	ND		ug/kg	130	29.	4
trans-1,3-Dichloropropene	ND		ug/kg	260	72.	4
cis-1,3-Dichloropropene	ND		ug/kg	130	42.	4
1,3-Dichloropropene, Total	ND		ug/kg	130	42.	4
1,1-Dichloropropene	ND		ug/kg	130	42.	4
Bromoform	ND		ug/kg	1100	65.	4
1,1,2,2-Tetrachloroethane	ND		ug/kg	130	44.	4
Benzene	230		ug/kg	130	44.	4
Toluene	550		ug/kg	260	140	4
Ethylbenzene	ND		ug/kg	260	37.	4
Chloromethane	ND		ug/kg	1100	250	4
Bromomethane	ND		ug/kg	530	150	4
Vinyl chloride	180	J	ug/kg	260	89.	4
Chloroethane	ND		ug/kg	530	120	4
1,1-Dichloroethene	ND		ug/kg	260	63.	4
trans-1,2-Dichloroethene	51	J	ug/kg	400	36.	4

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-03 D
 Client ID: DPT-49-19-21-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:30
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	39000		ug/kg	130	36.	4
1,2-Dichlorobenzene	ND		ug/kg	530	38.	4
1,3-Dichlorobenzene	ND		ug/kg	530	39.	4
1,4-Dichlorobenzene	ND		ug/kg	530	45.	4
Methyl tert butyl ether	ND		ug/kg	530	53.	4
p/m-Xylene	ND		ug/kg	530	150	4
o-Xylene	ND		ug/kg	260	77.	4
Xylenes, Total	ND		ug/kg	260	77.	4
cis-1,2-Dichloroethene	10000		ug/kg	260	46.	4
1,2-Dichloroethene, Total	10000	J	ug/kg	260	36.	4
Dibromomethane	ND		ug/kg	530	63.	4
Styrene	ND		ug/kg	260	52.	4
Dichlorodifluoromethane	ND		ug/kg	2600	240	4
Acetone	ND		ug/kg	2600	1300	4
Carbon disulfide	ND		ug/kg	2600	1200	4
2-Butanone	ND		ug/kg	2600	590	4
Vinyl acetate	ND		ug/kg	2600	570	4
4-Methyl-2-pentanone	ND		ug/kg	2600	340	4
1,2,3-Trichloropropane	ND		ug/kg	530	34.	4
2-Hexanone	ND		ug/kg	2600	310	4
Bromochloromethane	ND		ug/kg	530	54.	4
2,2-Dichloropropane	ND		ug/kg	530	54.	4
1,2-Dibromoethane	ND		ug/kg	260	74.	4
1,3-Dichloropropane	ND		ug/kg	530	44.	4
1,1,1,2-Tetrachloroethane	ND		ug/kg	130	35.	4
Bromobenzene	ND		ug/kg	530	38.	4
n-Butylbenzene	ND		ug/kg	260	44.	4
sec-Butylbenzene	ND		ug/kg	260	39.	4
tert-Butylbenzene	ND		ug/kg	530	31.	4
o-Chlorotoluene	ND		ug/kg	530	51.	4
p-Chlorotoluene	ND		ug/kg	530	29.	4
1,2-Dibromo-3-chloropropane	ND		ug/kg	800	260	4
Hexachlorobutadiene	ND		ug/kg	1100	45.	4
Isopropylbenzene	ND		ug/kg	260	29.	4
p-Isopropyltoluene	ND		ug/kg	260	29.	4
Naphthalene	ND		ug/kg	1100	170	4
n-Propylbenzene	ND		ug/kg	260	45.	4

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-03 D

Date Collected: 09/23/19 13:30

Client ID: DPT-49-19-21-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	530	85.	4
1,2,4-Trichlorobenzene	ND		ug/kg	530	72.	4
1,3,5-Trimethylbenzene	ND		ug/kg	530	51.	4
1,2,4-Trimethylbenzene	ND		ug/kg	530	89.	4
1,4-Dioxane	ND		ug/kg	21000	9300	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	90		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-04
 Client ID: DPT-50-10-12-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:40
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/26/19 14:24

Analyst: MV

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.96	0.14	1
Chloroform	0.15	J	ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.96	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.96	0.12	1
Dibromochloromethane	ND		ug/kg	0.96	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.96	0.26	1
Tetrachloroethene	ND		ug/kg	0.48	0.19	1
Chlorobenzene	ND		ug/kg	0.48	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.8	0.67	1
1,2-Dichloroethane	ND		ug/kg	0.96	0.25	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	0.16	1
Bromodichloromethane	ND		ug/kg	0.48	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.96	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.48	0.15	1
Bromoform	ND		ug/kg	3.8	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	0.16	1
Benzene	ND		ug/kg	0.48	0.16	1
Toluene	ND		ug/kg	0.96	0.52	1
Ethylbenzene	ND		ug/kg	0.96	0.14	1
Chloromethane	ND		ug/kg	3.8	0.89	1
Bromomethane	ND		ug/kg	1.9	0.56	1
Vinyl chloride	ND		ug/kg	0.96	0.32	1
Chloroethane	ND		ug/kg	1.9	0.43	1
1,1-Dichloroethene	ND		ug/kg	0.96	0.23	1
trans-1,2-Dichloroethene	0.28	J	ug/kg	1.4	0.13	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-04
 Client ID: DPT-50-10-12-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:40
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.23	J	ug/kg	0.48	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	1.8	J	ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.54	1
o-Xylene	ND		ug/kg	0.96	0.28	1
Xylenes, Total	ND		ug/kg	0.96	0.28	1
cis-1,2-Dichloroethene	ND		ug/kg	0.96	0.17	1
1,2-Dichloroethene, Total	0.28	J	ug/kg	0.96	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.23	1
Styrene	ND		ug/kg	0.96	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.6	0.88	1
Acetone	260		ug/kg	9.6	4.6	1
Carbon disulfide	ND		ug/kg	9.6	4.4	1
2-Butanone	6.7	J	ug/kg	9.6	2.1	1
Vinyl acetate	ND		ug/kg	9.6	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	9.6	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.6	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.20	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.19	1
1,2-Dibromoethane	ND		ug/kg	0.96	0.27	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	0.13	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.96	0.16	1
sec-Butylbenzene	ND		ug/kg	0.96	0.14	1
tert-Butylbenzene	0.14	J	ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	0.96	1
Hexachlorobutadiene	ND		ug/kg	3.8	0.16	1
Isopropylbenzene	ND		ug/kg	0.96	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.96	0.10	1
Naphthalene	ND		ug/kg	3.8	0.62	1
n-Propylbenzene	ND		ug/kg	0.96	0.16	1



Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-04

Date Collected: 09/23/19 14:40

Client ID: DPT-50-10-12-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.31	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.32	1
1,4-Dioxane	ND		ug/kg	77	34.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-05
 Client ID: DPT-50-18-20-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:50
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/26/19 14:48
 Analyst: MV
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.8	2.6	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.14	1
Dibromochloromethane	ND		ug/kg	1.2	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.31	1
Tetrachloroethene	ND		ug/kg	0.58	0.23	1
Chlorobenzene	ND		ug/kg	0.58	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.6	0.80	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.58	0.19	1
Bromodichloromethane	ND		ug/kg	0.58	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.58	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.58	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.58	0.18	1
Bromoform	ND		ug/kg	4.6	0.28	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.58	0.19	1
Benzene	ND		ug/kg	0.58	0.19	1
Toluene	ND		ug/kg	1.2	0.63	1
Ethylbenzene	ND		ug/kg	1.2	0.16	1
Chloromethane	ND		ug/kg	4.6	1.1	1
Bromomethane	ND		ug/kg	2.3	0.67	1
Vinyl chloride	0.54	J	ug/kg	1.2	0.39	1
Chloroethane	ND		ug/kg	2.3	0.52	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	0.21	J	ug/kg	1.7	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-05
 Client ID: DPT-50-18-20-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:50
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.58	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,4-Dichlorobenzene	ND		ug/kg	2.3	0.20	1
Methyl tert butyl ether	1.6	J	ug/kg	2.3	0.23	1
p/m-Xylene	ND		ug/kg	2.3	0.65	1
o-Xylene	ND		ug/kg	1.2	0.34	1
Xylenes, Total	ND		ug/kg	1.2	0.34	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.20	1
1,2-Dichloroethene, Total	0.21	J	ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.3	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.0	1
Acetone	440	E	ug/kg	12	5.6	1
Carbon disulfide	ND		ug/kg	12	5.3	1
2-Butanone	5.0	J	ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.5	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.3	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.3	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.3	0.23	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.32	1
1,3-Dichloropropane	ND		ug/kg	2.3	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.58	0.15	1
Bromobenzene	ND		ug/kg	2.3	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.19	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.3	0.14	1
o-Chlorotoluene	ND		ug/kg	2.3	0.22	1
p-Chlorotoluene	ND		ug/kg	2.3	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.5	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.6	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.6	0.75	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-05

Date Collected: 09/23/19 14:50

Client ID: DPT-50-18-20-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.3	0.37	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.3	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.3	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.3	0.39	1
1,4-Dioxane	ND		ug/kg	93	41.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-06 D
 Client ID: DPT-50-22-24-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 15:00
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/26/19 10:46
 Analyst: MV
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	740	340	2
1,1-Dichloroethane	ND		ug/kg	150	21.	2
Chloroform	22	J	ug/kg	220	21.	2
Carbon tetrachloride	ND		ug/kg	150	34.	2
1,2-Dichloropropane	ND		ug/kg	150	18.	2
Dibromochloromethane	ND		ug/kg	150	21.	2
1,1,2-Trichloroethane	ND		ug/kg	150	40.	2
Tetrachloroethene	ND		ug/kg	74	29.	2
Chlorobenzene	ND		ug/kg	74	19.	2
Trichlorofluoromethane	ND		ug/kg	590	100	2
1,2-Dichloroethane	ND		ug/kg	150	38.	2
1,1,1-Trichloroethane	ND		ug/kg	74	25.	2
Bromodichloromethane	ND		ug/kg	74	16.	2
trans-1,3-Dichloropropene	ND		ug/kg	150	40.	2
cis-1,3-Dichloropropene	ND		ug/kg	74	23.	2
1,3-Dichloropropene, Total	ND		ug/kg	74	23.	2
1,1-Dichloropropene	ND		ug/kg	74	24.	2
Bromoform	ND		ug/kg	590	36.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	74	25.	2
Benzene	180		ug/kg	74	25.	2
Toluene	86	J	ug/kg	150	80.	2
Ethylbenzene	22	J	ug/kg	150	21.	2
Chloromethane	ND		ug/kg	590	140	2
Bromomethane	ND		ug/kg	300	86.	2
Vinyl chloride	ND		ug/kg	150	50.	2
Chloroethane	ND		ug/kg	300	67.	2
1,1-Dichloroethene	ND		ug/kg	150	35.	2
trans-1,2-Dichloroethene	ND		ug/kg	220	20.	2

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-06 D

Date Collected: 09/23/19 15:00

Client ID: DPT-50-22-24-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	18000		ug/kg	74	20.	2
1,2-Dichlorobenzene	ND		ug/kg	300	21.	2
1,3-Dichlorobenzene	ND		ug/kg	300	22.	2
1,4-Dichlorobenzene	ND		ug/kg	300	25.	2
Methyl tert butyl ether	ND		ug/kg	300	30.	2
p/m-Xylene	ND		ug/kg	300	83.	2
o-Xylene	ND		ug/kg	150	43.	2
Xylenes, Total	ND		ug/kg	150	43.	2
cis-1,2-Dichloroethene	1400		ug/kg	150	26.	2
1,2-Dichloroethene, Total	1400		ug/kg	150	20.	2
Dibromomethane	ND		ug/kg	300	35.	2
Styrene	ND		ug/kg	150	29.	2
Dichlorodifluoromethane	ND		ug/kg	1500	140	2
Acetone	ND		ug/kg	1500	710	2
Carbon disulfide	ND		ug/kg	1500	670	2
2-Butanone	ND		ug/kg	1500	330	2
Vinyl acetate	ND		ug/kg	1500	320	2
4-Methyl-2-pentanone	ND		ug/kg	1500	190	2
1,2,3-Trichloropropane	ND		ug/kg	300	19.	2
2-Hexanone	ND		ug/kg	1500	170	2
Bromochloromethane	ND		ug/kg	300	30.	2
2,2-Dichloropropane	ND		ug/kg	300	30.	2
1,2-Dibromoethane	ND		ug/kg	150	41.	2
1,3-Dichloropropane	ND		ug/kg	300	25.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	74	20.	2
Bromobenzene	ND		ug/kg	300	21.	2
n-Butylbenzene	ND		ug/kg	150	25.	2
sec-Butylbenzene	ND		ug/kg	150	22.	2
tert-Butylbenzene	ND		ug/kg	300	17.	2
o-Chlorotoluene	ND		ug/kg	300	28.	2
p-Chlorotoluene	ND		ug/kg	300	16.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	440	150	2
Hexachlorobutadiene	ND		ug/kg	590	25.	2
Isopropylbenzene	ND		ug/kg	150	16.	2
p-Isopropyltoluene	ND		ug/kg	150	16.	2
Naphthalene	ND		ug/kg	590	96.	2
n-Propylbenzene	ND		ug/kg	150	25.	2

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-06 D

Date Collected: 09/23/19 15:00

Client ID: DPT-50-22-24-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	300	48.	2
1,2,4-Trichlorobenzene	ND		ug/kg	300	40.	2
1,3,5-Trimethylbenzene	ND		ug/kg	300	29.	2
1,2,4-Trimethylbenzene	ND		ug/kg	300	50.	2
1,4-Dioxane	ND		ug/kg	12000	5200	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-07
 Client ID: DPT-50-27-28-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 15:10
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/26/19 12:23

Analyst: MV

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	350	160	1
1,1-Dichloroethane	ND		ug/kg	70	10.	1
Chloroform	12	J	ug/kg	100	9.8	1
Carbon tetrachloride	ND		ug/kg	70	16.	1
1,2-Dichloropropane	ND		ug/kg	70	8.8	1
Dibromochloromethane	ND		ug/kg	70	9.8	1
1,1,2-Trichloroethane	ND		ug/kg	70	19.	1
Tetrachloroethene	ND		ug/kg	35	14.	1
Chlorobenzene	ND		ug/kg	35	8.9	1
Trichlorofluoromethane	ND		ug/kg	280	49.	1
1,2-Dichloroethane	ND		ug/kg	70	18.	1
1,1,1-Trichloroethane	ND		ug/kg	35	12.	1
Bromodichloromethane	ND		ug/kg	35	7.7	1
trans-1,3-Dichloropropene	ND		ug/kg	70	19.	1
cis-1,3-Dichloropropene	ND		ug/kg	35	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	35	11.	1
1,1-Dichloropropene	ND		ug/kg	35	11.	1
Bromoform	ND		ug/kg	280	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	35	12.	1
Benzene	49		ug/kg	35	12.	1
Toluene	ND		ug/kg	70	38.	1
Ethylbenzene	20	J	ug/kg	70	9.9	1
Chloromethane	ND		ug/kg	280	66.	1
Bromomethane	ND		ug/kg	140	41.	1
Vinyl chloride	31	J	ug/kg	70	24.	1
Chloroethane	ND		ug/kg	140	32.	1
1,1-Dichloroethene	ND		ug/kg	70	17.	1
trans-1,2-Dichloroethene	ND		ug/kg	100	9.6	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-07
 Client ID: DPT-50-27-28-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 15:10
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	4500		ug/kg	35	9.6	1
1,2-Dichlorobenzene	ND		ug/kg	140	10.	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	39.	1
o-Xylene	ND		ug/kg	70	20.	1
Xylenes, Total	ND		ug/kg	70	20.	1
cis-1,2-Dichloroethene	1000		ug/kg	70	12.	1
1,2-Dichloroethene, Total	1000		ug/kg	70	9.6	1
Dibromomethane	ND		ug/kg	140	17.	1
Styrene	ND		ug/kg	70	14.	1
Dichlorodifluoromethane	ND		ug/kg	700	64.	1
Acetone	ND		ug/kg	700	340	1
Carbon disulfide	ND		ug/kg	700	320	1
2-Butanone	ND		ug/kg	700	160	1
Vinyl acetate	ND		ug/kg	700	150	1
4-Methyl-2-pentanone	ND		ug/kg	700	90.	1
1,2,3-Trichloropropane	ND		ug/kg	140	8.9	1
2-Hexanone	ND		ug/kg	700	83.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	70	20.	1
1,3-Dichloropropane	ND		ug/kg	140	12.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	35	9.3	1
Bromobenzene	ND		ug/kg	140	10.	1
n-Butylbenzene	ND		ug/kg	70	12.	1
sec-Butylbenzene	33	J	ug/kg	70	10.	1
tert-Butylbenzene	ND		ug/kg	140	8.3	1
o-Chlorotoluene	ND		ug/kg	140	13.	1
p-Chlorotoluene	ND		ug/kg	140	7.6	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	210	70.	1
Hexachlorobutadiene	ND		ug/kg	280	12.	1
Isopropylbenzene	30	J	ug/kg	70	7.7	1
p-Isopropyltoluene	44	J	ug/kg	70	7.7	1
Naphthalene	ND		ug/kg	280	46.	1
n-Propylbenzene	870		ug/kg	70	12.	1



Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-07

Date Collected: 09/23/19 15:10

Client ID: DPT-50-27-28-20190923

Date Received: 09/23/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	23.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	19.	1
1,3,5-Trimethylbenzene	1000		ug/kg	140	14.	1
1,2,4-Trimethylbenzene	3400		ug/kg	140	23.	1
1,4-Dioxane	ND		ug/kg	5600	2500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-08
 Client ID: TB-010-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 00:00
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:56
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS**

Lab ID: L1943826-08
 Client ID: TB-010-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 00:00
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	5.1		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**SAMPLE RESULTS****Lab ID:** L1943826-08**Date Collected:** 09/23/19 00:00**Client ID:** TB-010-20190923**Date Received:** 09/23/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	83		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06-07 Batch: WG1289402-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	8.2	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	45	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06-07 Batch: WG1289402-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06-07 Batch: WG1289402-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04-05 Batch: WG1289405-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.16	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.90	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04-05 Batch: WG1289405-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/26/19 08:46
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04-05 Batch: WG1289405-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	87		70-130



Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 08 Batch: WG1289537-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 08 Batch: WG1289537-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 08 Batch: WG1289537-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 09:04
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1290189-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.14	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.65	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 09:04
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1290189-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 09:04
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1290189-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	85		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 Batch: WG1289402-3 WG1289402-4								
Methylene chloride	78		77		70-130	1		30
1,1-Dichloroethane	92		91		70-130	1		30
Chloroform	91		89		70-130	2		30
Carbon tetrachloride	95		92		70-130	3		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	99		97		70-130	2		30
1,1,2-Trichloroethane	94		93		70-130	1		30
Tetrachloroethene	99		97		70-130	2		30
Chlorobenzene	98		96		70-130	2		30
Trichlorofluoromethane	89		86		70-139	3		30
1,2-Dichloroethane	91		90		70-130	1		30
1,1,1-Trichloroethane	96		94		70-130	2		30
Bromodichloromethane	92		91		70-130	1		30
trans-1,3-Dichloropropene	97		96		70-130	1		30
cis-1,3-Dichloropropene	90		88		70-130	2		30
1,1-Dichloropropene	92		90		70-130	2		30
Bromoform	91		89		70-130	2		30
1,1,2,2-Tetrachloroethane	96		98		70-130	2		30
Benzene	89		87		70-130	2		30
Toluene	96		94		70-130	2		30
Ethylbenzene	100		98		70-130	2		30
Chloromethane	105		101		52-130	4		30
Bromomethane	88		82		57-147	7		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 Batch: WG1289402-3 WG1289402-4								
Vinyl chloride	88		85		67-130	3		30
Chloroethane	76		74		50-151	3		30
1,1-Dichloroethene	90		87		65-135	3		30
trans-1,2-Dichloroethene	89		87		70-130	2		30
Trichloroethene	92		89		70-130	3		30
1,2-Dichlorobenzene	99		97		70-130	2		30
1,3-Dichlorobenzene	101		99		70-130	2		30
1,4-Dichlorobenzene	100		98		70-130	2		30
Methyl tert butyl ether	81		81		66-130	0		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	98		96		70-130	2		30
cis-1,2-Dichloroethene	88		86		70-130	2		30
Dibromomethane	86		85		70-130	1		30
Styrene	97		95		70-130	2		30
Dichlorodifluoromethane	88		86		30-146	2		30
Acetone	103		108		54-140	5		30
Carbon disulfide	90		87		59-130	3		30
2-Butanone	93		94		70-130	1		30
Vinyl acetate	100		100		70-130	0		30
4-Methyl-2-pentanone	93		90		70-130	3		30
1,2,3-Trichloropropane	95		95		68-130	0		30
2-Hexanone	103		100		70-130	3		30
Bromochloromethane	89		87		70-130	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 Batch: WG1289402-3 WG1289402-4								
2,2-Dichloropropane	91		88		70-130	3		30
1,2-Dibromoethane	95		93		70-130	2		30
1,3-Dichloropropane	91		91		69-130	0		30
1,1,1,2-Tetrachloroethane	101		98		70-130	3		30
Bromobenzene	96		96		70-130	0		30
n-Butylbenzene	110		106		70-130	4		30
sec-Butylbenzene	106		103		70-130	3		30
tert-Butylbenzene	104		101		70-130	3		30
o-Chlorotoluene	103		102		70-130	1		30
p-Chlorotoluene	104		102		70-130	2		30
1,2-Dibromo-3-chloropropane	89		88		68-130	1		30
Hexachlorobutadiene	99		97		67-130	2		30
Isopropylbenzene	105		103		70-130	2		30
p-Isopropyltoluene	107		104		70-130	3		30
Naphthalene	97		95		70-130	2		30
n-Propylbenzene	106		103		70-130	3		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	105		102		70-130	3		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30
1,4-Dioxane	90		91		65-136	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 Batch: WG1289402-3 WG1289402-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	95		94		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1289405-3 WG1289405-4								
Methylene chloride	78		77		70-130	1		30
1,1-Dichloroethane	92		91		70-130	1		30
Chloroform	91		89		70-130	2		30
Carbon tetrachloride	95		92		70-130	3		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	99		97		70-130	2		30
1,1,2-Trichloroethane	94		93		70-130	1		30
Tetrachloroethene	99		97		70-130	2		30
Chlorobenzene	98		96		70-130	2		30
Trichlorofluoromethane	89		86		70-139	3		30
1,2-Dichloroethane	91		90		70-130	1		30
1,1,1-Trichloroethane	96		94		70-130	2		30
Bromodichloromethane	92		91		70-130	1		30
trans-1,3-Dichloropropene	97		96		70-130	1		30
cis-1,3-Dichloropropene	90		88		70-130	2		30
1,1-Dichloropropene	92		90		70-130	2		30
Bromoform	91		89		70-130	2		30
1,1,2,2-Tetrachloroethane	96		98		70-130	2		30
Benzene	89		87		70-130	2		30
Toluene	96		94		70-130	2		30
Ethylbenzene	100		98		70-130	2		30
Chloromethane	105		101		52-130	4		30
Bromomethane	88		82		57-147	7		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1289405-3 WG1289405-4								
Vinyl chloride	88		85		67-130	3		30
Chloroethane	76		74		50-151	3		30
1,1-Dichloroethene	90		87		65-135	3		30
trans-1,2-Dichloroethene	89		87		70-130	2		30
Trichloroethene	92		89		70-130	3		30
1,2-Dichlorobenzene	99		97		70-130	2		30
1,3-Dichlorobenzene	101		99		70-130	2		30
1,4-Dichlorobenzene	100		98		70-130	2		30
Methyl tert butyl ether	81		81		66-130	0		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	98		96		70-130	2		30
cis-1,2-Dichloroethene	88		86		70-130	2		30
Dibromomethane	86		85		70-130	1		30
Styrene	97		95		70-130	2		30
Dichlorodifluoromethane	88		86		30-146	2		30
Acetone	103		108		54-140	5		30
Carbon disulfide	90		87		59-130	3		30
2-Butanone	93		94		70-130	1		30
Vinyl acetate	100		100		70-130	0		30
4-Methyl-2-pentanone	93		90		70-130	3		30
1,2,3-Trichloropropane	95		95		68-130	0		30
2-Hexanone	103		100		70-130	3		30
Bromochloromethane	89		87		70-130	2		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1289405-3 WG1289405-4								
2,2-Dichloropropane	91		88		70-130	3		30
1,2-Dibromoethane	95		93		70-130	2		30
1,3-Dichloropropane	91		91		69-130	0		30
1,1,1,2-Tetrachloroethane	101		98		70-130	3		30
Bromobenzene	96		96		70-130	0		30
n-Butylbenzene	110		106		70-130	4		30
sec-Butylbenzene	106		103		70-130	3		30
tert-Butylbenzene	104		101		70-130	3		30
o-Chlorotoluene	103		102		70-130	1		30
p-Chlorotoluene	104		102		70-130	2		30
1,2-Dibromo-3-chloropropane	89		88		68-130	1		30
Hexachlorobutadiene	99		97		67-130	2		30
Isopropylbenzene	105		103		70-130	2		30
p-Isopropyltoluene	107		104		70-130	3		30
Naphthalene	97		95		70-130	2		30
n-Propylbenzene	106		103		70-130	3		30
1,2,3-Trichlorobenzene	97		96		70-130	1		30
1,2,4-Trichlorobenzene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	105		102		70-130	3		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30
1,4-Dioxane	90		91		65-136	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1289405-3 WG1289405-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	95		94		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08 Batch: WG1289537-3 WG1289537-4								
Methylene chloride	100		97		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	99		97		70-130	2		20
Carbon tetrachloride	100		98		63-132	2		20
1,2-Dichloropropane	100		97		70-130	3		20
Dibromochloromethane	99		94		63-130	5		20
1,1,2-Trichloroethane	100		96		70-130	4		20
Tetrachloroethene	95		92		70-130	3		20
Chlorobenzene	94		92		75-130	2		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	97		94		70-130	3		20
1,1,1-Trichloroethane	95		94		67-130	1		20
Bromodichloromethane	98		94		67-130	4		20
trans-1,3-Dichloropropene	94		89		70-130	5		20
cis-1,3-Dichloropropene	92		87		70-130	6		20
1,1-Dichloropropene	95		93		70-130	2		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	97		94		67-130	3		20
Benzene	100		100		70-130	0		20
Toluene	93		91		70-130	2		20
Ethylbenzene	93		90		70-130	3		20
Chloromethane	130		130		64-130	0		20
Bromomethane	39		35	Q	39-139	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08 Batch: WG1289537-3 WG1289537-4								
Vinyl chloride	86		82		55-140	5		20
Chloroethane	64		63		55-138	2		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		98		70-130	2		20
Trichloroethene	99		97		70-130	2		20
1,2-Dichlorobenzene	92		91		70-130	1		20
1,3-Dichlorobenzene	96		96		70-130	0		20
1,4-Dichlorobenzene	93		93		70-130	0		20
Methyl tert butyl ether	88		82		63-130	7		20
p/m-Xylene	90		85		70-130	6		20
o-Xylene	90		85		70-130	6		20
cis-1,2-Dichloroethene	98		98		70-130	0		20
Dibromomethane	94		91		70-130	3		20
1,2,3-Trichloropropane	90		90		64-130	0		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		100		58-148	10		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	130		120		70-130	8		20
4-Methyl-2-pentanone	91		87		59-130	4		20
2-Hexanone	86		79		57-130	8		20
Bromochloromethane	100		96		70-130	4		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08 Batch: WG1289537-3 WG1289537-4								
2,2-Dichloropropane	92		89		63-133	3		20
1,2-Dibromoethane	96		92		70-130	4		20
1,3-Dichloropropane	97		94		70-130	3		20
1,1,1,2-Tetrachloroethane	100		99		64-130	1		20
Bromobenzene	92		92		70-130	0		20
n-Butylbenzene	92		91		53-136	1		20
sec-Butylbenzene	98		100		70-130	2		20
tert-Butylbenzene	88		86		70-130	2		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	91		90		70-130	1		20
1,2-Dibromo-3-chloropropane	93		91		41-144	2		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	86		86		70-130	0		20
p-Isopropyltoluene	87		85		70-130	2		20
Naphthalene	83		78		70-130	6		20
n-Propylbenzene	90		90		69-130	0		20
1,2,3-Trichlorobenzene	93		90		70-130	3		20
1,2,4-Trichlorobenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	88		87		64-130	1		20
1,2,4-Trimethylbenzene	87		86		70-130	1		20
1,4-Dioxane	86		74		56-162	15		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08 Batch: WG1289537-3 WG1289537-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		95		70-130
Toluene-d8	89		90		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1290189-3 WG1290189-4								
Methylene chloride	87		84		70-130	4		30
1,1-Dichloroethane	97		94		70-130	3		30
Chloroform	94		92		70-130	2		30
Carbon tetrachloride	96		94		70-130	2		30
1,2-Dichloropropane	95		92		70-130	3		30
Dibromochloromethane	104		101		70-130	3		30
1,1,2-Trichloroethane	98		96		70-130	2		30
Tetrachloroethene	101		98		70-130	3		30
Chlorobenzene	102		99		70-130	3		30
Trichlorofluoromethane	85		84		70-139	1		30
1,2-Dichloroethane	94		94		70-130	0		30
1,1,1-Trichloroethane	98		96		70-130	2		30
Bromodichloromethane	96		94		70-130	2		30
trans-1,3-Dichloropropene	104		101		70-130	3		30
cis-1,3-Dichloropropene	94		92		70-130	2		30
1,1-Dichloropropene	96		93		70-130	3		30
Bromoform	97		95		70-130	2		30
1,1,2,2-Tetrachloroethane	107		104		70-130	3		30
Benzene	92		90		70-130	2		30
Toluene	100		98		70-130	2		30
Ethylbenzene	103		101		70-130	2		30
Chloromethane	110		104		52-130	6		30
Bromomethane	79		78		57-147	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1290189-3 WG1290189-4								
Vinyl chloride	89		86		67-130	3		30
Chloroethane	73		72		50-151	1		30
1,1-Dichloroethene	93		91		65-135	2		30
trans-1,2-Dichloroethene	92		90		70-130	2		30
Trichloroethene	94		91		70-130	3		30
1,2-Dichlorobenzene	104		102		70-130	2		30
1,3-Dichlorobenzene	106		104		70-130	2		30
1,4-Dichlorobenzene	104		104		70-130	0		30
Methyl tert butyl ether	88		86		66-130	2		30
p/m-Xylene	104		101		70-130	3		30
o-Xylene	101		99		70-130	2		30
cis-1,2-Dichloroethene	91		89		70-130	2		30
Dibromomethane	90		89		70-130	1		30
Styrene	100		98		70-130	2		30
Dichlorodifluoromethane	93		89		30-146	4		30
Acetone	124		108		54-140	14		30
Carbon disulfide	89		85		59-130	5		30
2-Butanone	107		100		70-130	7		30
Vinyl acetate	106		108		70-130	2		30
4-Methyl-2-pentanone	104		99		70-130	5		30
1,2,3-Trichloropropane	104		102		68-130	2		30
2-Hexanone	119		112		70-130	6		30
Bromochloromethane	91		89		70-130	2		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1290189-3 WG1290189-4								
2,2-Dichloropropane	94		90		70-130	4		30
1,2-Dibromoethane	101		99		70-130	2		30
1,3-Dichloropropane	99		98		69-130	1		30
1,1,1,2-Tetrachloroethane	104		102		70-130	2		30
Bromobenzene	101		101		70-130	0		30
n-Butylbenzene	114		111		70-130	3		30
sec-Butylbenzene	112		110		70-130	2		30
tert-Butylbenzene	110		107		70-130	3		30
o-Chlorotoluene	109		108		70-130	1		30
p-Chlorotoluene	110		109		70-130	1		30
1,2-Dibromo-3-chloropropane	96		93		68-130	3		30
Hexachlorobutadiene	102		103		67-130	1		30
Isopropylbenzene	110		108		70-130	2		30
p-Isopropyltoluene	110		109		70-130	1		30
Naphthalene	106		104		70-130	2		30
n-Propylbenzene	113		110		70-130	3		30
1,2,3-Trichlorobenzene	105		104		70-130	1		30
1,2,4-Trichlorobenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	110		109		70-130	1		30
1,2,4-Trimethylbenzene	111		108		70-130	3		30
1,4-Dioxane	97		94		65-136	3		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1290189-3 WG1290189-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	90		90		70-130

Matrix Spike Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 QC Batch ID: WG1289402-6 WG1289402-7 QC Sample: L1943826-03 Client ID: DPT-49-19-21-20190923												
Methylene chloride	ND	26000	21000	81		23000	86		70-130	6		30
1,1-Dichloroethane	ND	26000	26000	98		27000	104		70-130	6		30
Chloroform	43J	26000	25000	95		26000	99		70-130	5		30
Carbon tetrachloride	ND	26000	27000	103		28000	106		70-130	3		30
1,2-Dichloropropane	ND	26000	24000	94		26000	99		70-130	6		30
Dibromochloromethane	ND	26000	27000	103		29000	112		70-130	8		30
1,1,2-Trichloroethane	ND	26000	24000	93		26000	102		70-130	9		30
Tetrachloroethene	ND	26000	25000	95		26000	99		70-130	4		30
Chlorobenzene	ND	26000	24000	92		26000	98		70-130	6		30
Trichlorofluoromethane	ND	26000	24000	91		23000	88		70-139	3		30
1,2-Dichloroethane	ND	26000	24000	94		26000	101		70-130	8		30
1,1,1-Trichloroethane	ND	26000	27000	102		28000	106		70-130	4		30
Bromodichloromethane	ND	26000	25000	97		27000	103		70-130	6		30
trans-1,3-Dichloropropene	ND	26000	26000	99		28000	107		70-130	8		30
cis-1,3-Dichloropropene	ND	26000	24000	93		26000	98		70-130	6		30
1,1-Dichloropropene	ND	26000	26000	98		27000	102		70-130	4		30
Bromoform	ND	26000	25000	96		28000	106		70-130	10		30
1,1,2,2-Tetrachloroethane	ND	26000	26000	100		29000	112		70-130	11		30
Benzene	230	26000	24000	92		26000	97		70-130	5		30
Toluene	550	26000	25000	95		27000	101		70-130	6		30
Ethylbenzene	ND	26000	25000	95		26000	99		70-130	4		30
Chloromethane	ND	26000	29000	113		31000	118		52-130	5		30
Bromomethane	ND	26000	20000	77		19000	75		57-147	3		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 QC Batch ID: WG1289402-6 WG1289402-7 QC Sample: L1943826-03 Client ID: DPT-49-19-21-20190923												
Vinyl chloride	180J	26000	25000	97		27000	102		67-130	5		30
Chloroethane	ND	26000	11000	43	Q	11000	41	Q	50-151	5		30
1,1-Dichloroethene	ND	26000	26000	99		27000	105		65-135	5		30
trans-1,2-Dichloroethene	51J	26000	25000	94		26000	100		70-130	6		30
Trichloroethene	39000	26000	58000	74		61000	85		70-130	5		30
1,2-Dichlorobenzene	ND	26000	23000	88		24000	94		70-130	6		30
1,3-Dichlorobenzene	ND	26000	23000	88		24000	93		70-130	6		30
1,4-Dichlorobenzene	ND	26000	22000	86		24000	91		70-130	6		30
Methyl tert butyl ether	ND	26000	22000	86		24000	94		66-130	9		30
p/m-Xylene	ND	53000	49000	92		51000	96		70-130	4		30
o-Xylene	ND	53000	48000	91		51000	96		70-130	5		30
cis-1,2-Dichloroethene	10000	26000	33000	87		34000	94		70-130	5		30
Dibromomethane	ND	26000	23000	90		25000	96		70-130	7		30
Styrene	ND	53000	49000	93		52000	98		70-130	5		30
Dichlorodifluoromethane	ND	26000	27000	103		28000	107		30-146	4		30
Acetone	ND	26000	29000	113		33000	126		54-140	12		30
Carbon disulfide	ND	26000	24000	94		26000	99		59-130	6		30
2-Butanone	ND	26000	25000	96		29000	111		70-130	14		30
Vinyl acetate	ND	26000	28000	107		32000	123		70-130	14		30
4-Methyl-2-pentanone	ND	26000	25000	98		30000	115		70-130	16		30
1,2,3-Trichloropropane	ND	26000	25000	96		28000	108		68-130	11		30
2-Hexanone	ND	26000	29000	110		34000	130		70-130	17		30
Bromochloromethane	ND	26000	23000	90		24000	94		70-130	5		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Client ID: DPT-49-19-21-20190923												
Associated sample(s): 03,06-07 QC Batch ID: WG1289402-6 WG1289402-7 QC Sample: L1943826-03												
2,2-Dichloropropane	ND	26000	25000	96		27000	104		70-130	7		30
1,2-Dibromoethane	ND	26000	25000	95		27000	105		70-130	10		30
1,3-Dichloropropane	ND	26000	24000	92		26000	101		69-130	9		30
1,1,1,2-Tetrachloroethane	ND	26000	26000	101		28000	107		70-130	6		30
Bromobenzene	ND	26000	23000	90		25000	95		70-130	6		30
n-Butylbenzene	ND	26000	23000	90		24000	91		70-130	1		30
sec-Butylbenzene	ND	26000	24000	94		25000	95		70-130	2		30
tert-Butylbenzene	ND	26000	25000	94		25000	96		70-130	2		30
o-Chlorotoluene	ND	26000	24000	93		25000	98		70-130	5		30
p-Chlorotoluene	ND	26000	24000	92		25000	97		70-130	5		30
1,2-Dibromo-3-chloropropane	ND	26000	25000	95		29000	110		68-130	14		30
Hexachlorobutadiene	ND	26000	21000	80		21000	79		67-130	0		30
Isopropylbenzene	ND	26000	25000	98		26000	101		70-130	3		30
p-Isopropyltoluene	ND	26000	24000	91		24000	92		70-130	1		30
Naphthalene	ND	26000	25000	95		28000	106		70-130	11		30
n-Propylbenzene	ND	26000	25000	95		26000	98		70-130	4		30
1,2,3-Trichlorobenzene	ND	26000	23000	87		25000	94		70-130	8		30
1,2,4-Trichlorobenzene	ND	26000	23000	86		24000	92		70-130	6		30
1,3,5-Trimethylbenzene	ND	26000	24000	93		25000	96		70-130	4		30
1,2,4-Trimethylbenzene	ND	26000	24000	92		25000	96		70-130	4		30
1,4-Dioxane	ND	1300000	1200000	89		1400000	105		65-136	17		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943826**Report Date:** 10/04/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06-07 QC Batch ID: WG1289402-6 WG1289402-7 QC Sample: L1943826-03
 Client ID: DPT-49-19-21-20190923

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	100		100		70-130
4-Bromofluorobenzene	95		97		70-130
Dibromofluoromethane	92		90		70-130
Toluene-d8	97		98		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-01

Client ID: DPT-49-8-9-20190923

Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 13:20

Date Received: 09/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.7		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943826**Report Date:** 10/04/19**SAMPLE RESULTS****Lab ID:** L1943826-02**Client ID:** DPT-49-14-16-20190923**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/23/19 13:25**Date Received:** 09/23/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943826**Report Date:** 10/04/19**SAMPLE RESULTS****Lab ID:** L1943826-03**Client ID:** DPT-49-19-21-20190923**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/23/19 13:30**Date Received:** 09/23/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-04

Client ID: DPT-50-10-12-20190923

Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:40

Date Received: 09/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.104		%	0.050	0.050	1	-	09/30/19 09:40	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Gravel	20.4		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Gravel	22.6		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Gravel	43.0		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Sand	14.4		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Medium Sand	16.9		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Sand	8.20		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Sand	39.5		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Fines	17.5		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	89.5		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-05
 Client ID: DPT-50-18-20-20190923
 Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 14:50
 Date Received: 09/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.753		%	0.050	0.050	1	-	09/30/19 09:40	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Medium Sand	0.200		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Sand	0.200		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Sand	0.400		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Fines	99.6		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

SAMPLE RESULTS

Lab ID: L1943826-06
Client ID: DPT-50-22-24-20190923
Sample Location: JAMESTOWN, NY

Date Collected: 09/23/19 15:00
Date Received: 09/23/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.787		%	0.050	0.050	1	-	09/30/19 09:40	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Medium Sand	0.100		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Fine Sand	12.4		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Sand	12.5		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
% Total Fines	87.5		%	0.100	NA	1	-	09/30/19 14:11	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943826**Report Date:** 10/04/19**SAMPLE RESULTS****Lab ID:** L1943826-07**Client ID:** DPT-50-27-28-20190923**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/23/19 15:10**Date Received:** 09/23/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	09/24/19 10:24	121,2540G	RI



Project Name: ESSEX HOPE

Lab Number: L1943826

Project Number: DWJMS004

Report Date: 10/04/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 04-06 Batch: WG1287973-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	09/30/19 09:40	13,-	SP

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1943826**Report Date:** 10/04/19

Parameter	LCS	Qual	LCSD	Qual	%Recovery	RPD	Qual	RPD Limits
	%Recovery		%Recovery		Limits			
Total Organic Carbon - Mansfield Lab Associated sample(s): 04-06 Batch: WG1287973-2								
Total Organic Carbon	122		-		75-125	-		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1943826

Report Date: 10/04/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1287779-1 QC Sample: L1943826-03 Client ID: DPT-49-19-21-20190923						
Solids, Total	81.2	81.3	%	0		20
Grain Size Analysis - Mansfield Lab Associated sample(s): 04-06 QC Batch ID: WG1290287-1 QC Sample: L1943826-04 Client ID: DPT-50-10-12-20190923						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	20.4	22.5	%	10		20
% Fine Gravel	22.6	24.9	%	10		20
% Total Gravel	43.0	47.4	%	10		20
% Coarse Sand	14.4	15.5	%	7		20
% Medium Sand	16.9	14.4	%	16		20
% Fine Sand	8.20	6.90	%	17		20
% Total Sand	39.5	36.8	%	7		20
% Total Fines	17.5	15.8	%	10		20

Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943826-01A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-01B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-01C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-01D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-01X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-01Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-01Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-02A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-02B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-02C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-02D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-02X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-02Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-02Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03A1	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03A2	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03B1	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03B2	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03C1	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03C2	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No: 10041916:37
Lab Number: L1943826
Report Date: 10/04/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943826-03D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-03D1	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-03D2	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-03X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03X1	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03X2	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-03Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03Y1	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03Y2	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03Z1	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-03Z2	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-04A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-04B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-04C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-04D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-04E	Plastic 8oz unpreserved for Grain Size	A	NA		3.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L1943826-04F	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		A2-TOC-LK(14)
L1943826-04X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-04Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-04Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-05A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-05B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-05C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-05D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10041916:37
Lab Number: L1943826
Report Date: 10/04/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1943826-05E	Plastic 8oz unpreserved for Grain Size	A	NA		3.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1943826-05F	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		A2-TOC-LK(14)
L1943826-05X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-05Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-05Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-06A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-06B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-06C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-06D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-06E	Plastic 8oz unpreserved for Grain Size	A	NA		3.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1943826-06F	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		A2-TOC-LK(14)
L1943826-06X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-06Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-06Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-07A	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-07B	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-07C	5 gram Encore Sampler	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-07D	Plastic 2oz unpreserved for TS	A	NA		3.0	Y	Absent		TS(7)
L1943826-07X	Vial MeOH preserved split	A	NA		3.0	Y	Absent		NYTCL-8260HLW(14)
L1943826-07Y	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-07Z	Vial Water preserved split	A	NA		3.0	Y	Absent	24-SEP-19 06:28	NYTCL-8260HLW(14)
L1943826-08A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)
L1943826-08B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1943826
Report Date: 10/04/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1943826**Project Number:** DWJMS004**Report Date:** 10/04/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

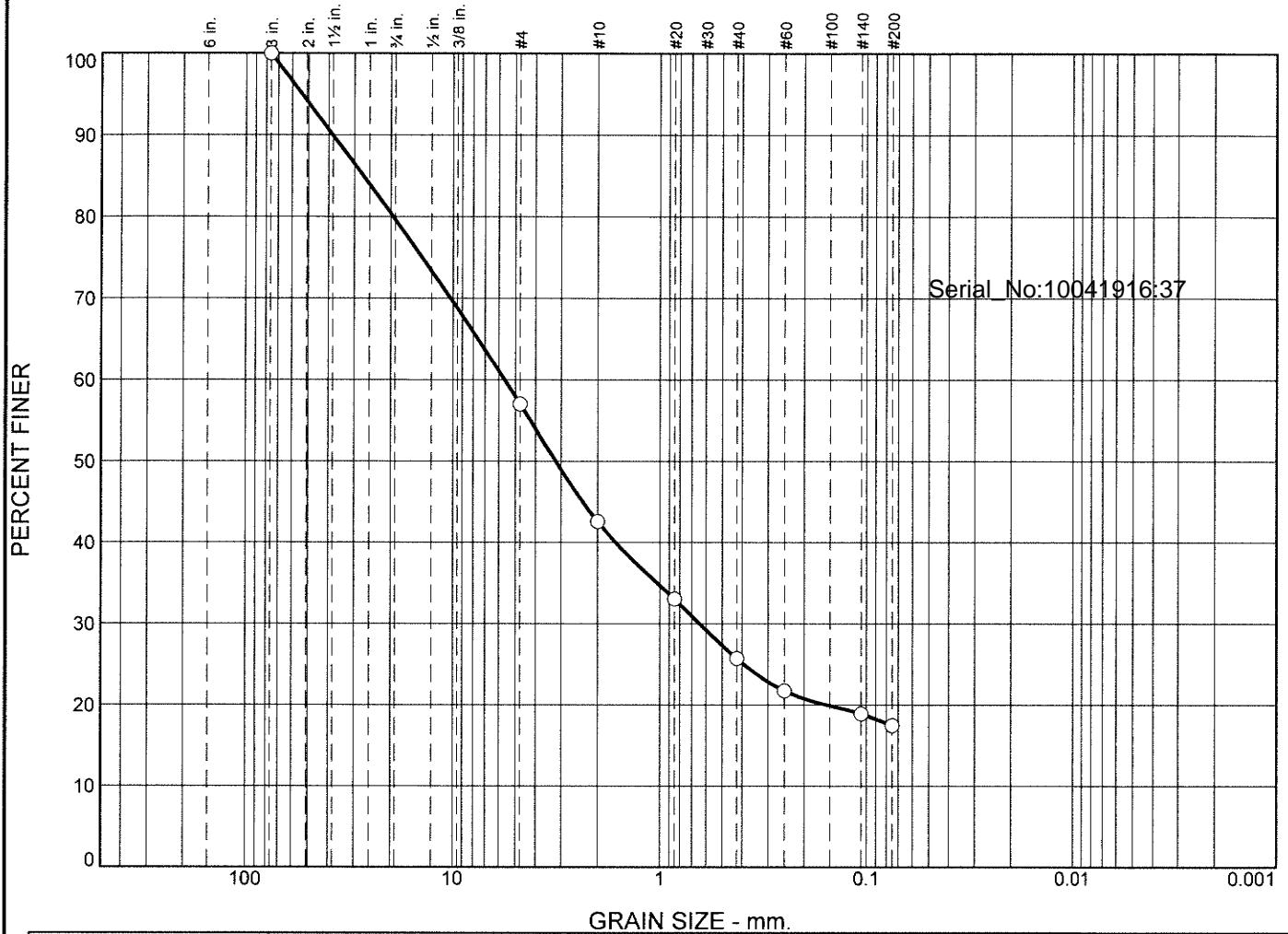
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:10041916:37

ASTM D6913/D7928 GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"	% Gravel		% Sand			% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/> 0.0	20.4	22.6	14.4	16.9	8.2	17.5				
<input type="checkbox"/>										
<input checked="" type="checkbox"/> Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>			27.2214	5.6377	3.1932	0.6414				
<input type="checkbox"/>										
<input type="checkbox"/>										

Material Description							USCS	AASHTO
<input type="radio"/>								

Project No. Project: <input type="radio"/> Source of Sample: DPT-50-10-12-20190923 Sample Number: L1943826-04 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2019

Location: DPT-50-10-12-20190923

Sample Number: L1943826-04

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =95.08

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
95.08	0.00	3"	0.00	0.00	100.0
		#4	40.87	0.00	57.0
		#10	13.72	0.00	42.6
		#20	9.07	0.00	33.0
		#40	6.96	0.00	25.7
		#60	3.77	0.00	21.8
		#140	2.71	0.00	18.9
		#200	1.35	0.00	17.5

Serial_No:10041916:37

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	20.4	22.6	43.0	14.4	16.9	8.2	39.5			17.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.1543	0.6414	1.6348	3.1932	5.6377	19.5144	27.2214	38.2181	53.9016

Fineness Modulus
4.51

Alpha Analytical

Serial No: 10041916:37

Sieve Size (mm)	Percent Finer (%)
0.075	100
0.15	100
0.3	100
0.6	100
1.18	100
2.5	100
4.75	52
7.5	37
15	29
30	22
60	19
106	17
200	15

Material Description	USCS	AASHTO
○		

Project No.	Client:	Remarks:
Project:		
○ Source: DPT-50-10-12-20190923	Sample No.: WG1290287-1	
Date: ○		
Alpha Analytical		
Mansfield, MA		Figure

GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2019

Location: DPT-50-10-12-20190923

Sample Number: WG1290287-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =97.05

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
97.05	0.00	3"	0.00	0.00	100.0
		#4	46.03	0.00	52.6
		#10	14.98	0.00	37.1
		#20	8.00	0.00	28.9
		#40	6.04	0.00	22.7
		#60	3.09	0.00	19.5
		#140	2.42	0.00	17.0
		#200	1.15	0.00	15.8

Serial_No:10041916:37

Fractional Components

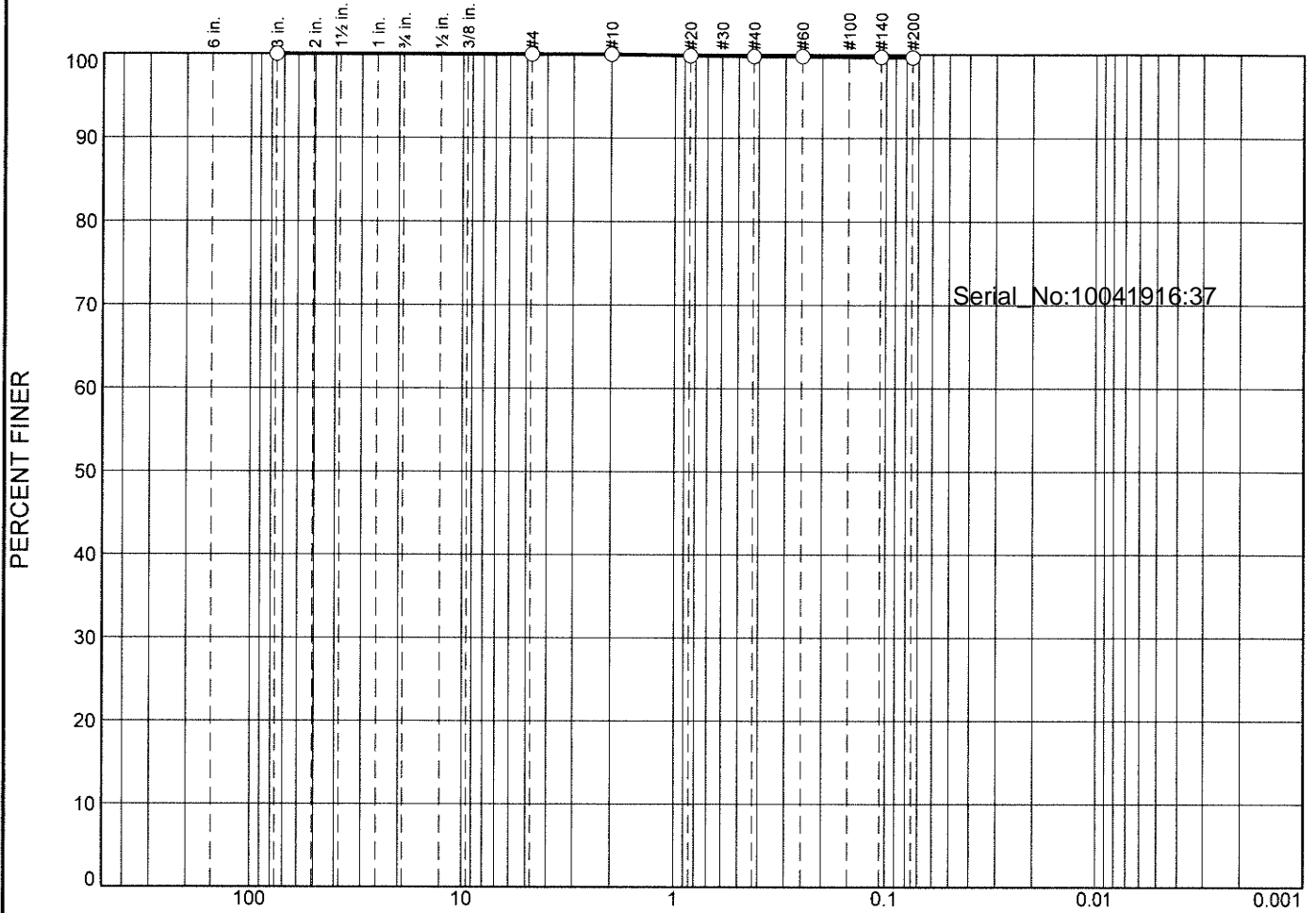
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	22.5	24.9	47.4	15.5	14.4	6.9	36.8			15.8

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.2797	0.9689	2.4219	4.1646	7.0276	22.0851	29.9248	40.7469	55.6727

Fineness Modulus
4.80

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.												
% +3"			% Gravel		% Sand			% Fines				
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay		
○	0.0			0.0	0.0	0.0	0.2	0.2	99.6			
✕	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u	
○												

Material Description								USCS	AASHTO

Project No. Client: Project: <input type="radio"/> Source of Sample: DPT-50-18-20-20190923 Sample Number: L1943826-05 Date: <input type="radio"/>	Remarks:
Alpha Analytical Mansfield, MA	Figure

GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2019

Location: DPT-50-18-20-20190923

Sample Number: L1943826-05

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =79.87

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.87	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.01	0.00	100.0
		#20	0.10	0.00	99.9
		#40	0.06	0.00	99.8
		#60	0.02	0.00	99.8
		#140	0.06	0.00	99.7
		#200	0.03	0.00	99.6

Serial_No:10041916:37

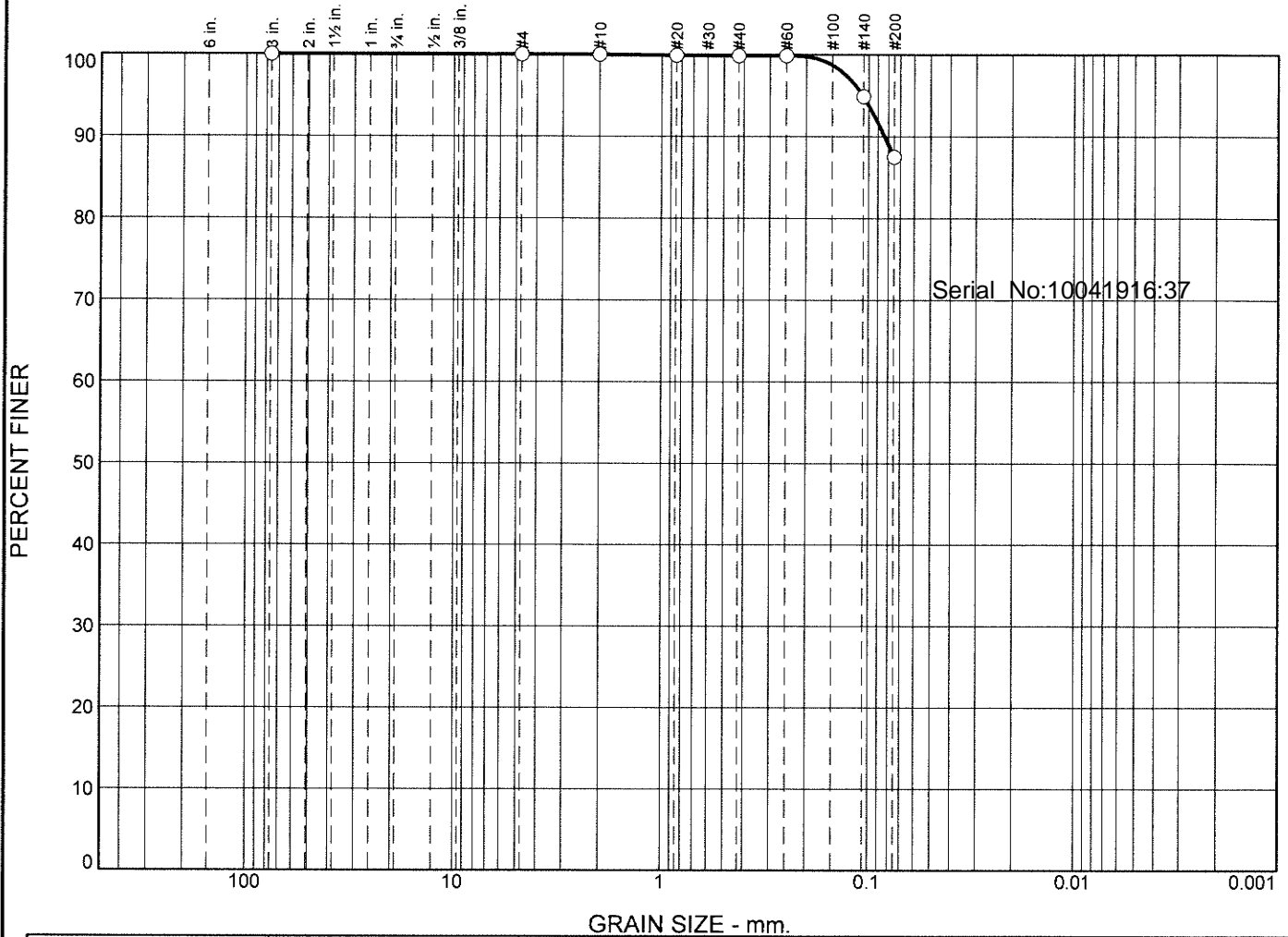
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4			99.6

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.01

Particle Size Distribution Report



GRAIN SIZE mm:												
% +3"			% Gravel		% Sand			% Fines				
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay		
<input type="radio"/>	0.0		0.0	0.0	0.0	0.1	12.4	87.5				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u	
<input type="radio"/>												

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-50-22-24-20190923 Sample Number: L1943826-06 Date: <input type="radio"/> <div style="text-align: center;"> Alpha Analytical Mansfield, MA </div>	Client: Remarks: <div style="text-align: right;"> Figure </div>
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GRAIN SIZE DISTRIBUTION TEST DATA

10/2/2019

Location: DPT-50-22-24-20190923

Sample Number: L1943826-06

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =84.03

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.03	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.01	0.00	100.0
		#20	0.08	0.00	99.9
		#40	0.03	0.00	99.9
		#60	0.00	0.00	99.9
		#140	4.19	0.00	94.9
		#200	6.21	0.00	87.5

Serial_No:10041916:37

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	12.4	12.5			87.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
										0.0835	0.1068

Fineness Modulus
0.02

Alpha Analytical

Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Page 91 of 91



ANALYTICAL REPORT

Lab Number:	L1944061
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	10/08/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1944061-01	DPT-47-11-13-20190924	SOIL	JAMESTOWN, NY	09/24/19 08:45	09/24/19
L1944061-02	DPT-47-11-13-20190924FD	SOIL	JAMESTOWN, NY	09/24/19 08:45	09/24/19
L1944061-03	DPT-47-18-20-20190924	SOIL	JAMESTOWN, NY	09/24/19 09:20	09/24/19
L1944061-04	DPT-47-24-26-20190924	SOIL	JAMESTOWN, NY	09/24/19 09:30	09/24/19
L1944061-05	DPT-46-10-12-20190924	SOIL	JAMESTOWN, NY	09/24/19 10:25	09/24/19
L1944061-06	DPT-46-18-20-20190924	SOIL	JAMESTOWN, NY	09/24/19 11:05	09/24/19
L1944061-07	DPT-46-20-22-20190924	SOIL	JAMESTOWN, NY	09/24/19 11:15	09/24/19
L1944061-08	DPT-45-10-12-20190924	SOIL	JAMESTOWN, NY	09/24/19 12:40	09/24/19
L1944061-09	DPT-45-17-19-20190924	SOIL	JAMESTOWN, NY	09/24/19 13:10	09/24/19
L1944061-10	DPT-45-22-24-20190924	SOIL	JAMESTOWN, NY	09/24/19 13:20	09/24/19
L1944061-11	DPT-45-27-28-20190924	SOIL	JAMESTOWN, NY	09/24/19 13:45	09/24/19
L1944061-12	EB-004-20190924	WATER	JAMESTOWN, NY	09/24/19 14:00	09/24/19
L1944061-13	TB-011-20190924	WATER	JAMESTOWN, NY	09/24/19 00:00	09/24/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Case Narrative (continued)

Report Submission

October 08, 2019: This final report includes the results of all requested analyses.

October 01, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1944061-02, -03, -04, -05, -06, -08, and -09: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1944061-07, -10, and -11: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1944061-13: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1289537-4 LCSD recovery, associated with L1944061-12 and -13, is below the individual acceptance criteria for bromomethane (35%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1944061-12 and -13, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 1,4-dioxane, cis-1,3-Dichloropropene, and 4-methyl-2-pentanone.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (47%D) and bromomethane (41%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1944061-12 and -13, did not meet the method required minimum response factor for 2-butanone, 1,4-dioxane and 4-methyl-2-pentanone.

WG1289537-2 The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (27%D), Chloromethane (35%D), Bromomethane (45%D), Chloroethane (37%D),

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Case Narrative (continued)

Methyl tert butyl ether (40%D), Vinyl acetate (37%D), and 2,2-Dichloropropane (21%D) above the 20% CCV criteria but within overall method allowances.

WG1290643: The continuing calibration verification standard WG1290643-2 has the percent deviation for bromomethane (23%D) above the 20% CCV criteria, but within overall method allowances.

WG1290644: The continuing calibration verification standard WG1290644-2 has the percent deviation for bromomethane (23%D) above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1944061-01 through -06, -08, and -09, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane and 1,2-dibromo-3-chloropropane.

The continuing calibration, associated with L1944061-01 through -06, -08, and -09, did not meet the method required minimum response factor for 1,4-dioxane.

The initial calibration, associated with L1944061-07, -10, and -11, did not meet the method required minimum response factor for the calibration standards for 1,4-dioxane and 1,2-dibromo-3-chloropropane.


The continuing calibration, associated with L1944061-07, -10, and -11, did not meet the method required minimum response factor for 1,4-dioxane.

Grain Size Analysis

The WG1289587-1 Laboratory Duplicate RPD for % total fines (25%), performed on L1944061-08, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 10/08/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-01
 Client ID: DPT-47-11-13-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 08:45
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:50
 Analyst: JC
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.0	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.14	1
Chloroform	0.15	J	ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.12	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.50	0.20	1
Chlorobenzene	ND		ug/kg	0.50	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.70	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17	1
Bromodichloromethane	ND		ug/kg	0.50	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27	1
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.50	0.16	1
Bromoform	ND		ug/kg	4.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17	1
Benzene	ND		ug/kg	0.50	0.17	1
Toluene	ND		ug/kg	1.0	0.54	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.0	0.94	1
Bromomethane	ND		ug/kg	2.0	0.58	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.45	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-01
 Client ID: DPT-47-11-13-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 08:45
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.50	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	2.3		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.56	1
o-Xylene	ND		ug/kg	1.0	0.29	1
Xylenes, Total	ND		ug/kg	1.0	0.29	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.92	1
Acetone	190		ug/kg	10	4.8	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	3.1	J	ug/kg	10	2.2	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.20	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.14	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.0	0.65	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-01**Date Collected:** 09/24/19 08:45**Client ID:** DPT-47-11-13-20190924**Date Received:** 09/24/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	80	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-02
 Client ID: DPT-47-11-13-20190924FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 08:45
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 10:14
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.1	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	0.18	J	ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.51	0.20	1
Chlorobenzene	ND		ug/kg	0.51	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.1	0.71	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.51	0.17	1
Bromodichloromethane	ND		ug/kg	0.51	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.51	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.51	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.51	0.16	1
Bromoform	ND		ug/kg	4.1	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.51	0.17	1
Benzene	ND		ug/kg	0.51	0.17	1
Toluene	ND		ug/kg	1.0	0.56	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.1	0.95	1
Bromomethane	ND		ug/kg	2.0	0.59	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.46	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-02

Date Collected: 09/24/19 08:45

Client ID: DPT-47-11-13-20190924FD

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.51	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	3.4		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.57	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.94	1
Acetone	960	E	ug/kg	10	4.9	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	14		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.51	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.20	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.1	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.1	0.66	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-02**Date Collected:** 09/24/19 08:45**Client ID:** DPT-47-11-13-20190924FD**Date Received:** 09/24/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.33	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	82	36.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-03
 Client ID: DPT-47-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 09:20
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 10:38
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	0.15	J	ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-03
 Client ID: DPT-47-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 09:20
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	2.9		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	530	E	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	5.5	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-03

Date Collected: 09/24/19 09:20

Client ID: DPT-47-18-20-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-04
 Client ID: DPT-47-24-26-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 09:30
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 11:03
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.28	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.60	0.23	1
Chlorobenzene	ND		ug/kg	0.60	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.8	0.83	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.31	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	0.20	1
Bromodichloromethane	ND		ug/kg	0.60	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.33	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.60	0.19	1
Bromoform	ND		ug/kg	4.8	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	0.20	1
Benzene	9.4		ug/kg	0.60	0.20	1
Toluene	ND		ug/kg	1.2	0.65	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.8	1.1	1
Bromomethane	ND		ug/kg	2.4	0.70	1
Vinyl chloride	50		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.54	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	0.18	J	ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-04

Date Collected: 09/24/19 09:30

Client ID: DPT-47-24-26-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.51	J	ug/kg	0.60	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.20	1
Methyl tert butyl ether	3.1		ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.67	1
o-Xylene	ND		ug/kg	1.2	0.35	1
Xylenes, Total	ND		ug/kg	1.2	0.35	1
cis-1,2-Dichloroethene	0.56	J	ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	0.74	J	ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	570	E	ug/kg	12	5.8	1
Carbon disulfide	ND		ug/kg	12	5.4	1
2-Butanone	7.0	J	ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.6	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.33	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.8	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.8	0.78	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-04

Date Collected: 09/24/19 09:30

Client ID: DPT-47-24-26-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.38	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	96	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-05
 Client ID: DPT-46-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 10:25
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 11:27
 Analyst: JC
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.7	2.1	1
1,1-Dichloroethane	ND		ug/kg	0.94	0.14	1
Chloroform	0.14	J	ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.94	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.94	0.12	1
Dibromochloromethane	ND		ug/kg	0.94	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.94	0.25	1
Tetrachloroethene	ND		ug/kg	0.47	0.18	1
Chlorobenzene	ND		ug/kg	0.47	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.8	0.65	1
1,2-Dichloroethane	ND		ug/kg	0.94	0.24	1
1,1,1-Trichloroethane	ND		ug/kg	0.47	0.16	1
Bromodichloromethane	ND		ug/kg	0.47	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.94	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.47	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.47	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.47	0.15	1
Bromoform	ND		ug/kg	3.8	0.23	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.47	0.16	1
Benzene	ND		ug/kg	0.47	0.16	1
Toluene	ND		ug/kg	0.94	0.51	1
Ethylbenzene	ND		ug/kg	0.94	0.13	1
Chloromethane	ND		ug/kg	3.8	0.87	1
Bromomethane	ND		ug/kg	1.9	0.54	1
Vinyl chloride	ND		ug/kg	0.94	0.31	1
Chloroethane	ND		ug/kg	1.9	0.42	1
1,1-Dichloroethene	ND		ug/kg	0.94	0.22	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.13	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-05
 Client ID: DPT-46-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 10:25
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.47	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	2.8		ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.52	1
o-Xylene	ND		ug/kg	0.94	0.27	1
Xylenes, Total	ND		ug/kg	0.94	0.27	1
cis-1,2-Dichloroethene	ND		ug/kg	0.94	0.16	1
1,2-Dichloroethene, Total	ND		ug/kg	0.94	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.22	1
Styrene	ND		ug/kg	0.94	0.18	1
Dichlorodifluoromethane	ND		ug/kg	9.4	0.86	1
Acetone	410	E	ug/kg	9.4	4.5	1
Carbon disulfide	ND		ug/kg	9.4	4.3	1
2-Butanone	6.2	J	ug/kg	9.4	2.1	1
Vinyl acetate	ND		ug/kg	9.4	2.0	1
4-Methyl-2-pentanone	ND		ug/kg	9.4	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.4	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.19	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.19	1
1,2-Dibromoethane	ND		ug/kg	0.94	0.26	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.47	0.12	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.94	0.16	1
sec-Butylbenzene	ND		ug/kg	0.94	0.14	1
tert-Butylbenzene	ND		ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.8	0.94	1
Hexachlorobutadiene	ND		ug/kg	3.8	0.16	1
Isopropylbenzene	ND		ug/kg	0.94	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.94	0.10	1
Naphthalene	ND		ug/kg	3.8	0.61	1
n-Propylbenzene	ND		ug/kg	0.94	0.16	1



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-05

Date Collected: 09/24/19 10:25

Client ID: DPT-46-10-12-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.30	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.31	1
1,4-Dioxane	ND		ug/kg	75	33.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-06
 Client ID: DPT-46-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 11:05
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 11:51
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.77	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.18	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	1.4		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-06
 Client ID: DPT-46-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 11:05
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	2.2		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	510	E	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	5.4	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.72	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-06

Date Collected: 09/24/19 11:05

Client ID: DPT-46-18-20-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	39.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-07 D
 Client ID: DPT-46-20-22-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 11:15
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/29/19 14:16

Analyst: JC

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	740	340	2
1,1-Dichloroethane	ND		ug/kg	150	21.	2
Chloroform	ND		ug/kg	220	21.	2
Carbon tetrachloride	ND		ug/kg	150	34.	2
1,2-Dichloropropane	ND		ug/kg	150	18.	2
Dibromochloromethane	ND		ug/kg	150	21.	2
1,1,2-Trichloroethane	ND		ug/kg	150	40.	2
Tetrachloroethene	ND		ug/kg	74	29.	2
Chlorobenzene	ND		ug/kg	74	19.	2
Trichlorofluoromethane	ND		ug/kg	590	100	2
1,2-Dichloroethane	ND		ug/kg	150	38.	2
1,1,1-Trichloroethane	ND		ug/kg	74	25.	2
Bromodichloromethane	ND		ug/kg	74	16.	2
trans-1,3-Dichloropropene	ND		ug/kg	150	40.	2
cis-1,3-Dichloropropene	ND		ug/kg	74	23.	2
1,3-Dichloropropene, Total	ND		ug/kg	74	23.	2
1,1-Dichloropropene	ND		ug/kg	74	24.	2
Bromoform	ND		ug/kg	590	36.	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	74	24.	2
Benzene	59	J	ug/kg	74	24.	2
Toluene	160		ug/kg	150	80.	2
Ethylbenzene	ND		ug/kg	150	21.	2
Chloromethane	ND		ug/kg	590	140	2
Bromomethane	ND		ug/kg	300	86.	2
Vinyl chloride	ND		ug/kg	150	50.	2
Chloroethane	ND		ug/kg	300	67.	2
1,1-Dichloroethene	ND		ug/kg	150	35.	2
trans-1,2-Dichloroethene	ND		ug/kg	220	20.	2

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-07 D

Date Collected: 09/24/19 11:15

Client ID: DPT-46-20-22-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	20000		ug/kg	74	20.	2
1,2-Dichlorobenzene	ND		ug/kg	300	21.	2
1,3-Dichlorobenzene	ND		ug/kg	300	22.	2
1,4-Dichlorobenzene	ND		ug/kg	300	25.	2
Methyl tert butyl ether	ND		ug/kg	300	30.	2
p/m-Xylene	ND		ug/kg	300	83.	2
o-Xylene	ND		ug/kg	150	43.	2
Xylenes, Total	ND		ug/kg	150	43.	2
cis-1,2-Dichloroethene	1900		ug/kg	150	26.	2
1,2-Dichloroethene, Total	1900		ug/kg	150	20.	2
Dibromomethane	ND		ug/kg	300	35.	2
Styrene	ND		ug/kg	150	29.	2
Dichlorodifluoromethane	ND		ug/kg	1500	140	2
Acetone	ND		ug/kg	1500	710	2
Carbon disulfide	ND		ug/kg	1500	670	2
2-Butanone	ND		ug/kg	1500	330	2
Vinyl acetate	ND		ug/kg	1500	320	2
4-Methyl-2-pentanone	ND		ug/kg	1500	190	2
1,2,3-Trichloropropane	ND		ug/kg	300	19.	2
2-Hexanone	ND		ug/kg	1500	170	2
Bromochloromethane	ND		ug/kg	300	30.	2
2,2-Dichloropropane	ND		ug/kg	300	30.	2
1,2-Dibromoethane	ND		ug/kg	150	41.	2
1,3-Dichloropropane	ND		ug/kg	300	25.	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	74	20.	2
Bromobenzene	ND		ug/kg	300	21.	2
n-Butylbenzene	ND		ug/kg	150	25.	2
sec-Butylbenzene	ND		ug/kg	150	22.	2
tert-Butylbenzene	ND		ug/kg	300	17.	2
o-Chlorotoluene	ND		ug/kg	300	28.	2
p-Chlorotoluene	ND		ug/kg	300	16.	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	440	150	2
Hexachlorobutadiene	ND		ug/kg	590	25.	2
Isopropylbenzene	ND		ug/kg	150	16.	2
p-Isopropyltoluene	ND		ug/kg	150	16.	2
Naphthalene	ND		ug/kg	590	96.	2
n-Propylbenzene	ND		ug/kg	150	25.	2

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-07 D

Date Collected: 09/24/19 11:15

Client ID: DPT-46-20-22-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	300	48.	2
1,2,4-Trichlorobenzene	ND		ug/kg	300	40.	2
1,3,5-Trimethylbenzene	ND		ug/kg	300	28.	2
1,2,4-Trimethylbenzene	ND		ug/kg	300	49.	2
1,4-Dioxane	ND		ug/kg	12000	5200	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-08
 Client ID: DPT-45-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 12:40
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/29/19 12:15

Analyst: JC

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.21	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.59	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-08
 Client ID: DPT-45-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 12:40
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.27	J	ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	1.5	J	ug/kg	2.2	0.22	1
p/m-Xylene	1.2	J	ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	1.2	J	ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	840	E	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	14		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-08

Date Collected: 09/24/19 12:40

Client ID: DPT-45-10-12-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	88	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-09
 Client ID: DPT-45-17-19-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:10
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 09/29/19 12:39

Analyst: JC

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.8	2.6	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.14	1
Dibromochloromethane	ND		ug/kg	1.2	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.31	1
Tetrachloroethene	ND		ug/kg	0.58	0.23	1
Chlorobenzene	ND		ug/kg	0.58	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.6	0.81	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.58	0.19	1
Bromodichloromethane	ND		ug/kg	0.58	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.58	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.58	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.58	0.18	1
Bromoform	ND		ug/kg	4.6	0.28	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.58	0.19	1
Benzene	ND		ug/kg	0.58	0.19	1
Toluene	ND		ug/kg	1.2	0.63	1
Ethylbenzene	ND		ug/kg	1.2	0.16	1
Chloromethane	ND		ug/kg	4.6	1.1	1
Bromomethane	ND		ug/kg	2.3	0.67	1
Vinyl chloride	1.7		ug/kg	1.2	0.39	1
Chloroethane	ND		ug/kg	2.3	0.52	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.7	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-09
 Client ID: DPT-45-17-19-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:10
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.58	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.3	0.17	1
1,4-Dichlorobenzene	ND		ug/kg	2.3	0.20	1
Methyl tert butyl ether	2.7		ug/kg	2.3	0.23	1
p/m-Xylene	ND		ug/kg	2.3	0.65	1
o-Xylene	ND		ug/kg	1.2	0.34	1
Xylenes, Total	ND		ug/kg	1.2	0.34	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.20	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.3	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	710	E	ug/kg	12	5.6	1
Carbon disulfide	ND		ug/kg	12	5.3	1
2-Butanone	8.6	J	ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.5	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.3	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.3	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.3	0.23	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.32	1
1,3-Dichloropropane	ND		ug/kg	2.3	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.58	0.15	1
Bromobenzene	ND		ug/kg	2.3	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.19	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.3	0.14	1
o-Chlorotoluene	ND		ug/kg	2.3	0.22	1
p-Chlorotoluene	ND		ug/kg	2.3	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.5	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.6	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.6	0.75	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-09

Date Collected: 09/24/19 13:10

Client ID: DPT-45-17-19-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.3	0.37	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.3	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.3	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.3	0.39	1
1,4-Dioxane	ND		ug/kg	93	41.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-10 D
 Client ID: DPT-45-22-24-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:20
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 14:40
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1700	800	5
1,1-Dichloroethane	ND		ug/kg	350	50.	5
Chloroform	ND		ug/kg	520	49.	5
Carbon tetrachloride	ND		ug/kg	350	80.	5
1,2-Dichloropropane	ND		ug/kg	350	43.	5
Dibromochloromethane	ND		ug/kg	350	49.	5
1,1,2-Trichloroethane	ND		ug/kg	350	93.	5
Tetrachloroethene	ND		ug/kg	170	68.	5
Chlorobenzene	ND		ug/kg	170	44.	5
Trichlorofluoromethane	ND		ug/kg	1400	240	5
1,2-Dichloroethane	ND		ug/kg	350	89.	5
1,1,1-Trichloroethane	ND		ug/kg	170	58.	5
Bromodichloromethane	ND		ug/kg	170	38.	5
trans-1,3-Dichloropropene	ND		ug/kg	350	95.	5
cis-1,3-Dichloropropene	ND		ug/kg	170	55.	5
1,3-Dichloropropene, Total	ND		ug/kg	170	55.	5
1,1-Dichloropropene	ND		ug/kg	170	55.	5
Bromoform	ND		ug/kg	1400	85.	5
1,1,2,2-Tetrachloroethane	ND		ug/kg	170	58.	5
Benzene	ND		ug/kg	170	58.	5
Toluene	ND		ug/kg	350	190	5
Ethylbenzene	ND		ug/kg	350	49.	5
Chloromethane	ND		ug/kg	1400	320	5
Bromomethane	ND		ug/kg	690	200	5
Vinyl chloride	220	J	ug/kg	350	120	5
Chloroethane	ND		ug/kg	690	160	5
1,1-Dichloroethene	ND		ug/kg	350	83.	5
trans-1,2-Dichloroethene	ND		ug/kg	520	48.	5

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-10 D

Date Collected: 09/24/19 13:20

Client ID: DPT-45-22-24-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	47000		ug/kg	170	48.	5
1,2-Dichlorobenzene	ND		ug/kg	690	50.	5
1,3-Dichlorobenzene	ND		ug/kg	690	51.	5
1,4-Dichlorobenzene	ND		ug/kg	690	59.	5
Methyl tert butyl ether	ND		ug/kg	690	70.	5
p/m-Xylene	ND		ug/kg	690	190	5
o-Xylene	ND		ug/kg	350	100	5
Xylenes, Total	ND		ug/kg	350	100	5
cis-1,2-Dichloroethene	15000		ug/kg	350	61.	5
1,2-Dichloroethene, Total	15000		ug/kg	350	48.	5
Dibromomethane	ND		ug/kg	690	83.	5
Styrene	ND		ug/kg	350	68.	5
Dichlorodifluoromethane	ND		ug/kg	3500	320	5
Acetone	ND		ug/kg	3500	1700	5
Carbon disulfide	ND		ug/kg	3500	1600	5
2-Butanone	ND		ug/kg	3500	770	5
Vinyl acetate	ND		ug/kg	3500	750	5
4-Methyl-2-pentanone	ND		ug/kg	3500	440	5
1,2,3-Trichloropropane	ND		ug/kg	690	44.	5
2-Hexanone	ND		ug/kg	3500	410	5
Bromochloromethane	ND		ug/kg	690	71.	5
2,2-Dichloropropane	ND		ug/kg	690	70.	5
1,2-Dibromoethane	ND		ug/kg	350	97.	5
1,3-Dichloropropane	ND		ug/kg	690	58.	5
1,1,1,2-Tetrachloroethane	ND		ug/kg	170	46.	5
Bromobenzene	ND		ug/kg	690	50.	5
n-Butylbenzene	ND		ug/kg	350	58.	5
sec-Butylbenzene	ND		ug/kg	350	51.	5
tert-Butylbenzene	ND		ug/kg	690	41.	5
o-Chlorotoluene	ND		ug/kg	690	66.	5
p-Chlorotoluene	ND		ug/kg	690	38.	5
1,2-Dibromo-3-chloropropane	ND		ug/kg	1000	350	5
Hexachlorobutadiene	ND		ug/kg	1400	59.	5
Isopropylbenzene	ND		ug/kg	350	38.	5
p-Isopropyltoluene	ND		ug/kg	350	38.	5
Naphthalene	ND		ug/kg	1400	220	5
n-Propylbenzene	ND		ug/kg	350	59.	5

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-10 D

Date Collected: 09/24/19 13:20

Client ID: DPT-45-22-24-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	690	110	5
1,2,4-Trichlorobenzene	ND		ug/kg	690	94.	5
1,3,5-Trimethylbenzene	ND		ug/kg	690	67.	5
1,2,4-Trimethylbenzene	ND		ug/kg	690	120	5
1,4-Dioxane	ND		ug/kg	28000	12000	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	89		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-11 D
 Client ID: DPT-45-27-28-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:45
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 15:04
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	17000	7800	50
1,1-Dichloroethane	ND		ug/kg	3400	500	50
Chloroform	ND		ug/kg	5100	480	50
Carbon tetrachloride	ND		ug/kg	3400	790	50
1,2-Dichloropropane	ND		ug/kg	3400	430	50
Dibromochloromethane	ND		ug/kg	3400	480	50
1,1,2-Trichloroethane	ND		ug/kg	3400	910	50
Tetrachloroethene	2500		ug/kg	1700	670	50
Chlorobenzene	ND		ug/kg	1700	430	50
Trichlorofluoromethane	ND		ug/kg	14000	2400	50
1,2-Dichloroethane	ND		ug/kg	3400	880	50
1,1,1-Trichloroethane	ND		ug/kg	1700	570	50
Bromodichloromethane	ND		ug/kg	1700	370	50
trans-1,3-Dichloropropene	ND		ug/kg	3400	930	50
cis-1,3-Dichloropropene	ND		ug/kg	1700	540	50
1,3-Dichloropropene, Total	ND		ug/kg	1700	540	50
1,1-Dichloropropene	ND		ug/kg	1700	540	50
Bromoform	ND		ug/kg	14000	840	50
1,1,2,2-Tetrachloroethane	ND		ug/kg	1700	570	50
Benzene	ND		ug/kg	1700	570	50
Toluene	ND		ug/kg	3400	1800	50
Ethylbenzene	ND		ug/kg	3400	480	50
Chloromethane	ND		ug/kg	14000	3200	50
Bromomethane	ND		ug/kg	6800	2000	50
Vinyl chloride	ND		ug/kg	3400	1100	50
Chloroethane	ND		ug/kg	6800	1500	50
1,1-Dichloroethene	ND		ug/kg	3400	810	50
trans-1,2-Dichloroethene	ND		ug/kg	5100	470	50

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-11 D

Date Collected: 09/24/19 13:45

Client ID: DPT-45-27-28-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	560000		ug/kg	1700	470	50
1,2-Dichlorobenzene	ND		ug/kg	6800	490	50
1,3-Dichlorobenzene	ND		ug/kg	6800	500	50
1,4-Dichlorobenzene	ND		ug/kg	6800	580	50
Methyl tert butyl ether	ND		ug/kg	6800	690	50
p/m-Xylene	ND		ug/kg	6800	1900	50
o-Xylene	ND		ug/kg	3400	990	50
Xylenes, Total	ND		ug/kg	3400	990	50
cis-1,2-Dichloroethene	39000		ug/kg	3400	600	50
1,2-Dichloroethene, Total	39000		ug/kg	3400	470	50
Dibromomethane	ND		ug/kg	6800	810	50
Styrene	ND		ug/kg	3400	670	50
Dichlorodifluoromethane	ND		ug/kg	34000	3100	50
Acetone	ND		ug/kg	34000	16000	50
Carbon disulfide	ND		ug/kg	34000	16000	50
2-Butanone	ND		ug/kg	34000	7600	50
Vinyl acetate	ND		ug/kg	34000	7300	50
4-Methyl-2-pentanone	ND		ug/kg	34000	4400	50
1,2,3-Trichloropropane	ND		ug/kg	6800	430	50
2-Hexanone	ND		ug/kg	34000	4000	50
Bromochloromethane	ND		ug/kg	6800	700	50
2,2-Dichloropropane	ND		ug/kg	6800	690	50
1,2-Dibromoethane	ND		ug/kg	3400	950	50
1,3-Dichloropropane	ND		ug/kg	6800	570	50
1,1,1,2-Tetrachloroethane	ND		ug/kg	1700	450	50
Bromobenzene	ND		ug/kg	6800	500	50
n-Butylbenzene	ND		ug/kg	3400	570	50
sec-Butylbenzene	ND		ug/kg	3400	500	50
tert-Butylbenzene	ND		ug/kg	6800	400	50
o-Chlorotoluene	ND		ug/kg	6800	650	50
p-Chlorotoluene	ND		ug/kg	6800	370	50
1,2-Dibromo-3-chloropropane	ND		ug/kg	10000	3400	50
Hexachlorobutadiene	ND		ug/kg	14000	580	50
Isopropylbenzene	ND		ug/kg	3400	370	50
p-Isopropyltoluene	ND		ug/kg	3400	370	50
Naphthalene	ND		ug/kg	14000	2200	50
n-Propylbenzene	1700	J	ug/kg	3400	580	50

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-11 D

Date Collected: 09/24/19 13:45

Client ID: DPT-45-27-28-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	6800	1100	50
1,2,4-Trichlorobenzene	ND		ug/kg	6800	930	50
1,3,5-Trimethylbenzene	4700	J	ug/kg	6800	660	50
1,2,4-Trimethylbenzene	19000		ug/kg	6800	1100	50
1,4-Dioxane	ND		ug/kg	270000	120000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	89		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-12
 Client ID: EB-004-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 14:00
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/27/19 17:39
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.08	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-12
 Client ID: EB-004-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 14:00
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.92		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.1	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-12

Date Collected: 09/24/19 14:00

Client ID: EB-004-20190924

Date Received: 09/24/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	82		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-13
 Client ID: TB-011-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 00:00
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/27/19 18:04
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS**

Lab ID: L1944061-13
 Client ID: TB-011-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 00:00
 Date Received: 09/24/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.6		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-13**Date Collected:** 09/24/19 00:00**Client ID:** TB-011-20190924**Date Received:** 09/24/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	82		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12-13 Batch: WG1289537-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12-13 Batch: WG1289537-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12-13 Batch: WG1289537-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-06,08-09 Batch: WG1290643-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.14	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.98	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-06,08-09 Batch: WG1290643-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-06,08-09 Batch: WG1290643-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,10-11 Batch: WG1290644-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	7.0	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	49	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,10-11 Batch: WG1290644-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,10-11 Batch: WG1290644-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1289537-3 WG1289537-4								
Methylene chloride	100		97		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	99		97		70-130	2		20
Carbon tetrachloride	100		98		63-132	2		20
1,2-Dichloropropane	100		97		70-130	3		20
Dibromochloromethane	99		94		63-130	5		20
1,1,2-Trichloroethane	100		96		70-130	4		20
Tetrachloroethene	95		92		70-130	3		20
Chlorobenzene	94		92		75-130	2		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	97		94		70-130	3		20
1,1,1-Trichloroethane	95		94		67-130	1		20
Bromodichloromethane	98		94		67-130	4		20
trans-1,3-Dichloropropene	94		89		70-130	5		20
cis-1,3-Dichloropropene	92		87		70-130	6		20
1,1-Dichloropropene	95		93		70-130	2		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	97		94		67-130	3		20
Benzene	100		100		70-130	0		20
Toluene	93		91		70-130	2		20
Ethylbenzene	93		90		70-130	3		20
Chloromethane	130		130		64-130	0		20
Bromomethane	39		35	Q	39-139	11		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1289537-3 WG1289537-4								
Vinyl chloride	86		82		55-140	5		20
Chloroethane	64		63		55-138	2		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		98		70-130	2		20
Trichloroethene	99		97		70-130	2		20
1,2-Dichlorobenzene	92		91		70-130	1		20
1,3-Dichlorobenzene	96		96		70-130	0		20
1,4-Dichlorobenzene	93		93		70-130	0		20
Methyl tert butyl ether	88		82		63-130	7		20
p/m-Xylene	90		85		70-130	6		20
o-Xylene	90		85		70-130	6		20
cis-1,2-Dichloroethene	98		98		70-130	0		20
Dibromomethane	94		91		70-130	3		20
1,2,3-Trichloropropane	90		90		64-130	0		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		100		58-148	10		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	130		120		70-130	8		20
4-Methyl-2-pentanone	91		87		59-130	4		20
2-Hexanone	86		79		57-130	8		20
Bromochloromethane	100		96		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1289537-3 WG1289537-4								
2,2-Dichloropropane	92		89		63-133	3		20
1,2-Dibromoethane	96		92		70-130	4		20
1,3-Dichloropropane	97		94		70-130	3		20
1,1,1,2-Tetrachloroethane	100		99		64-130	1		20
Bromobenzene	92		92		70-130	0		20
n-Butylbenzene	92		91		53-136	1		20
sec-Butylbenzene	98		100		70-130	2		20
tert-Butylbenzene	88		86		70-130	2		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	91		90		70-130	1		20
1,2-Dibromo-3-chloropropane	93		91		41-144	2		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	86		86		70-130	0		20
p-Isopropyltoluene	87		85		70-130	2		20
Naphthalene	83		78		70-130	6		20
n-Propylbenzene	90		90		69-130	0		20
1,2,3-Trichlorobenzene	93		90		70-130	3		20
1,2,4-Trichlorobenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	88		87		64-130	1		20
1,2,4-Trimethylbenzene	87		86		70-130	1		20
1,4-Dioxane	86		74		56-162	15		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12-13 Batch: WG1289537-3 WG1289537-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		95		70-130
Toluene-d8	89		90		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 Batch: WG1290643-3 WG1290643-4								
Methylene chloride	83		82		70-130	1		30
1,1-Dichloroethane	99		99		70-130	0		30
Chloroform	98		97		70-130	1		30
Carbon tetrachloride	101		100		70-130	1		30
1,2-Dichloropropane	96		95		70-130	1		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	96		97		70-130	1		30
Tetrachloroethene	104		104		70-130	0		30
Chlorobenzene	102		104		70-130	2		30
Trichlorofluoromethane	97		96		70-139	1		30
1,2-Dichloroethane	97		97		70-130	0		30
1,1,1-Trichloroethane	102		102		70-130	0		30
Bromodichloromethane	98		98		70-130	0		30
trans-1,3-Dichloropropene	101		102		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	100		99		70-130	1		30
Bromoform	93		92		70-130	1		30
1,1,1,2-Tetrachloroethane	104		105		70-130	1		30
Benzene	95		94		70-130	1		30
Toluene	102		103		70-130	1		30
Ethylbenzene	105		106		70-130	1		30
Chloromethane	116		113		52-130	3		30
Bromomethane	93		85		57-147	9		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 Batch: WG1290643-3 WG1290643-4								
Vinyl chloride	100		98		67-130	2		30
Chloroethane	85		83		50-151	2		30
1,1-Dichloroethene	96		94		65-135	2		30
trans-1,2-Dichloroethene	94		94		70-130	0		30
Trichloroethene	98		98		70-130	0		30
1,2-Dichlorobenzene	103		103		70-130	0		30
1,3-Dichlorobenzene	106		107		70-130	1		30
1,4-Dichlorobenzene	106		106		70-130	0		30
Methyl tert butyl ether	83		84		66-130	1		30
p/m-Xylene	106		107		70-130	1		30
o-Xylene	103		103		70-130	0		30
cis-1,2-Dichloroethene	91		92		70-130	1		30
Dibromomethane	90		92		70-130	2		30
Styrene	104		104		70-130	0		30
Dichlorodifluoromethane	94		92		30-146	2		30
Acetone	124		115		54-140	8		30
Carbon disulfide	92		90		59-130	2		30
2-Butanone	107		103		70-130	4		30
Vinyl acetate	108		108		70-130	0		30
4-Methyl-2-pentanone	98		98		70-130	0		30
1,2,3-Trichloropropane	103		102		68-130	1		30
2-Hexanone	116		114		70-130	2		30
Bromochloromethane	90		89		70-130	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 Batch: WG1290643-3 WG1290643-4								
2,2-Dichloropropane	97		96		70-130	1		30
1,2-Dibromoethane	98		100		70-130	2		30
1,3-Dichloropropane	97		97		69-130	0		30
1,1,1,2-Tetrachloroethane	104		104		70-130	0		30
Bromobenzene	100		100		70-130	0		30
n-Butylbenzene	118		119		70-130	1		30
sec-Butylbenzene	114		115		70-130	1		30
tert-Butylbenzene	109		110		70-130	1		30
o-Chlorotoluene	112		111		70-130	1		30
p-Chlorotoluene	112		111		70-130	1		30
1,2-Dibromo-3-chloropropane	95		93		68-130	2		30
Hexachlorobutadiene	98		102		67-130	4		30
Isopropylbenzene	110		111		70-130	1		30
p-Isopropyltoluene	113		113		70-130	0		30
Naphthalene	99		99		70-130	0		30
n-Propylbenzene	114		114		70-130	0		30
1,2,3-Trichlorobenzene	99		100		70-130	1		30
1,2,4-Trichlorobenzene	101		102		70-130	1		30
1,3,5-Trimethylbenzene	111		113		70-130	2		30
1,2,4-Trimethylbenzene	110		111		70-130	1		30
1,4-Dioxane	98		79		65-136	21		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 Batch: WG1290643-3 WG1290643-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	91		90		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1290644-3 WG1290644-4								
Methylene chloride	83		82		70-130	1		30
1,1-Dichloroethane	99		99		70-130	0		30
Chloroform	98		97		70-130	1		30
Carbon tetrachloride	101		100		70-130	1		30
1,2-Dichloropropane	96		95		70-130	1		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	96		97		70-130	1		30
Tetrachloroethene	104		104		70-130	0		30
Chlorobenzene	102		104		70-130	2		30
Trichlorofluoromethane	97		96		70-139	1		30
1,2-Dichloroethane	97		97		70-130	0		30
1,1,1-Trichloroethane	102		102		70-130	0		30
Bromodichloromethane	98		98		70-130	0		30
trans-1,3-Dichloropropene	101		102		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	100		99		70-130	1		30
Bromoform	93		92		70-130	1		30
1,1,1,2-Tetrachloroethane	104		105		70-130	1		30
Benzene	95		94		70-130	1		30
Toluene	102		103		70-130	1		30
Ethylbenzene	105		106		70-130	1		30
Chloromethane	116		113		52-130	3		30
Bromomethane	93		85		57-147	9		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1290644-3 WG1290644-4								
Vinyl chloride	100		98		67-130	2		30
Chloroethane	85		83		50-151	2		30
1,1-Dichloroethene	96		94		65-135	2		30
trans-1,2-Dichloroethene	94		94		70-130	0		30
Trichloroethene	98		98		70-130	0		30
1,2-Dichlorobenzene	103		103		70-130	0		30
1,3-Dichlorobenzene	106		107		70-130	1		30
1,4-Dichlorobenzene	106		106		70-130	0		30
Methyl tert butyl ether	83		84		66-130	1		30
p/m-Xylene	106		107		70-130	1		30
o-Xylene	103		103		70-130	0		30
cis-1,2-Dichloroethene	91		92		70-130	1		30
Dibromomethane	90		92		70-130	2		30
Styrene	104		104		70-130	0		30
Dichlorodifluoromethane	94		92		30-146	2		30
Acetone	124		115		54-140	8		30
Carbon disulfide	92		90		59-130	2		30
2-Butanone	107		103		70-130	4		30
Vinyl acetate	108		108		70-130	0		30
4-Methyl-2-pentanone	98		98		70-130	0		30
1,2,3-Trichloropropane	103		102		68-130	1		30
2-Hexanone	116		114		70-130	2		30
Bromochloromethane	90		89		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1290644-3 WG1290644-4								
2,2-Dichloropropane	97		96		70-130	1		30
1,2-Dibromoethane	98		100		70-130	2		30
1,3-Dichloropropane	97		97		69-130	0		30
1,1,1,2-Tetrachloroethane	104		104		70-130	0		30
Bromobenzene	100		100		70-130	0		30
n-Butylbenzene	118		119		70-130	1		30
sec-Butylbenzene	114		115		70-130	1		30
tert-Butylbenzene	109		110		70-130	1		30
o-Chlorotoluene	112		111		70-130	1		30
p-Chlorotoluene	112		111		70-130	1		30
1,2-Dibromo-3-chloropropane	95		93		68-130	2		30
Hexachlorobutadiene	98		102		67-130	4		30
Isopropylbenzene	110		111		70-130	1		30
p-Isopropyltoluene	113		113		70-130	0		30
Naphthalene	99		99		70-130	0		30
n-Propylbenzene	114		114		70-130	0		30
1,2,3-Trichlorobenzene	99		100		70-130	1		30
1,2,4-Trichlorobenzene	101		102		70-130	1		30
1,3,5-Trimethylbenzene	111		113		70-130	2		30
1,2,4-Trimethylbenzene	110		111		70-130	1		30
1,4-Dioxane	98		79		65-136	21		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1290644-3 WG1290644-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	91		90		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: MS Sample												
Methylene chloride	ND	95.7	88	92		95	99		70-130	7		30
1,1-Dichloroethane	ND	95.7	110	115		120	125		70-130	9		30
Chloroform	ND	95.7	110	110		110	117		70-130	6		30
Carbon tetrachloride	ND	95.7	110	119		130	132	Q	70-130	10		30
1,2-Dichloropropane	ND	95.7	110	111		110	117		70-130	6		30
Dibromochloromethane	ND	95.7	110	117		120	121		70-130	4		30
1,1,2-Trichloroethane	ND	95.7	100	106		110	111		70-130	4		30
Tetrachloroethene	ND	95.7	100	104		110	115		70-130	10		30
Chlorobenzene	ND	95.7	110	110		110	115		70-130	5		30
Trichlorofluoromethane	ND	95.7	110	111		110	119		70-139	7		30
1,2-Dichloroethane	ND	95.7	110	110		110	114		70-130	4		30
1,1,1-Trichloroethane	ND	95.7	110	119		130	131	Q	70-130	9		30
Bromodichloromethane	ND	95.7	110	115		110	119		70-130	4		30
trans-1,3-Dichloropropene	ND	95.7	110	114		110	117		70-130	3		30
cis-1,3-Dichloropropene	ND	95.7	100	106		110	112		70-130	5		30
1,1-Dichloropropene	ND	95.7	110	113		120	125		70-130	11		30
Bromoform	ND	95.7	100	106		110	113		70-130	6		30
1,1,2,2-Tetrachloroethane	ND	95.7	110	116		120	122		70-130	5		30
Benzene	ND	95.7	100	109		110	116		70-130	7		30
Toluene	ND	95.7	110	114		120	122		70-130	7		30
Ethylbenzene	ND	95.7	110	118		120	124		70-130	5		30
Chloromethane	ND	95.7	130	134	Q	140	143	Q	52-130	7		30
Bromomethane	ND	95.7	88	92		93	98		57-147	6		30

Matrix Spike Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: MS Sample												
Vinyl chloride	ND	95.7	110	118		120	130		67-130	9		30
Chloroethane	ND	95.7	88	92		92	96		50-151	5		30
1,1-Dichloroethene	ND	95.7	110	111		120	123		65-135	11		30
trans-1,2-Dichloroethene	ND	95.7	100	108		110	117		70-130	8		30
Trichloroethene	0.13J	95.7	110	111		110	119		70-130	7		30
1,2-Dichlorobenzene	ND	95.7	98	102		100	106		70-130	4		30
1,3-Dichlorobenzene	ND	95.7	98	103		100	106		70-130	4		30
1,4-Dichlorobenzene	ND	95.7	95	100		100	104		70-130	5		30
Methyl tert butyl ether	1.6J	95.7	94	99		98	103		66-130	4		30
p/m-Xylene	ND	191	220	116		230	121		70-130	4		30
o-Xylene	ND	191	220	115		230	119		70-130	3		30
cis-1,2-Dichloroethene	ND	95.7	100	104		110	112		70-130	7		30
Dibromomethane	ND	95.7	98	103		100	106		70-130	4		30
Styrene	ND	191	220	114		220	116		70-130	2		30
Dichlorodifluoromethane	ND	95.7	100	108		120	121		30-146	12		30
Acetone	360E	95.7	510E	161	Q	630E	277	Q	54-140	19		30
Carbon disulfide	ND	95.7	110	110		120	120		59-130	9		30
2-Butanone	5.5J	95.7	110	114		120	124		70-130	9		30
Vinyl acetate	ND	95.7	98	103		110	110		70-130	6		30
4-Methyl-2-pentanone	ND	95.7	110	110		110	118		70-130	7		30
1,2,3-Trichloropropane	ND	95.7	110	112		110	118		68-130	5		30
2-Hexanone	ND	95.7	120	123		130	133	Q	70-130	7		30
Bromochloromethane	ND	95.7	95	99		100	104		70-130	5		30

Matrix Spike Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: MS Sample												
2,2-Dichloropropane	ND	95.7	100	109		120	123		70-130	13		30
1,2-Dibromoethane	ND	95.7	100	108		110	111		70-130	3		30
1,3-Dichloropropane	ND	95.7	100	108		110	111		69-130	3		30
1,1,1,2-Tetrachloroethane	ND	95.7	110	119		120	123		70-130	3		30
Bromobenzene	ND	95.7	100	106		110	110		70-130	4		30
n-Butylbenzene	ND	95.7	110	111		120	122		70-130	10		30
sec-Butylbenzene	ND	95.7	110	119		120	130		70-130	8		30
tert-Butylbenzene	ND	95.7	120	120		120	130		70-130	8		30
o-Chlorotoluene	ND	95.7	110	117		120	125		70-130	7		30
p-Chlorotoluene	ND	95.7	110	113		120	120		70-130	6		30
1,2-Dibromo-3-chloropropane	ND	95.7	97	101		100	109		68-130	7		30
Hexachlorobutadiene	ND	95.7	82	86		95	99		67-130	15		30
Isopropylbenzene	ND	95.7	120	123		130	134	Q	70-130	8		30
p-Isopropyltoluene	ND	95.7	110	114		120	123		70-130	8		30
Naphthalene	ND	95.7	92	96		99	104		70-130	7		30
n-Propylbenzene	ND	95.7	120	121		130	132	Q	70-130	8		30
1,2,3-Trichlorobenzene	ND	95.7	82	86		88	92		70-130	6		30
1,2,4-Trichlorobenzene	ND	95.7	81	85		87	91		70-130	7		30
1,3,5-Trimethylbenzene	ND	95.7	110	118		120	125		70-130	6		30
1,2,4-Trimethylbenzene	ND	95.7	110	116		120	122		70-130	5		30
1,4-Dioxane	ND	4780	4900	102		5100	106		65-136	4		30
Ethyl methacrylate	ND	95.7	100	104		100	109		70-130	4		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-06,08-09 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: MS Sample												

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		101		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	92		90		70-130
Toluene-d8	97		98		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-01**Client ID:** DPT-47-11-13-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 08:45**Date Received:** 09/24/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.7		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-02

Client ID: DPT-47-11-13-20190924FD

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 08:45

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.1		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-03**Client ID:** DPT-47-18-20-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 09:20**Date Received:** 09/24/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944061**Report Date:** 10/08/19**SAMPLE RESULTS****Lab ID:** L1944061-04**Client ID:** DPT-47-24-26-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 09:30**Date Received:** 09/24/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.4		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-05

Client ID: DPT-46-10-12-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 10:25

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-06

Client ID: DPT-46-18-20-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 11:05

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-07

Client ID: DPT-46-20-22-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 11:15

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-08

Client ID: DPT-45-10-12-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 12:40

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.148		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Gravel	25.1		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Gravel	26.7		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Gravel	51.8		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Sand	16.6		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Medium Sand	15.7		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Sand	5.40		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Sand	37.7		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Fines	10.5		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-09

Client ID: DPT-45-17-19-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:10

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.850		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Medium Sand	0.700		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Sand	0.500		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Sand	1.20		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Fines	98.8		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-10

Client ID: DPT-45-22-24-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:20

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.669		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Coarse Sand	0.100		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Medium Sand	ND		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Fine Sand	2.30		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Sand	2.40		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
% Total Fines	97.6		%	0.100	NA	1	-	09/27/19 16:05	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

SAMPLE RESULTS

Lab ID: L1944061-11

Client ID: DPT-45-27-28-20190924

Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 13:45

Date Received: 09/24/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	09/25/19 09:49	121,2540G	RI



Project Name: ESSEX HOPE

Lab Number: L1944061

Project Number: DWJMS004

Report Date: 10/08/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 08-10 Batch: WG1289516-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 08-10 Batch: WG1289516-2								
Total Organic Carbon	99		-		75-125	-		25

Matrix Spike Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944061

Report Date: 10/08/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 08-10 QC Batch ID: WG1289516-4 WG1289516-5 QC Sample: L1944185-01 Client ID: MS Sample												
Total Organic Carbon	1.69	0.808	2.58	110		2.43	107		75-125	6		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG1288276-1 QC Sample: L1943926-01 Client ID: DUP Sample						
Solids, Total	91.1	90.0	%	1		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 08-10 QC Batch ID: WG1289516-3 QC Sample: L1944185-01 Client ID: DUP Sample						
Total Organic Carbon	1.69	1.71	%	1		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 08-10 QC Batch ID: WG1289587-1 QC Sample: L1944061-08 Client ID: DPT-45-10-12-20190924						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	25.1	24.8	%	1		20
% Fine Gravel	26.7	28.1	%	5		20
% Total Gravel	51.8	52.9	%	2		20
% Coarse Sand	16.6	18.0	%	8		20
% Medium Sand	15.7	15.1	%	4		20
% Fine Sand	5.40	5.80	%	7		20
% Total Sand	37.7	38.9	%	3		20
% Total Fines	10.5	8.20	%	25	Q	20

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10081915:03
Lab Number: L1944061
Report Date: 10/08/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944061-01A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-01A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-01B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-01B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-01C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-01C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-01D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-02A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-02A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-02B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-02B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-02C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-02C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-02D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-03A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-03A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-03B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-03B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-03C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-03C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-03D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-04A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-04A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944061-04B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-04B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-04C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-04C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-04D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-05A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-05A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-05B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-05B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-05C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-05C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-05D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-06A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-06A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-06B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-06B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-06C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-06C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-06D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-07A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-07A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-07B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-07B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-07C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-07C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-07D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-08A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-08A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10081915:03
Lab Number: L1944061
Report Date: 10/08/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944061-08B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-08B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-08C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-08C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-08D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-08E	Plastic 8oz unpreserved for Grain Size	A	NA		5.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L1944061-08F	Glass 250ml/8oz unpreserved	A	NA		5.0	Y	Absent		A2-TOC-LK(14)
L1944061-09A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-09A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-09B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-09B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-09C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-09C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-09D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-09E	Plastic 8oz unpreserved for Grain Size	A	NA		5.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBLES()
L1944061-09F	Glass 120ml/4oz unpreserved	A	NA		5.0	Y	Absent		A2-TOC-LK(14)
L1944061-10A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-10A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-10B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-10B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-10C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-10C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-10D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10081915:03
Lab Number: L1944061
Report Date: 10/08/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944061-10E	Plastic 8oz unpreserved for Grain Size	A	NA		5.0	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944061-10F	Glass 250ml/8oz unpreserved	A	NA		5.0	Y	Absent		A2-TOC-LK(14)
L1944061-11A	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-11A1	Vial MeOH preserved split	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-11B	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-11B1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-11C	5 gram Encore Sampler	A	NA		5.0	Y	Absent		NYTCL-8260HLW(14)
L1944061-11C1	Vial Water preserved split	A	NA		5.0	Y	Absent	25-SEP-19 13:08	NYTCL-8260HLW(14)
L1944061-11D	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		TS(7)
L1944061-12A	Vial HCl preserved	A	NA		5.0	Y	Absent		NYTCL-8260(14)
L1944061-12B	Vial HCl preserved	A	NA		5.0	Y	Absent		NYTCL-8260(14)
L1944061-12C	Vial HCl preserved	A	NA		5.0	Y	Absent		NYTCL-8260(14)
L1944061-13A	Vial HCl preserved	A	NA		5.0	Y	Absent		NYTCL-8260(14)
L1944061-13B	Vial HCl preserved	A	NA		5.0	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944061
Report Date: 10/08/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1944061**Project Number:** DWJMS004**Report Date:** 10/08/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:10081915:03

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-45-10-12-20190924

Sample Number: L1944061-08

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.20

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
92.20	0.00	3"	0.00	0.00	100.0
		#4	47.78	0.00	48.2
		#10	15.29	0.00	31.6
		#20	9.83	0.00	20.9
		#40	4.67	0.00	15.9
		#60	1.66	0.00	14.1
		#140	0.64	0.00	13.4
		#200	2.62	0.00	10.5

Serial_No:10081915:03

Fractional Components

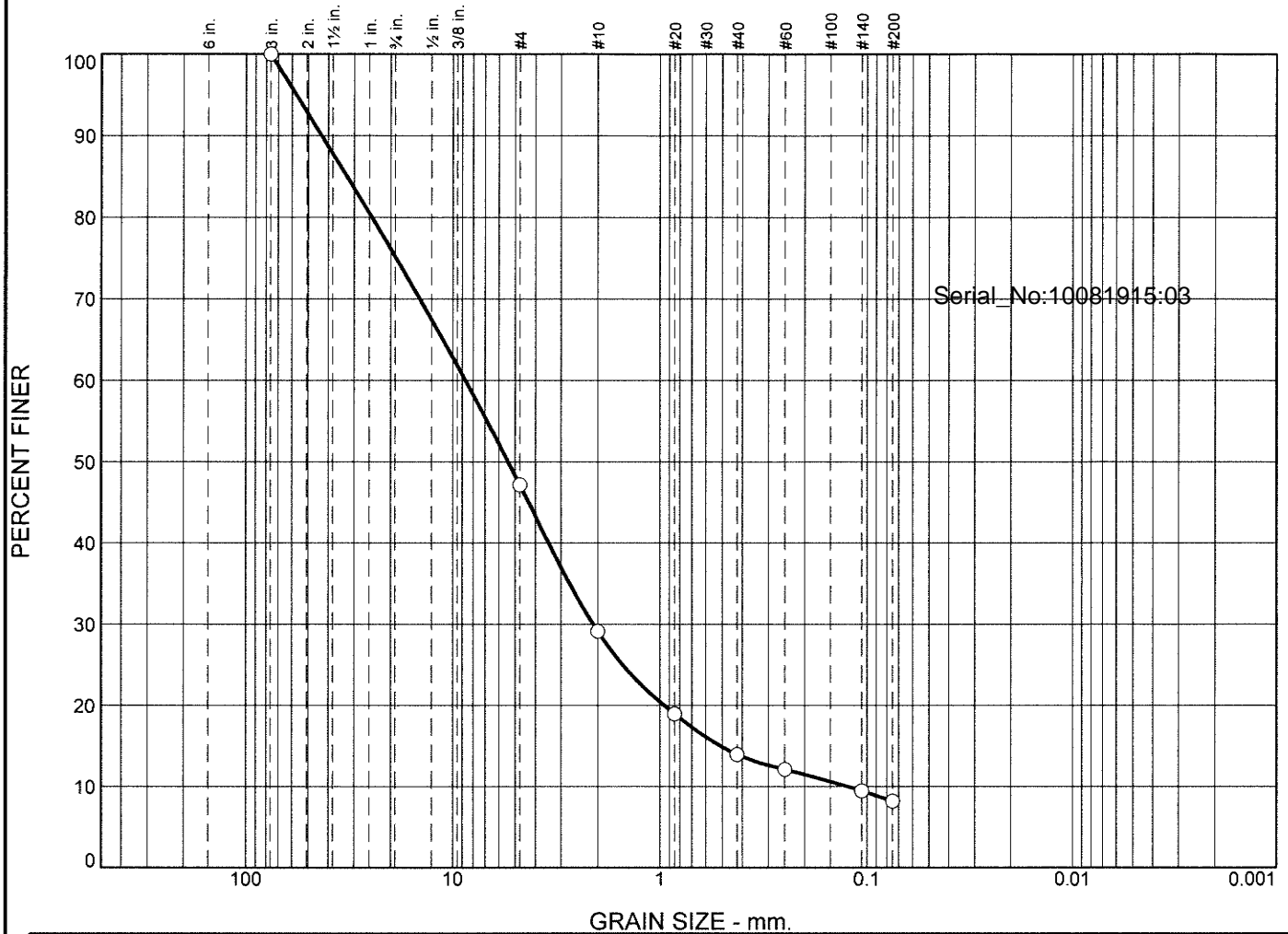
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	25.1	26.7	51.8	16.6	15.7	5.4	37.7			10.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.3550	0.7661	1.8081	3.1671	5.1995	8.6401	25.1162	33.0650	43.6221	57.6330

Fineness Modulus
5.23

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.										
% +3"		% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0	24.8	28.1	18.0	15.1	5.8	8.2			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c
<input type="radio"/>				32.5576	8.7082	5.4094	2.1041	0.5090	0.1236	4.11

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source: DPT-45-10-12-20190924 Sample No.: WG1289587-1 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-45-10-12-20190924

Sample Number: WG1289587-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =95.95

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
95.95	0.00	3"	0.00	0.00	100.0
		#4	50.71	0.00	47.1
		#10	17.29	0.00	29.1
		#20	9.74	0.00	19.0
		#40	4.80	0.00	14.0
		#60	1.79	0.00	12.1
		#140	2.53	0.00	9.5
		#200	1.23	0.00	8.2

Serial_No:10081915:03

Fractional Components

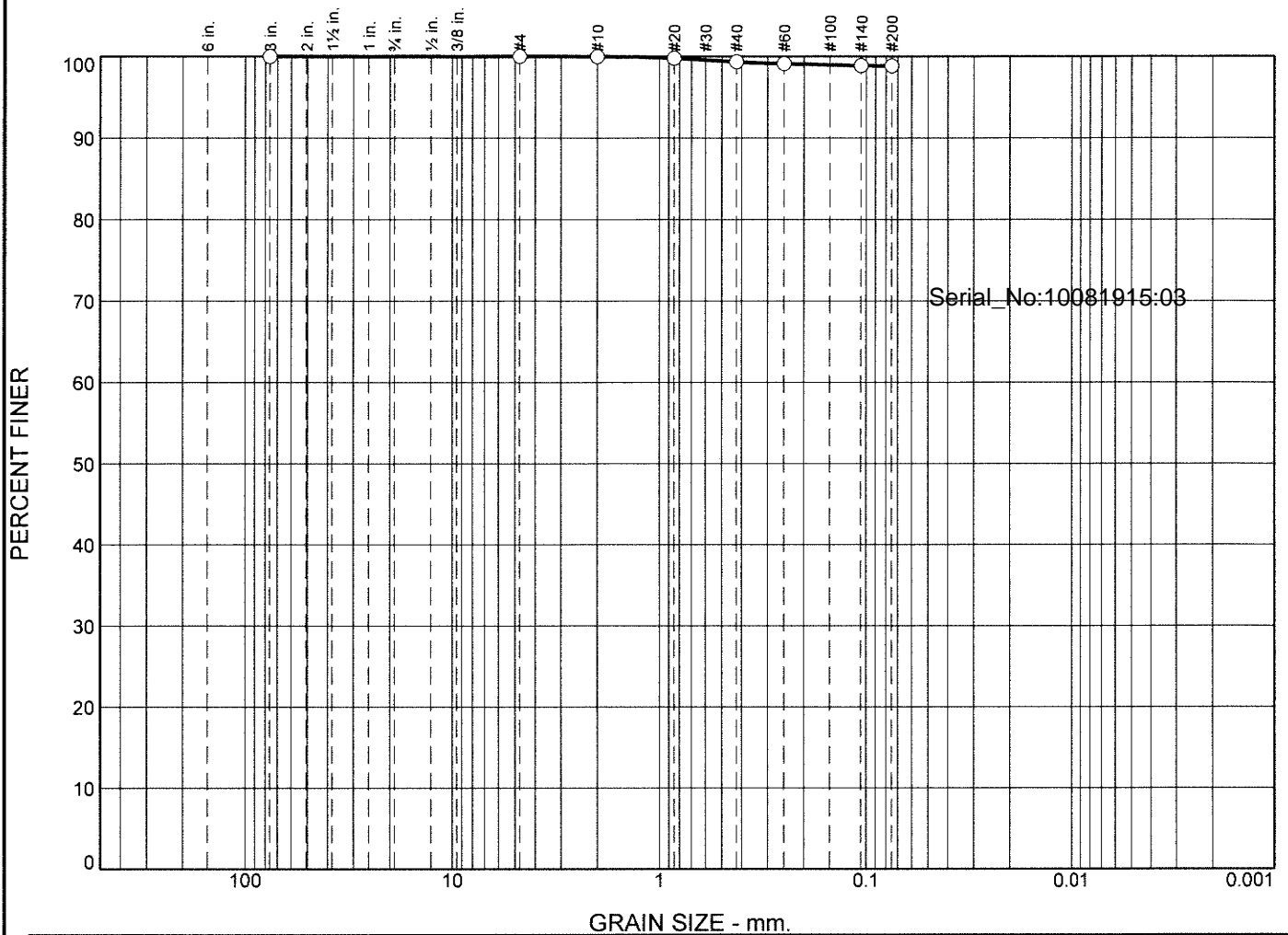
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	24.8	28.1	52.9	18.0	15.1	5.8	38.9			8.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.1236	0.5090	0.9520	2.1041	3.4471	5.4094	8.7082	24.6945	32.5576	43.1150	57.2726

Fineness Modulus	C _u	C _c
5.34	70.43	4.11

Alpha Analytical

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines			
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0		0.0	0.0	0.0	0.7	0.5	98.8			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>											

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-45-17-19-20190924 Sample Number: L1944061-09 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-45-17-19-20190924

Sample Number: L1944061-09

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =83.91

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
83.91	0.00	3"	0.00	0.00	100.0
		#4	0.01	0.00	100.0
		#10	0.00	0.00	100.0
		#20	0.17	0.00	99.8
		#40	0.38	0.00	99.3
		#60	0.18	0.00	99.1
		#140	0.21	0.00	98.9
		#200	0.04	0.00	98.8

Serial_No:10081915:03

Fractional Components

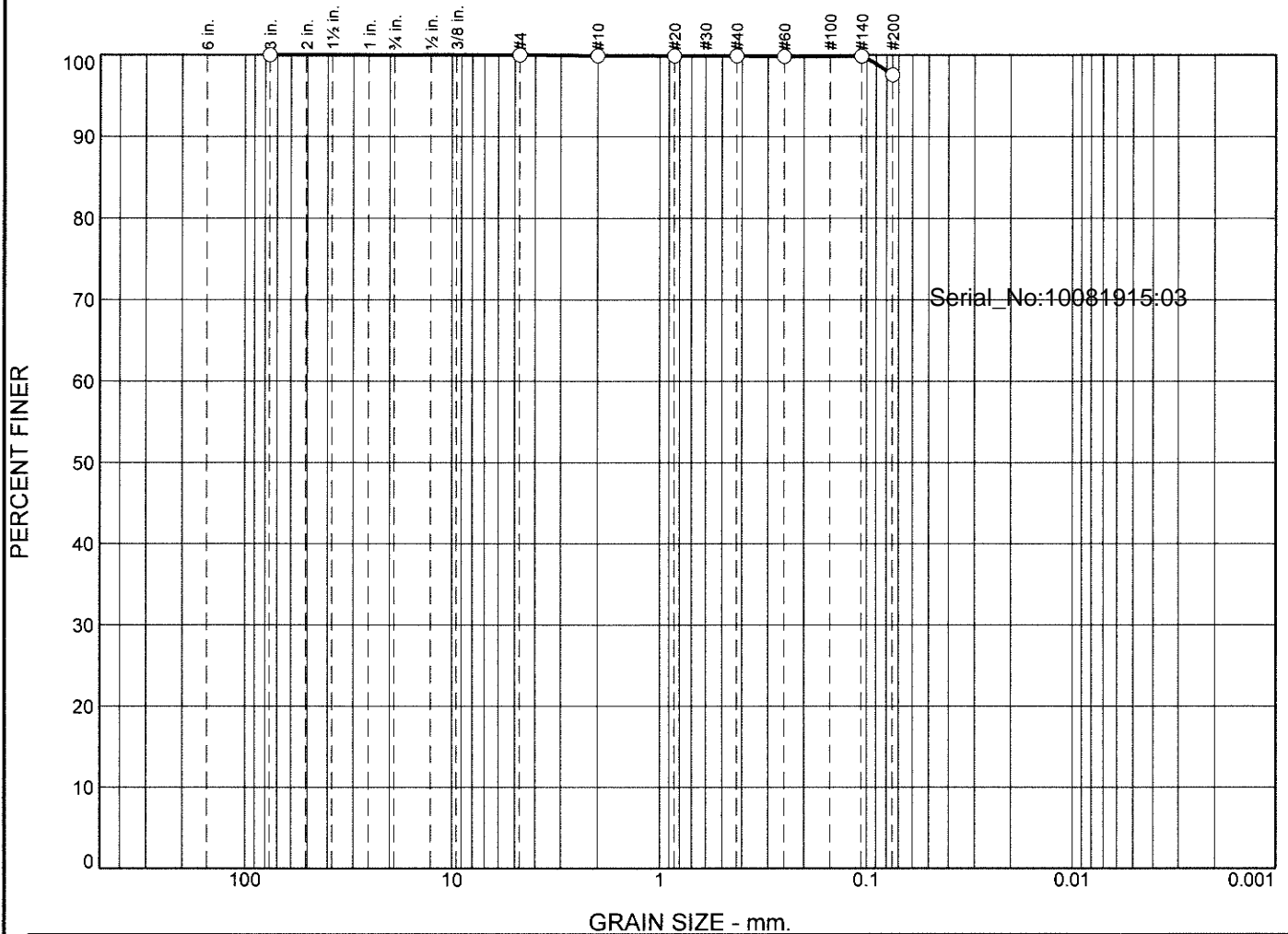
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	0.5	1.2			98.8

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.02

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"	% Gravel		% Sand			% Fines					
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
<input type="radio"/> 0.0	0.0	0.0	0.1	0.0	2.3	97.6					
<input type="radio"/>											
<input checked="" type="radio"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	C _c	C _u
<input type="radio"/>											
<input type="radio"/>											
<input type="radio"/>											
Material Description									USCS	AASHTO	
<input type="radio"/>											

Project No. Project: <input type="radio"/> Source of Sample: DPT-45-22-24-20190924 Sample Number: L1944061-10 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
---	---	--

GRAIN SIZE DISTRIBUTION TEST DATA

10/1/2019

Location: DPT-45-22-24-20190924

Sample Number: L1944061-10

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =77.24

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
77.24	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.06	0.00	99.9
		#20	0.02	0.00	99.9
		#40	0.02	0.00	99.9
		#60	0.01	0.00	99.9
		#140	0.00	0.00	99.9
		#200	1.77	0.00	97.6

Serial_No:10081915:03

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.0	2.3	2.4			97.6

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.01

Alpha Analytical

Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B, SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page <div style="text-align: center;">1 of 2</div>		Date Rec'd in Lab 09/25/19		ALPHA Job # L1944061										
		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jamestown NY</u> Project # <u>DWAM5004</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per PO</u>		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #												
Client Information Client: <u>JACOBS</u> Address: <u>125 Blackstone</u> <u>Ave. JAMESTOWN NY</u> Phone: <u>508-397-1904</u> Fax: Email: <u>Paul-Keuhne@Jacobs</u>		Project Manager: <u>Shamus Keuhne</u> ALPHAQuote #: <u>PO 148607814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per PO</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:												
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>See Program QA/QC associated to PO</u>						ANALYSIS <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VOCs (8260)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">GRAVSIZE</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TOC</div> </div>		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do (Please Specify below)		Total Bottles								
Please specify Metals or TAL.						Sample Specific Comments												
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials													
		Date	Time															
44061-01	DPT-47-11-13-20190924	9/24/19	0845	Soil	JRG	X											4	
-02	DPT-47-11-13-20190924		0845			X											4	
-03	DPT-47-18-20-20190924		0920			X											4	
-04	DPT-47-24-26-20190924		0930			X											4	
-05	DPT-46-10-12-20190924		1025			X											4	
-06	DPT-46-13-20-20190924		1105			X											4	
-07	DPT-46-20-22-20190924		1115			X											4	
-08	DPT-45-12-12-20190924		1240			X	X	X									6	
-09	DPT-45-17-19-20190924		1310			X	X	X									6	
-10	DPT-45-22-24-20190924		1320			X	X	X									6	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		E P A A A A										Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)
Relinquished By: <u>[Signature]</u>		Date/Time: <u>9/24/19 1440</u>		Received By: <u>[Signature]</u>		Date/Time: <u>9/24/19 14:45</u>												
Form No: 01-25 HC (rev. 30-Sept-2013)																		



ANALYTICAL REPORT

Lab Number:	L1944397
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	10/09/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1944397-01	DPT-41-10-12-20190924	SOIL	JAMESTOWN, NY	09/24/19 15:05	09/25/19
L1944397-02	DPT-41-18-20-20190924	SOIL	JAMESTOWN, NY	09/24/19 15:40	09/25/19
L1944397-03	DPT-41-20-22-20190924	SOIL	JAMESTOWN, NY	09/24/19 15:45	09/25/19
L1944397-04	DPT-42-10-12-20190925	SOIL	JAMESTOWN, NY	09/25/19 10:05	09/25/19
L1944397-05	DPT-42-16-18-20190925	SOIL	JAMESTOWN, NY	09/25/19 10:15	09/25/19
L1944397-06	DPT-42-20-22-20190925	SOIL	JAMESTOWN, NY	09/25/19 10:35	09/25/19
L1944397-07	DPT-42-26-28-20190925	SOIL	JAMESTOWN, NY	09/25/19 11:00	09/25/19
L1944397-08	DPT-43-10-12-20190925	SOIL	JAMESTOWN, NY	09/25/19 11:55	09/25/19
L1944397-09	DPT-43-18-20-20190925FD	SOIL	JAMESTOWN, NY	09/25/19 12:15	09/25/19
L1944397-10	DPT-43-18-20-20190925	SOIL	JAMESTOWN, NY	09/25/19 12:10	09/25/19
L1944397-11	DPT-43-22-24-20190925	SOIL	JAMESTOWN, NY	09/25/19 12:40	09/25/19
L1944397-12	TB-012-20190925	WATER	JAMESTOWN, NY	09/24/19 00:00	09/25/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Case Narrative (continued)

Report Submission

October 08, 2019: This final report includes the results of all requested analyses.

October 02, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1944397-01 and -11: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1944397-02: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of target compounds in the sample.

L1944397-03, -06, and -07: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1944397-12: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1289537-4 LCSD recovery, associated with L1944397-12, is below the individual acceptance criteria for bromomethane (35%), but within the overall method allowances. The results of the associated sample are reported.

The WG1290643-6/-7 MS/MSD recoveries, performed on L1944397-01, are outside the acceptance criteria for carbon tetrachloride (MSD 132%), 1,1,1-trichloroethane (MSD 131%), chloromethane (134%/143%), acetone (161%/277%), 2-hexanone (MSD 133%), isopropylbenzene (MSD 134%), and n-propylbenzene (MSD 132%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

The initial calibration, associated with L1944397-01 through -11, did not meet the method required minimum response factor for the calibration standards for 1,2-dibromo-3-chloropropane and 1,4-dioxane.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Case Narrative (continued)

The initial calibration verification standard has the percent deviation for bromomethane (41%D) and dichlorodifluoromethane (47%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1944397-01 through -11, did not meet the method required minimum response factor for 1,4-dioxane.

The continuing calibration, associated with L1944397-12, did not meet the method required minimum response factor for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

WG1289537-2: The continuing calibration verification standard has the percent deviation for chloromethane (35%D), bromomethane (45%D), chloroethane (37%D), methyl tert butyl ether (40%D), dichlorodifluoromethane (27%D), vinyl acetate (37%D), and 2,2-dichloropropane (21%D), above the 20% CCV criteria, but within overall method allowances.


WG1290896-2: The continuing calibration verification standard has the percent deviation for bromomethane (25%D), and chloroethane (23%D) above the 20% CCV criteria but within overall method allowances.

Grain Size Analysis

The WG1290625-1 Laboratory Duplicate RPD for % medium sand (40%), performed on L1944397-06, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 10/09/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-01
 Client ID: DPT-41-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:05
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 13:03
 Analyst: JC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.4	2.0	1
1,1-Dichloroethane	ND		ug/kg	0.89	0.13	1
Chloroform	ND		ug/kg	1.3	0.12	1
Carbon tetrachloride	ND		ug/kg	0.89	0.20	1
1,2-Dichloropropane	ND		ug/kg	0.89	0.11	1
Dibromochloromethane	ND		ug/kg	0.89	0.12	1
1,1,2-Trichloroethane	ND		ug/kg	0.89	0.24	1
Tetrachloroethene	ND		ug/kg	0.44	0.17	1
Chlorobenzene	ND		ug/kg	0.44	0.11	1
Trichlorofluoromethane	ND		ug/kg	3.6	0.62	1
1,2-Dichloroethane	ND		ug/kg	0.89	0.23	1
1,1,1-Trichloroethane	ND		ug/kg	0.44	0.15	1
Bromodichloromethane	ND		ug/kg	0.44	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.89	0.24	1
cis-1,3-Dichloropropene	ND		ug/kg	0.44	0.14	1
1,3-Dichloropropene, Total	ND		ug/kg	0.44	0.14	1
1,1-Dichloropropene	ND		ug/kg	0.44	0.14	1
Bromoform	ND		ug/kg	3.6	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.44	0.15	1
Benzene	ND		ug/kg	0.44	0.15	1
Toluene	ND		ug/kg	0.89	0.48	1
Ethylbenzene	ND		ug/kg	0.89	0.12	1
Chloromethane	ND		ug/kg	3.6	0.83	1
Bromomethane	ND		ug/kg	1.8	0.52	1
Vinyl chloride	ND		ug/kg	0.89	0.30	1
Chloroethane	ND		ug/kg	1.8	0.40	1
1,1-Dichloroethene	ND		ug/kg	0.89	0.21	1
trans-1,2-Dichloroethene	ND		ug/kg	1.3	0.12	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-01
 Client ID: DPT-41-10-12-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:05
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.13	J	ug/kg	0.44	0.12	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	0.15	1
Methyl tert butyl ether	1.6	J	ug/kg	1.8	0.18	1
p/m-Xylene	ND		ug/kg	1.8	0.50	1
o-Xylene	ND		ug/kg	0.89	0.26	1
Xylenes, Total	ND		ug/kg	0.89	0.26	1
cis-1,2-Dichloroethene	ND		ug/kg	0.89	0.16	1
1,2-Dichloroethene, Total	ND		ug/kg	0.89	0.12	1
Dibromomethane	ND		ug/kg	1.8	0.21	1
Styrene	ND		ug/kg	0.89	0.17	1
Dichlorodifluoromethane	ND		ug/kg	8.9	0.82	1
Acetone	360	E	ug/kg	8.9	4.3	1
Carbon disulfide	ND		ug/kg	8.9	4.0	1
2-Butanone	5.5	J	ug/kg	8.9	2.0	1
Vinyl acetate	ND		ug/kg	8.9	1.9	1
4-Methyl-2-pentanone	ND		ug/kg	8.9	1.1	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	0.11	1
2-Hexanone	ND		ug/kg	8.9	1.0	1
Bromochloromethane	ND		ug/kg	1.8	0.18	1
2,2-Dichloropropane	ND		ug/kg	1.8	0.18	1
1,2-Dibromoethane	ND		ug/kg	0.89	0.25	1
1,3-Dichloropropane	ND		ug/kg	1.8	0.15	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.44	0.12	1
Bromobenzene	ND		ug/kg	1.8	0.13	1
n-Butylbenzene	ND		ug/kg	0.89	0.15	1
sec-Butylbenzene	ND		ug/kg	0.89	0.13	1
tert-Butylbenzene	ND		ug/kg	1.8	0.10	1
o-Chlorotoluene	ND		ug/kg	1.8	0.17	1
p-Chlorotoluene	ND		ug/kg	1.8	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.7	0.89	1
Hexachlorobutadiene	ND		ug/kg	3.6	0.15	1
Isopropylbenzene	ND		ug/kg	0.89	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.89	0.10	1
Naphthalene	ND		ug/kg	3.6	0.58	1
n-Propylbenzene	ND		ug/kg	0.89	0.15	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-01

Date Collected: 09/24/19 15:05

Client ID: DPT-41-10-12-20190924

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	0.29	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	0.24	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	0.17	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	0.30	1
1,4-Dioxane	ND		ug/kg	71	31.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-02
 Client ID: DPT-41-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:40
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 15:28
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	350	160	1
1,1-Dichloroethane	ND		ug/kg	71	10.	1
Chloroform	11	J	ug/kg	110	9.9	1
Carbon tetrachloride	ND		ug/kg	71	16.	1
1,2-Dichloropropane	ND		ug/kg	71	8.9	1
Dibromochloromethane	ND		ug/kg	71	9.9	1
1,1,2-Trichloroethane	ND		ug/kg	71	19.	1
Tetrachloroethene	ND		ug/kg	35	14.	1
Chlorobenzene	ND		ug/kg	35	9.0	1
Trichlorofluoromethane	ND		ug/kg	280	49.	1
1,2-Dichloroethane	ND		ug/kg	71	18.	1
1,1,1-Trichloroethane	ND		ug/kg	35	12.	1
Bromodichloromethane	ND		ug/kg	35	7.7	1
trans-1,3-Dichloropropene	ND		ug/kg	71	19.	1
cis-1,3-Dichloropropene	ND		ug/kg	35	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	35	11.	1
1,1-Dichloropropene	ND		ug/kg	35	11.	1
Bromoform	ND		ug/kg	280	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	35	12.	1
Benzene	27	J	ug/kg	35	12.	1
Toluene	ND		ug/kg	71	38.	1
Ethylbenzene	ND		ug/kg	71	10.	1
Chloromethane	ND		ug/kg	280	66.	1
Bromomethane	ND		ug/kg	140	41.	1
Vinyl chloride	68	J	ug/kg	71	24.	1
Chloroethane	ND		ug/kg	140	32.	1
1,1-Dichloroethene	26	J	ug/kg	71	17.	1
trans-1,2-Dichloroethene	10	J	ug/kg	110	9.7	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-02
 Client ID: DPT-41-18-20-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:40
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	3000		ug/kg	35	9.7	1
1,2-Dichlorobenzene	ND		ug/kg	140	10.	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	40.	1
o-Xylene	ND		ug/kg	71	21.	1
Xylenes, Total	ND		ug/kg	71	21.	1
cis-1,2-Dichloroethene	2300		ug/kg	71	12.	1
1,2-Dichloroethene, Total	2300	J	ug/kg	71	9.7	1
Dibromomethane	ND		ug/kg	140	17.	1
Styrene	ND		ug/kg	71	14.	1
Dichlorodifluoromethane	ND		ug/kg	710	65.	1
Acetone	ND		ug/kg	710	340	1
Carbon disulfide	ND		ug/kg	710	320	1
2-Butanone	ND		ug/kg	710	160	1
Vinyl acetate	ND		ug/kg	710	150	1
4-Methyl-2-pentanone	ND		ug/kg	710	91.	1
1,2,3-Trichloropropane	ND		ug/kg	140	9.0	1
2-Hexanone	ND		ug/kg	710	84.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	71	20.	1
1,3-Dichloropropane	ND		ug/kg	140	12.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	35	9.4	1
Bromobenzene	ND		ug/kg	140	10.	1
n-Butylbenzene	ND		ug/kg	71	12.	1
sec-Butylbenzene	ND		ug/kg	71	10.	1
tert-Butylbenzene	ND		ug/kg	140	8.4	1
o-Chlorotoluene	ND		ug/kg	140	14.	1
p-Chlorotoluene	ND		ug/kg	140	7.7	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	210	71.	1
Hexachlorobutadiene	ND		ug/kg	280	12.	1
Isopropylbenzene	ND		ug/kg	71	7.7	1
p-Isopropyltoluene	ND		ug/kg	71	7.7	1
Naphthalene	ND		ug/kg	280	46.	1
n-Propylbenzene	ND		ug/kg	71	12.	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-02**Date Collected:** 09/24/19 15:40**Client ID:** DPT-41-18-20-20190924**Date Received:** 09/25/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	23.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	19.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	14.	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	24.	1
1,4-Dioxane	ND		ug/kg	5700	2500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-03 D
 Client ID: DPT-41-20-22-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:45
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 10/01/19 12:50

Analyst: JC

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	3600	1600	10
1,1-Dichloroethane	ND		ug/kg	710	100	10
Chloroform	110	J	ug/kg	1100	100	10
Carbon tetrachloride	ND		ug/kg	710	160	10
1,2-Dichloropropane	ND		ug/kg	710	89.	10
Dibromochloromethane	ND		ug/kg	710	100	10
1,1,2-Trichloroethane	ND		ug/kg	710	190	10
Tetrachloroethene	ND		ug/kg	360	140	10
Chlorobenzene	ND		ug/kg	360	90.	10
Trichlorofluoromethane	ND		ug/kg	2800	490	10
1,2-Dichloroethane	ND		ug/kg	710	180	10
1,1,1-Trichloroethane	ND		ug/kg	360	120	10
Bromodichloromethane	ND		ug/kg	360	78.	10
trans-1,3-Dichloropropene	ND		ug/kg	710	190	10
cis-1,3-Dichloropropene	ND		ug/kg	360	110	10
1,3-Dichloropropene, Total	ND		ug/kg	360	110	10
1,1-Dichloropropene	ND		ug/kg	360	110	10
Bromoform	ND		ug/kg	2800	180	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	360	120	10
Benzene	ND		ug/kg	360	120	10
Toluene	ND		ug/kg	710	390	10
Ethylbenzene	120	J	ug/kg	710	100	10
Chloromethane	ND		ug/kg	2800	660	10
Bromomethane	ND		ug/kg	1400	410	10
Vinyl chloride	ND		ug/kg	710	240	10
Chloroethane	ND		ug/kg	1400	320	10
1,1-Dichloroethene	ND		ug/kg	710	170	10
trans-1,2-Dichloroethene	ND		ug/kg	1100	97.	10

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-03 D
 Client ID: DPT-41-20-22-20190924
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 15:45
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	120000		ug/kg	360	97.	10
1,2-Dichlorobenzene	ND		ug/kg	1400	100	10
1,3-Dichlorobenzene	ND		ug/kg	1400	100	10
1,4-Dichlorobenzene	ND		ug/kg	1400	120	10
Methyl tert butyl ether	ND		ug/kg	1400	140	10
p/m-Xylene	ND		ug/kg	1400	400	10
o-Xylene	ND		ug/kg	710	210	10
Xylenes, Total	ND		ug/kg	710	210	10
cis-1,2-Dichloroethene	9100		ug/kg	710	120	10
1,2-Dichloroethene, Total	9100		ug/kg	710	97.	10
Dibromomethane	ND		ug/kg	1400	170	10
Styrene	ND		ug/kg	710	140	10
Dichlorodifluoromethane	ND		ug/kg	7100	650	10
Acetone	ND		ug/kg	7100	3400	10
Carbon disulfide	ND		ug/kg	7100	3200	10
2-Butanone	ND		ug/kg	7100	1600	10
Vinyl acetate	ND		ug/kg	7100	1500	10
4-Methyl-2-pentanone	ND		ug/kg	7100	910	10
1,2,3-Trichloropropane	ND		ug/kg	1400	90.	10
2-Hexanone	ND		ug/kg	7100	840	10
Bromochloromethane	ND		ug/kg	1400	140	10
2,2-Dichloropropane	ND		ug/kg	1400	140	10
1,2-Dibromoethane	ND		ug/kg	710	200	10
1,3-Dichloropropane	ND		ug/kg	1400	120	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	360	94.	10
Bromobenzene	ND		ug/kg	1400	100	10
n-Butylbenzene	ND		ug/kg	710	120	10
sec-Butylbenzene	ND		ug/kg	710	100	10
tert-Butylbenzene	ND		ug/kg	1400	84.	10
o-Chlorotoluene	ND		ug/kg	1400	140	10
p-Chlorotoluene	ND		ug/kg	1400	77.	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	2100	710	10
Hexachlorobutadiene	ND		ug/kg	2800	120	10
Isopropylbenzene	ND		ug/kg	710	78.	10
p-Isopropyltoluene	ND		ug/kg	710	78.	10
Naphthalene	ND		ug/kg	2800	460	10
n-Propylbenzene	ND		ug/kg	710	120	10



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-03 D

Date Collected: 09/24/19 15:45

Client ID: DPT-41-20-22-20190924

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1400	230	10
1,2,4-Trichlorobenzene	ND		ug/kg	1400	190	10
1,3,5-Trimethylbenzene	ND		ug/kg	1400	140	10
1,2,4-Trimethylbenzene	ND		ug/kg	1400	240	10
1,4-Dioxane	ND		ug/kg	57000	25000	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	90		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-04
 Client ID: DPT-42-10-12-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:05
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 13:27
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.6	2.1	1
1,1-Dichloroethane	ND		ug/kg	0.91	0.13	1
Chloroform	ND		ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.91	0.21	1
1,2-Dichloropropane	ND		ug/kg	0.91	0.11	1
Dibromochloromethane	ND		ug/kg	0.91	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.91	0.24	1
Tetrachloroethene	ND		ug/kg	0.46	0.18	1
Chlorobenzene	ND		ug/kg	0.46	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.6	0.64	1
1,2-Dichloroethane	ND		ug/kg	0.91	0.24	1
1,1,1-Trichloroethane	ND		ug/kg	0.46	0.15	1
Bromodichloromethane	ND		ug/kg	0.46	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.91	0.25	1
cis-1,3-Dichloropropene	ND		ug/kg	0.46	0.14	1
1,3-Dichloropropene, Total	ND		ug/kg	0.46	0.14	1
1,1-Dichloropropene	ND		ug/kg	0.46	0.14	1
Bromoform	ND		ug/kg	3.6	0.22	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.46	0.15	1
Benzene	ND		ug/kg	0.46	0.15	1
Toluene	ND		ug/kg	0.91	0.50	1
Ethylbenzene	ND		ug/kg	0.91	0.13	1
Chloromethane	ND		ug/kg	3.6	0.85	1
Bromomethane	ND		ug/kg	1.8	0.53	1
Vinyl chloride	ND		ug/kg	0.91	0.31	1
Chloroethane	ND		ug/kg	1.8	0.41	1
1,1-Dichloroethene	ND		ug/kg	0.91	0.22	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.12	1

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-04

Date Collected: 09/25/19 10:05

Client ID: DPT-42-10-12-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.46	0.12	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	0.13	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	0.16	1
Methyl tert butyl ether	1.4	J	ug/kg	1.8	0.18	1
p/m-Xylene	ND		ug/kg	1.8	0.51	1
o-Xylene	ND		ug/kg	0.91	0.27	1
Xylenes, Total	ND		ug/kg	0.91	0.27	1
cis-1,2-Dichloroethene	ND		ug/kg	0.91	0.16	1
1,2-Dichloroethene, Total	ND		ug/kg	0.91	0.12	1
Dibromomethane	ND		ug/kg	1.8	0.22	1
Styrene	ND		ug/kg	0.91	0.18	1
Dichlorodifluoromethane	ND		ug/kg	9.1	0.84	1
Acetone	160		ug/kg	9.1	4.4	1
Carbon disulfide	ND		ug/kg	9.1	4.2	1
2-Butanone	ND		ug/kg	9.1	2.0	1
Vinyl acetate	ND		ug/kg	9.1	2.0	1
4-Methyl-2-pentanone	ND		ug/kg	9.1	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	0.12	1
2-Hexanone	ND		ug/kg	9.1	1.1	1
Bromochloromethane	ND		ug/kg	1.8	0.19	1
2,2-Dichloropropane	ND		ug/kg	1.8	0.18	1
1,2-Dibromoethane	ND		ug/kg	0.91	0.26	1
1,3-Dichloropropane	ND		ug/kg	1.8	0.15	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.46	0.12	1
Bromobenzene	ND		ug/kg	1.8	0.13	1
n-Butylbenzene	ND		ug/kg	0.91	0.15	1
sec-Butylbenzene	ND		ug/kg	0.91	0.13	1
tert-Butylbenzene	ND		ug/kg	1.8	0.11	1
o-Chlorotoluene	ND		ug/kg	1.8	0.17	1
p-Chlorotoluene	ND		ug/kg	1.8	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.7	0.91	1
Hexachlorobutadiene	ND		ug/kg	3.6	0.15	1
Isopropylbenzene	ND		ug/kg	0.91	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.91	0.10	1
Naphthalene	ND		ug/kg	3.6	0.59	1
n-Propylbenzene	ND		ug/kg	0.91	0.16	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-04

Date Collected: 09/25/19 10:05

Client ID: DPT-42-10-12-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	0.29	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	0.25	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	0.30	1
1,4-Dioxane	ND		ug/kg	73	32.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-05
 Client ID: DPT-42-16-18-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:15
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 13:51
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.4	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.59	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.63	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-05
 Client ID: DPT-42-16-18-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:15
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	1.2	J	ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	250		ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	3.1	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-05

Date Collected: 09/25/19 10:15

Client ID: DPT-42-16-18-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	87	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-06 D
 Client ID: DPT-42-20-22-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:35
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 16:16
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1800	830	5
1,1-Dichloroethane	ND		ug/kg	360	52.	5
Chloroform	ND		ug/kg	540	51.	5
Carbon tetrachloride	ND		ug/kg	360	83.	5
1,2-Dichloropropane	ND		ug/kg	360	45.	5
Dibromochloromethane	ND		ug/kg	360	51.	5
1,1,2-Trichloroethane	ND		ug/kg	360	97.	5
Tetrachloroethene	ND		ug/kg	180	71.	5
Chlorobenzene	ND		ug/kg	180	46.	5
Trichlorofluoromethane	ND		ug/kg	1400	250	5
1,2-Dichloroethane	ND		ug/kg	360	93.	5
1,1,1-Trichloroethane	ND		ug/kg	180	60.	5
Bromodichloromethane	ND		ug/kg	180	39.	5
trans-1,3-Dichloropropene	ND		ug/kg	360	99.	5
cis-1,3-Dichloropropene	ND		ug/kg	180	57.	5
1,3-Dichloropropene, Total	ND		ug/kg	180	57.	5
1,1-Dichloropropene	ND		ug/kg	180	58.	5
Bromoform	ND		ug/kg	1400	89.	5
1,1,2,2-Tetrachloroethane	ND		ug/kg	180	60.	5
Benzene	120	J	ug/kg	180	60.	5
Toluene	270	J	ug/kg	360	200	5
Ethylbenzene	51	J	ug/kg	360	51.	5
Chloromethane	ND		ug/kg	1400	340	5
Bromomethane	ND		ug/kg	720	210	5
Vinyl chloride	390		ug/kg	360	120	5
Chloroethane	ND		ug/kg	720	160	5
1,1-Dichloroethene	ND		ug/kg	360	86.	5
trans-1,2-Dichloroethene	ND		ug/kg	540	50.	5

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-06 D
 Client ID: DPT-42-20-22-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:35
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	55000		ug/kg	180	50.	5
1,2-Dichlorobenzene	ND		ug/kg	720	52.	5
1,3-Dichlorobenzene	ND		ug/kg	720	54.	5
1,4-Dichlorobenzene	ND		ug/kg	720	62.	5
Methyl tert butyl ether	ND		ug/kg	720	73.	5
p/m-Xylene	260	J	ug/kg	720	200	5
o-Xylene	140	J	ug/kg	360	100	5
Xylenes, Total	400	J	ug/kg	360	100	5
cis-1,2-Dichloroethene	4300		ug/kg	360	63.	5
1,2-Dichloroethene, Total	4300		ug/kg	360	50.	5
Dibromomethane	ND		ug/kg	720	86.	5
Styrene	ND		ug/kg	360	71.	5
Dichlorodifluoromethane	ND		ug/kg	3600	330	5
Acetone	ND		ug/kg	3600	1700	5
Carbon disulfide	ND		ug/kg	3600	1600	5
2-Butanone	ND		ug/kg	3600	800	5
Vinyl acetate	ND		ug/kg	3600	780	5
4-Methyl-2-pentanone	ND		ug/kg	3600	460	5
1,2,3-Trichloropropane	ND		ug/kg	720	46.	5
2-Hexanone	ND		ug/kg	3600	430	5
Bromochloromethane	ND		ug/kg	720	74.	5
2,2-Dichloropropane	ND		ug/kg	720	73.	5
1,2-Dibromoethane	ND		ug/kg	360	100	5
1,3-Dichloropropane	ND		ug/kg	720	60.	5
1,1,1,2-Tetrachloroethane	ND		ug/kg	180	48.	5
Bromobenzene	ND		ug/kg	720	52.	5
n-Butylbenzene	ND		ug/kg	360	60.	5
sec-Butylbenzene	ND		ug/kg	360	53.	5
tert-Butylbenzene	ND		ug/kg	720	43.	5
o-Chlorotoluene	ND		ug/kg	720	69.	5
p-Chlorotoluene	ND		ug/kg	720	39.	5
1,2-Dibromo-3-chloropropane	ND		ug/kg	1100	360	5
Hexachlorobutadiene	ND		ug/kg	1400	61.	5
Isopropylbenzene	ND		ug/kg	360	39.	5
p-Isopropyltoluene	ND		ug/kg	360	39.	5
Naphthalene	ND		ug/kg	1400	240	5
n-Propylbenzene	160	J	ug/kg	360	62.	5

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-06 D
 Client ID: DPT-42-20-22-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:35
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	720	120	5
1,2,4-Trichlorobenzene	ND		ug/kg	720	98.	5
1,3,5-Trimethylbenzene	440	J	ug/kg	720	70.	5
1,2,4-Trimethylbenzene	2200		ug/kg	720	120	5
1,4-Dioxane	ND		ug/kg	29000	13000	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	89		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-07 D
 Client ID: DPT-42-26-28-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 11:00
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 09/29/19 16:41
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	3400	1600	10
1,1-Dichloroethane	ND		ug/kg	680	99.	10
Chloroform	ND		ug/kg	1000	96.	10
Carbon tetrachloride	ND		ug/kg	680	160	10
1,2-Dichloropropane	ND		ug/kg	680	86.	10
Dibromochloromethane	ND		ug/kg	680	96.	10
1,1,2-Trichloroethane	ND		ug/kg	680	180	10
Tetrachloroethene	ND		ug/kg	340	130	10
Chlorobenzene	ND		ug/kg	340	87.	10
Trichlorofluoromethane	ND		ug/kg	2700	480	10
1,2-Dichloroethane	ND		ug/kg	680	180	10
1,1,1-Trichloroethane	ND		ug/kg	340	110	10
Bromodichloromethane	ND		ug/kg	340	74.	10
trans-1,3-Dichloropropene	ND		ug/kg	680	190	10
cis-1,3-Dichloropropene	ND		ug/kg	340	110	10
1,3-Dichloropropene, Total	ND		ug/kg	340	110	10
1,1-Dichloropropene	ND		ug/kg	340	110	10
Bromoform	ND		ug/kg	2700	170	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	340	110	10
Benzene	150	J	ug/kg	340	110	10
Toluene	ND		ug/kg	680	370	10
Ethylbenzene	ND		ug/kg	680	96.	10
Chloromethane	ND		ug/kg	2700	640	10
Bromomethane	ND		ug/kg	1400	400	10
Vinyl chloride	640	J	ug/kg	680	230	10
Chloroethane	ND		ug/kg	1400	310	10
1,1-Dichloroethene	ND		ug/kg	680	160	10
trans-1,2-Dichloroethene	ND		ug/kg	1000	94.	10

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-07 D
 Client ID: DPT-42-26-28-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 11:00
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	88000		ug/kg	340	94.	10
1,2-Dichlorobenzene	ND		ug/kg	1400	98.	10
1,3-Dichlorobenzene	ND		ug/kg	1400	100	10
1,4-Dichlorobenzene	ND		ug/kg	1400	120	10
Methyl tert butyl ether	ND		ug/kg	1400	140	10
p/m-Xylene	ND		ug/kg	1400	380	10
o-Xylene	ND		ug/kg	680	200	10
Xylenes, Total	ND		ug/kg	680	200	10
cis-1,2-Dichloroethene	5900		ug/kg	680	120	10
1,2-Dichloroethene, Total	5900		ug/kg	680	94.	10
Dibromomethane	ND		ug/kg	1400	160	10
Styrene	ND		ug/kg	680	130	10
Dichlorodifluoromethane	ND		ug/kg	6800	620	10
Acetone	ND		ug/kg	6800	3300	10
Carbon disulfide	ND		ug/kg	6800	3100	10
2-Butanone	ND		ug/kg	6800	1500	10
Vinyl acetate	ND		ug/kg	6800	1500	10
4-Methyl-2-pentanone	ND		ug/kg	6800	880	10
1,2,3-Trichloropropane	ND		ug/kg	1400	87.	10
2-Hexanone	ND		ug/kg	6800	810	10
Bromochloromethane	ND		ug/kg	1400	140	10
2,2-Dichloropropane	ND		ug/kg	1400	140	10
1,2-Dibromoethane	ND		ug/kg	680	190	10
1,3-Dichloropropane	ND		ug/kg	1400	110	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	340	90.	10
Bromobenzene	ND		ug/kg	1400	99.	10
n-Butylbenzene	ND		ug/kg	680	110	10
sec-Butylbenzene	ND		ug/kg	680	100	10
tert-Butylbenzene	ND		ug/kg	1400	81.	10
o-Chlorotoluene	ND		ug/kg	1400	130	10
p-Chlorotoluene	ND		ug/kg	1400	74.	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	2000	680	10
Hexachlorobutadiene	ND		ug/kg	2700	120	10
Isopropylbenzene	ND		ug/kg	680	74.	10
p-Isopropyltoluene	ND		ug/kg	680	74.	10
Naphthalene	ND		ug/kg	2700	440	10
n-Propylbenzene	ND		ug/kg	680	120	10



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-07 D

Date Collected: 09/25/19 11:00

Client ID: DPT-42-26-28-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1400	220	10
1,2,4-Trichlorobenzene	ND		ug/kg	1400	190	10
1,3,5-Trimethylbenzene	ND		ug/kg	1400	130	10
1,2,4-Trimethylbenzene	ND		ug/kg	1400	230	10
1,4-Dioxane	ND		ug/kg	55000	24000	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	90		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-08
 Client ID: DPT-43-10-12-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 11:55
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/01/19 14:03
 Analyst: MKS
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.96	0.14	1
Chloroform	ND		ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.96	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.96	0.12	1
Dibromochloromethane	ND		ug/kg	0.96	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.96	0.26	1
Tetrachloroethene	ND		ug/kg	0.48	0.19	1
Chlorobenzene	ND		ug/kg	0.48	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.8	0.66	1
1,2-Dichloroethane	ND		ug/kg	0.96	0.25	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	0.16	1
Bromodichloromethane	ND		ug/kg	0.48	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.96	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.48	0.15	1
Bromoform	ND		ug/kg	3.8	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	0.16	1
Benzene	ND		ug/kg	0.48	0.16	1
Toluene	ND		ug/kg	0.96	0.52	1
Ethylbenzene	ND		ug/kg	0.96	0.14	1
Chloromethane	ND		ug/kg	3.8	0.89	1
Bromomethane	ND		ug/kg	1.9	0.56	1
Vinyl chloride	ND		ug/kg	0.96	0.32	1
Chloroethane	ND		ug/kg	1.9	0.43	1
1,1-Dichloroethene	ND		ug/kg	0.96	0.23	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.13	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-08

Date Collected: 09/25/19 11:55

Client ID: DPT-43-10-12-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.64		ug/kg	0.48	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	1.5	J	ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.54	1
o-Xylene	ND		ug/kg	0.96	0.28	1
Xylenes, Total	ND		ug/kg	0.96	0.28	1
cis-1,2-Dichloroethene	ND		ug/kg	0.96	0.17	1
1,2-Dichloroethene, Total	ND		ug/kg	0.96	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.23	1
Styrene	ND		ug/kg	0.96	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.6	0.88	1
Acetone	260		ug/kg	9.6	4.6	1
Carbon disulfide	ND		ug/kg	9.6	4.4	1
2-Butanone	3.3	J	ug/kg	9.6	2.1	1
Vinyl acetate	ND		ug/kg	9.6	2.0	1
4-Methyl-2-pentanone	ND		ug/kg	9.6	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.6	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.20	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.19	1
1,2-Dibromoethane	ND		ug/kg	0.96	0.27	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	0.13	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.96	0.16	1
sec-Butylbenzene	ND		ug/kg	0.96	0.14	1
tert-Butylbenzene	ND		ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	0.96	1
Hexachlorobutadiene	ND		ug/kg	3.8	0.16	1
Isopropylbenzene	ND		ug/kg	0.96	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.96	0.10	1
Naphthalene	ND		ug/kg	3.8	0.62	1
n-Propylbenzene	ND		ug/kg	0.96	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-08

Date Collected: 09/25/19 11:55

Client ID: DPT-43-10-12-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.31	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.32	1
1,4-Dioxane	ND		ug/kg	77	34.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-09
 Client ID: DPT-43-18-20-20190925FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:15
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/01/19 14:27
 Analyst: MKS
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.3	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.15	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.13	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.28	1
Tetrachloroethene	ND		ug/kg	0.53	0.21	1
Chlorobenzene	ND		ug/kg	0.53	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.74	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.53	0.18	1
Bromodichloromethane	ND		ug/kg	0.53	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.29	1
cis-1,3-Dichloropropene	ND		ug/kg	0.53	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.53	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.53	0.17	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.53	0.18	1
Benzene	ND		ug/kg	0.53	0.18	1
Toluene	ND		ug/kg	1.1	0.58	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.2	0.99	1
Bromomethane	ND		ug/kg	2.1	0.62	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.1	0.48	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-09

Date Collected: 09/25/19 12:15

Client ID: DPT-43-18-20-20190925FD

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.53	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	1.2	J	ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.59	1
o-Xylene	ND		ug/kg	1.1	0.31	1
Xylenes, Total	ND		ug/kg	1.1	0.31	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	0.97	1
Acetone	290		ug/kg	11	5.1	1
Carbon disulfide	ND		ug/kg	11	4.8	1
2-Butanone	3.0	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	11	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.53	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.2	0.69	1
n-Propylbenzene	ND		ug/kg	1.1	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-09**Date Collected:** 09/25/19 12:15**Client ID:** DPT-43-18-20-20190925FD**Date Received:** 09/25/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.29	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	85	37.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-10
 Client ID: DPT-43-18-20-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:10
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/01/19 14:51
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.77	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.18	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-10
 Client ID: DPT-43-18-20-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:10
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	0.98	J	ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	8.2	J	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.72	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-10

Date Collected: 09/25/19 12:10

Client ID: DPT-43-18-20-20190925

Date Received: 09/25/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	39.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-11
 Client ID: DPT-43-22-24-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:40
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/01/19 15:15
 Analyst: MKS
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	19		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-11
 Client ID: DPT-43-22-24-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:40
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	1.5	J	ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	360	E	ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	4.2	J	ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-11**Date Collected:** 09/25/19 12:40**Client ID:** DPT-43-22-24-20190925**Date Received:** 09/25/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-12
 Client ID: TB-012-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 00:00
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 09/27/19 18:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944397-12
 Client ID: TB-012-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/24/19 00:00
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.19	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	9.4		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-12**Date Collected:** 09/24/19 00:00**Client ID:** TB-012-20190925**Date Received:** 09/25/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1289537-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1289537-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/27/19 12:30
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1289537-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-05 Batch: WG1290643-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.14	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.98	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/29/19 09:02
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-05 Batch: WG1290643-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/29/19 09:02
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-05 Batch: WG1290643-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 09/29/19 09:02
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06-07 Batch: WG1290644-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	7.0	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	49	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06-07 Batch: WG1290644-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/29/19 09:02
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06-07 Batch: WG1290644-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1290896-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	7.1	J	ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	33	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
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Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1290896-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	11	J	ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1290896-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-11 Batch: WG1290897-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.14	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.66	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-11 Batch: WG1290897-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	0.21	J	ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/01/19 07:36
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-11 Batch: WG1290897-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1289537-3 WG1289537-4								
Methylene chloride	100		97		70-130	3		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	99		97		70-130	2		20
Carbon tetrachloride	100		98		63-132	2		20
1,2-Dichloropropane	100		97		70-130	3		20
Dibromochloromethane	99		94		63-130	5		20
1,1,2-Trichloroethane	100		96		70-130	4		20
Tetrachloroethene	95		92		70-130	3		20
Chlorobenzene	94		92		75-130	2		20
Trichlorofluoromethane	100		99		62-150	1		20
1,2-Dichloroethane	97		94		70-130	3		20
1,1,1-Trichloroethane	95		94		67-130	1		20
Bromodichloromethane	98		94		67-130	4		20
trans-1,3-Dichloropropene	94		89		70-130	5		20
cis-1,3-Dichloropropene	92		87		70-130	6		20
1,1-Dichloropropene	95		93		70-130	2		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	97		94		67-130	3		20
Benzene	100		100		70-130	0		20
Toluene	93		91		70-130	2		20
Ethylbenzene	93		90		70-130	3		20
Chloromethane	130		130		64-130	0		20
Bromomethane	39		35	Q	39-139	11		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1289537-3 WG1289537-4								
Vinyl chloride	86		82		55-140	5		20
Chloroethane	64		63		55-138	2		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		98		70-130	2		20
Trichloroethene	99		97		70-130	2		20
1,2-Dichlorobenzene	92		91		70-130	1		20
1,3-Dichlorobenzene	96		96		70-130	0		20
1,4-Dichlorobenzene	93		93		70-130	0		20
Methyl tert butyl ether	88		82		63-130	7		20
p/m-Xylene	90		85		70-130	6		20
o-Xylene	90		85		70-130	6		20
cis-1,2-Dichloroethene	98		98		70-130	0		20
Dibromomethane	94		91		70-130	3		20
1,2,3-Trichloropropane	90		90		64-130	0		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	120		120		36-147	0		20
Acetone	110		100		58-148	10		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	130		120		70-130	8		20
4-Methyl-2-pentanone	91		87		59-130	4		20
2-Hexanone	86		79		57-130	8		20
Bromochloromethane	100		96		70-130	4		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1289537-3 WG1289537-4								
2,2-Dichloropropane	92		89		63-133	3		20
1,2-Dibromoethane	96		92		70-130	4		20
1,3-Dichloropropane	97		94		70-130	3		20
1,1,1,2-Tetrachloroethane	100		99		64-130	1		20
Bromobenzene	92		92		70-130	0		20
n-Butylbenzene	92		91		53-136	1		20
sec-Butylbenzene	98		100		70-130	2		20
tert-Butylbenzene	88		86		70-130	2		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	91		90		70-130	1		20
1,2-Dibromo-3-chloropropane	93		91		41-144	2		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	86		86		70-130	0		20
p-Isopropyltoluene	87		85		70-130	2		20
Naphthalene	83		78		70-130	6		20
n-Propylbenzene	90		90		69-130	0		20
1,2,3-Trichlorobenzene	93		90		70-130	3		20
1,2,4-Trichlorobenzene	90		88		70-130	2		20
1,3,5-Trimethylbenzene	88		87		64-130	1		20
1,2,4-Trimethylbenzene	87		86		70-130	1		20
1,4-Dioxane	86		74		56-162	15		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1289537-3 WG1289537-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		95		70-130
Toluene-d8	89		90		70-130
4-Bromofluorobenzene	82		83		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1290643-3 WG1290643-4								
Methylene chloride	83		82		70-130	1		30
1,1-Dichloroethane	99		99		70-130	0		30
Chloroform	98		97		70-130	1		30
Carbon tetrachloride	101		100		70-130	1		30
1,2-Dichloropropane	96		95		70-130	1		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	96		97		70-130	1		30
Tetrachloroethene	104		104		70-130	0		30
Chlorobenzene	102		104		70-130	2		30
Trichlorofluoromethane	97		96		70-139	1		30
1,2-Dichloroethane	97		97		70-130	0		30
1,1,1-Trichloroethane	102		102		70-130	0		30
Bromodichloromethane	98		98		70-130	0		30
trans-1,3-Dichloropropene	101		102		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	100		99		70-130	1		30
Bromoform	93		92		70-130	1		30
1,1,1,2-Tetrachloroethane	104		105		70-130	1		30
Benzene	95		94		70-130	1		30
Toluene	102		103		70-130	1		30
Ethylbenzene	105		106		70-130	1		30
Chloromethane	116		113		52-130	3		30
Bromomethane	93		85		57-147	9		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1290643-3 WG1290643-4								
Vinyl chloride	100		98		67-130	2		30
Chloroethane	85		83		50-151	2		30
1,1-Dichloroethene	96		94		65-135	2		30
trans-1,2-Dichloroethene	94		94		70-130	0		30
Trichloroethene	98		98		70-130	0		30
1,2-Dichlorobenzene	103		103		70-130	0		30
1,3-Dichlorobenzene	106		107		70-130	1		30
1,4-Dichlorobenzene	106		106		70-130	0		30
Methyl tert butyl ether	83		84		66-130	1		30
p/m-Xylene	106		107		70-130	1		30
o-Xylene	103		103		70-130	0		30
cis-1,2-Dichloroethene	91		92		70-130	1		30
Dibromomethane	90		92		70-130	2		30
Styrene	104		104		70-130	0		30
Dichlorodifluoromethane	94		92		30-146	2		30
Acetone	124		115		54-140	8		30
Carbon disulfide	92		90		59-130	2		30
2-Butanone	107		103		70-130	4		30
Vinyl acetate	108		108		70-130	0		30
4-Methyl-2-pentanone	98		98		70-130	0		30
1,2,3-Trichloropropane	103		102		68-130	1		30
2-Hexanone	116		114		70-130	2		30
Bromochloromethane	90		89		70-130	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1290643-3 WG1290643-4								
2,2-Dichloropropane	97		96		70-130	1		30
1,2-Dibromoethane	98		100		70-130	2		30
1,3-Dichloropropane	97		97		69-130	0		30
1,1,1,2-Tetrachloroethane	104		104		70-130	0		30
Bromobenzene	100		100		70-130	0		30
n-Butylbenzene	118		119		70-130	1		30
sec-Butylbenzene	114		115		70-130	1		30
tert-Butylbenzene	109		110		70-130	1		30
o-Chlorotoluene	112		111		70-130	1		30
p-Chlorotoluene	112		111		70-130	1		30
1,2-Dibromo-3-chloropropane	95		93		68-130	2		30
Hexachlorobutadiene	98		102		67-130	4		30
Isopropylbenzene	110		111		70-130	1		30
p-Isopropyltoluene	113		113		70-130	0		30
Naphthalene	99		99		70-130	0		30
n-Propylbenzene	114		114		70-130	0		30
1,2,3-Trichlorobenzene	99		100		70-130	1		30
1,2,4-Trichlorobenzene	101		102		70-130	1		30
1,3,5-Trimethylbenzene	111		113		70-130	2		30
1,2,4-Trimethylbenzene	110		111		70-130	1		30
1,4-Dioxane	98		79		65-136	21		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1290643-3 WG1290643-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	91		90		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06-07 Batch: WG1290644-3 WG1290644-4								
Methylene chloride	83		82		70-130	1		30
1,1-Dichloroethane	99		99		70-130	0		30
Chloroform	98		97		70-130	1		30
Carbon tetrachloride	101		100		70-130	1		30
1,2-Dichloropropane	96		95		70-130	1		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	96		97		70-130	1		30
Tetrachloroethene	104		104		70-130	0		30
Chlorobenzene	102		104		70-130	2		30
Trichlorofluoromethane	97		96		70-139	1		30
1,2-Dichloroethane	97		97		70-130	0		30
1,1,1-Trichloroethane	102		102		70-130	0		30
Bromodichloromethane	98		98		70-130	0		30
trans-1,3-Dichloropropene	101		102		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	100		99		70-130	1		30
Bromoform	93		92		70-130	1		30
1,1,2,2-Tetrachloroethane	104		105		70-130	1		30
Benzene	95		94		70-130	1		30
Toluene	102		103		70-130	1		30
Ethylbenzene	105		106		70-130	1		30
Chloromethane	116		113		52-130	3		30
Bromomethane	93		85		57-147	9		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06-07 Batch: WG1290644-3 WG1290644-4								
Vinyl chloride	100		98		67-130	2		30
Chloroethane	85		83		50-151	2		30
1,1-Dichloroethene	96		94		65-135	2		30
trans-1,2-Dichloroethene	94		94		70-130	0		30
Trichloroethene	98		98		70-130	0		30
1,2-Dichlorobenzene	103		103		70-130	0		30
1,3-Dichlorobenzene	106		107		70-130	1		30
1,4-Dichlorobenzene	106		106		70-130	0		30
Methyl tert butyl ether	83		84		66-130	1		30
p/m-Xylene	106		107		70-130	1		30
o-Xylene	103		103		70-130	0		30
cis-1,2-Dichloroethene	91		92		70-130	1		30
Dibromomethane	90		92		70-130	2		30
Styrene	104		104		70-130	0		30
Dichlorodifluoromethane	94		92		30-146	2		30
Acetone	124		115		54-140	8		30
Carbon disulfide	92		90		59-130	2		30
2-Butanone	107		103		70-130	4		30
Vinyl acetate	108		108		70-130	0		30
4-Methyl-2-pentanone	98		98		70-130	0		30
1,2,3-Trichloropropane	103		102		68-130	1		30
2-Hexanone	116		114		70-130	2		30
Bromochloromethane	90		89		70-130	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06-07 Batch: WG1290644-3 WG1290644-4								
2,2-Dichloropropane	97		96		70-130	1		30
1,2-Dibromoethane	98		100		70-130	2		30
1,3-Dichloropropane	97		97		69-130	0		30
1,1,1,2-Tetrachloroethane	104		104		70-130	0		30
Bromobenzene	100		100		70-130	0		30
n-Butylbenzene	118		119		70-130	1		30
sec-Butylbenzene	114		115		70-130	1		30
tert-Butylbenzene	109		110		70-130	1		30
o-Chlorotoluene	112		111		70-130	1		30
p-Chlorotoluene	112		111		70-130	1		30
1,2-Dibromo-3-chloropropane	95		93		68-130	2		30
Hexachlorobutadiene	98		102		67-130	4		30
Isopropylbenzene	110		111		70-130	1		30
p-Isopropyltoluene	113		113		70-130	0		30
Naphthalene	99		99		70-130	0		30
n-Propylbenzene	114		114		70-130	0		30
1,2,3-Trichlorobenzene	99		100		70-130	1		30
1,2,4-Trichlorobenzene	101		102		70-130	1		30
1,3,5-Trimethylbenzene	111		113		70-130	2		30
1,2,4-Trimethylbenzene	110		111		70-130	1		30
1,4-Dioxane	98		79		65-136	21		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06-07 Batch: WG1290644-3 WG1290644-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	91		90		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1290896-3 WG1290896-4								
Methylene chloride	75		76		70-130	1		30
1,1-Dichloroethane	89		88		70-130	1		30
Chloroform	87		87		70-130	0		30
Carbon tetrachloride	88		86		70-130	2		30
1,2-Dichloropropane	88		88		70-130	0		30
Dibromochloromethane	96		95		70-130	1		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	91		90		70-130	1		30
Chlorobenzene	94		94		70-130	0		30
Trichlorofluoromethane	79		79		70-139	0		30
1,2-Dichloroethane	91		90		70-130	1		30
1,1,1-Trichloroethane	90		89		70-130	1		30
Bromodichloromethane	91		90		70-130	1		30
trans-1,3-Dichloropropene	95		95		70-130	0		30
cis-1,3-Dichloropropene	88		87		70-130	1		30
1,1-Dichloropropene	84		84		70-130	0		30
Bromoform	88		89		70-130	1		30
1,1,2,2-Tetrachloroethane	96		98		70-130	2		30
Benzene	85		84		70-130	1		30
Toluene	91		90		70-130	1		30
Ethylbenzene	95		93		70-130	2		30
Chloromethane	97		96		52-130	1		30
Bromomethane	78		75		57-147	4		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1290896-3 WG1290896-4								
Vinyl chloride	80		79		67-130	1		30
Chloroethane	71		70		50-151	1		30
1,1-Dichloroethene	82		81		65-135	1		30
trans-1,2-Dichloroethene	84		83		70-130	1		30
Trichloroethene	87		86		70-130	1		30
1,2-Dichlorobenzene	95		95		70-130	0		30
1,3-Dichlorobenzene	98		97		70-130	1		30
1,4-Dichlorobenzene	96		95		70-130	1		30
Methyl tert butyl ether	80		80		66-130	0		30
p/m-Xylene	96		94		70-130	2		30
o-Xylene	93		93		70-130	0		30
cis-1,2-Dichloroethene	84		83		70-130	1		30
Dibromomethane	85		85		70-130	0		30
Styrene	94		93		70-130	1		30
Dichlorodifluoromethane	76		74		30-146	3		30
Acetone	110		111		54-140	1		30
Carbon disulfide	79		77		59-130	3		30
2-Butanone	95		98		70-130	3		30
Vinyl acetate	102		101		70-130	1		30
4-Methyl-2-pentanone	91		93		70-130	2		30
1,2,3-Trichloropropane	93		95		68-130	2		30
2-Hexanone	103		105		70-130	2		30
Bromochloromethane	86		85		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1290896-3 WG1290896-4								
2,2-Dichloropropane	86		84		70-130	2		30
1,2-Dibromoethane	93		92		70-130	1		30
1,3-Dichloropropane	90		90		69-130	0		30
1,1,1,2-Tetrachloroethane	96		97		70-130	1		30
Bromobenzene	93		92		70-130	1		30
n-Butylbenzene	102		101		70-130	1		30
sec-Butylbenzene	99		98		70-130	1		30
tert-Butylbenzene	96		96		70-130	0		30
o-Chlorotoluene	99		98		70-130	1		30
p-Chlorotoluene	100		99		70-130	1		30
1,2-Dibromo-3-chloropropane	86		87		68-130	1		30
Hexachlorobutadiene	88		88		67-130	0		30
Isopropylbenzene	97		96		70-130	1		30
p-Isopropyltoluene	99		98		70-130	1		30
Naphthalene	94		95		70-130	1		30
n-Propylbenzene	99		99		70-130	0		30
1,2,3-Trichlorobenzene	95		94		70-130	1		30
1,2,4-Trichlorobenzene	96		96		70-130	0		30
1,3,5-Trimethylbenzene	100		98		70-130	2		30
1,2,4-Trimethylbenzene	100		99		70-130	1		30
1,4-Dioxane	94		94		65-136	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1290896-3 WG1290896-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	94		95		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-11 Batch: WG1290897-3 WG1290897-4								
Methylene chloride	75		76		70-130	1		30
1,1-Dichloroethane	89		88		70-130	1		30
Chloroform	87		87		70-130	0		30
Carbon tetrachloride	88		86		70-130	2		30
1,2-Dichloropropane	88		88		70-130	0		30
Dibromochloromethane	96		95		70-130	1		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	91		90		70-130	1		30
Chlorobenzene	94		94		70-130	0		30
Trichlorofluoromethane	79		79		70-139	0		30
1,2-Dichloroethane	91		90		70-130	1		30
1,1,1-Trichloroethane	90		89		70-130	1		30
Bromodichloromethane	91		90		70-130	1		30
trans-1,3-Dichloropropene	95		95		70-130	0		30
cis-1,3-Dichloropropene	88		87		70-130	1		30
1,1-Dichloropropene	84		84		70-130	0		30
Bromoform	88		89		70-130	1		30
1,1,2,2-Tetrachloroethane	96		98		70-130	2		30
Benzene	85		84		70-130	1		30
Toluene	91		90		70-130	1		30
Ethylbenzene	95		93		70-130	2		30
Chloromethane	97		96		52-130	1		30
Bromomethane	78		75		57-147	4		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-11 Batch: WG1290897-3 WG1290897-4								
Vinyl chloride	80		79		67-130	1		30
Chloroethane	71		70		50-151	1		30
1,1-Dichloroethene	82		81		65-135	1		30
trans-1,2-Dichloroethene	84		83		70-130	1		30
Trichloroethene	87		86		70-130	1		30
1,2-Dichlorobenzene	95		95		70-130	0		30
1,3-Dichlorobenzene	98		97		70-130	1		30
1,4-Dichlorobenzene	96		95		70-130	1		30
Methyl tert butyl ether	80		80		66-130	0		30
p/m-Xylene	96		94		70-130	2		30
o-Xylene	93		93		70-130	0		30
cis-1,2-Dichloroethene	84		83		70-130	1		30
Dibromomethane	85		85		70-130	0		30
Styrene	94		93		70-130	1		30
Dichlorodifluoromethane	76		74		30-146	3		30
Acetone	110		111		54-140	1		30
Carbon disulfide	79		77		59-130	3		30
2-Butanone	95		98		70-130	3		30
Vinyl acetate	102		101		70-130	1		30
4-Methyl-2-pentanone	91		93		70-130	2		30
1,2,3-Trichloropropane	93		95		68-130	2		30
2-Hexanone	103		105		70-130	2		30
Bromochloromethane	86		85		70-130	1		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-11 Batch: WG1290897-3 WG1290897-4								
2,2-Dichloropropane	86		84		70-130	2		30
1,2-Dibromoethane	93		92		70-130	1		30
1,3-Dichloropropane	90		90		69-130	0		30
1,1,1,2-Tetrachloroethane	96		97		70-130	1		30
Bromobenzene	93		92		70-130	1		30
n-Butylbenzene	102		101		70-130	1		30
sec-Butylbenzene	99		98		70-130	1		30
tert-Butylbenzene	96		96		70-130	0		30
o-Chlorotoluene	99		98		70-130	1		30
p-Chlorotoluene	100		99		70-130	1		30
1,2-Dibromo-3-chloropropane	86		87		68-130	1		30
Hexachlorobutadiene	88		88		67-130	0		30
Isopropylbenzene	97		96		70-130	1		30
p-Isopropyltoluene	99		98		70-130	1		30
Naphthalene	94		95		70-130	1		30
n-Propylbenzene	99		99		70-130	0		30
1,2,3-Trichlorobenzene	95		94		70-130	1		30
1,2,4-Trichlorobenzene	96		96		70-130	0		30
1,3,5-Trimethylbenzene	100		98		70-130	2		30
1,2,4-Trimethylbenzene	100		99		70-130	1		30
1,4-Dioxane	94		94		65-136	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-11 Batch: WG1290897-3 WG1290897-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	94		95		70-130
Dibromofluoromethane	90		90		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: DPT-41-10-12-20190924												
Methylene chloride	ND	95.7	88	92		95	99		70-130	7		30
1,1-Dichloroethane	ND	95.7	110	115		120	125		70-130	9		30
Chloroform	ND	95.7	110	110		110	117		70-130	6		30
Carbon tetrachloride	ND	95.7	110	119		130	132	Q	70-130	10		30
1,2-Dichloropropane	ND	95.7	110	111		110	117		70-130	6		30
Dibromochloromethane	ND	95.7	110	117		120	121		70-130	4		30
1,1,2-Trichloroethane	ND	95.7	100	106		110	111		70-130	4		30
Tetrachloroethene	ND	95.7	100	104		110	115		70-130	10		30
Chlorobenzene	ND	95.7	110	110		110	115		70-130	5		30
Trichlorofluoromethane	ND	95.7	110	111		110	119		70-139	7		30
1,2-Dichloroethane	ND	95.7	110	110		110	114		70-130	4		30
1,1,1-Trichloroethane	ND	95.7	110	119		130	131	Q	70-130	9		30
Bromodichloromethane	ND	95.7	110	115		110	119		70-130	4		30
trans-1,3-Dichloropropene	ND	95.7	110	114		110	117		70-130	3		30
cis-1,3-Dichloropropene	ND	95.7	100	106		110	112		70-130	5		30
1,1-Dichloropropene	ND	95.7	110	113		120	125		70-130	11		30
Bromoform	ND	95.7	100	106		110	113		70-130	6		30
1,1,2,2-Tetrachloroethane	ND	95.7	110	116		120	122		70-130	5		30
Benzene	ND	95.7	100	109		110	116		70-130	7		30
Toluene	ND	95.7	110	114		120	122		70-130	7		30
Ethylbenzene	ND	95.7	110	118		120	124		70-130	5		30
Chloromethane	ND	95.7	130	134	Q	140	143	Q	52-130	7		30
Bromomethane	ND	95.7	88	92		93	98		57-147	6		30

Matrix Spike Analysis **Batch Quality Control**

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: DPT-41-10-12-20190924												
Vinyl chloride	ND	95.7	110	118		120	130		67-130	9		30
Chloroethane	ND	95.7	88	92		92	96		50-151	5		30
1,1-Dichloroethene	ND	95.7	110	111		120	123		65-135	11		30
trans-1,2-Dichloroethene	ND	95.7	100	108		110	117		70-130	8		30
Trichloroethene	0.13J	95.7	110	111		110	119		70-130	7		30
1,2-Dichlorobenzene	ND	95.7	98	102		100	106		70-130	4		30
1,3-Dichlorobenzene	ND	95.7	98	103		100	106		70-130	4		30
1,4-Dichlorobenzene	ND	95.7	95	100		100	104		70-130	5		30
Methyl tert butyl ether	1.6J	95.7	94	99		98	103		66-130	4		30
p/m-Xylene	ND	191	220	116		230	121		70-130	4		30
o-Xylene	ND	191	220	115		230	119		70-130	3		30
cis-1,2-Dichloroethene	ND	95.7	100	104		110	112		70-130	7		30
Dibromomethane	ND	95.7	98	103		100	106		70-130	4		30
Styrene	ND	191	220	114		220	116		70-130	2		30
Dichlorodifluoromethane	ND	95.7	100	108		120	121		30-146	12		30
Acetone	360E	95.7	510E	161	Q	630E	277	Q	54-140	19		30
Carbon disulfide	ND	95.7	110	110		120	120		59-130	9		30
2-Butanone	5.5J	95.7	110	114		120	124		70-130	9		30
Vinyl acetate	ND	95.7	98	103		110	110		70-130	6		30
4-Methyl-2-pentanone	ND	95.7	110	110		110	118		70-130	7		30
1,2,3-Trichloropropane	ND	95.7	110	112		110	118		68-130	5		30
2-Hexanone	ND	95.7	120	123		130	133	Q	70-130	7		30
Bromochloromethane	ND	95.7	95	99		100	104		70-130	5		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01 Client ID: DPT-41-10-12-20190924												
2,2-Dichloropropane	ND	95.7	100	109		120	123		70-130	13		30
1,2-Dibromoethane	ND	95.7	100	108		110	111		70-130	3		30
1,3-Dichloropropane	ND	95.7	100	108		110	111		69-130	3		30
1,1,1,2-Tetrachloroethane	ND	95.7	110	119		120	123		70-130	3		30
Bromobenzene	ND	95.7	100	106		110	110		70-130	4		30
n-Butylbenzene	ND	95.7	110	111		120	122		70-130	10		30
sec-Butylbenzene	ND	95.7	110	119		120	130		70-130	8		30
tert-Butylbenzene	ND	95.7	120	120		120	130		70-130	8		30
o-Chlorotoluene	ND	95.7	110	117		120	125		70-130	7		30
p-Chlorotoluene	ND	95.7	110	113		120	120		70-130	6		30
1,2-Dibromo-3-chloropropane	ND	95.7	97	101		100	109		68-130	7		30
Hexachlorobutadiene	ND	95.7	82	86		95	99		67-130	15		30
Isopropylbenzene	ND	95.7	120	123		130	134	Q	70-130	8		30
p-Isopropyltoluene	ND	95.7	110	114		120	123		70-130	8		30
Naphthalene	ND	95.7	92	96		99	104		70-130	7		30
n-Propylbenzene	ND	95.7	120	121		130	132	Q	70-130	8		30
1,2,3-Trichlorobenzene	ND	95.7	82	86		88	92		70-130	6		30
1,2,4-Trichlorobenzene	ND	95.7	81	85		87	91		70-130	7		30
1,3,5-Trimethylbenzene	ND	95.7	110	118		120	125		70-130	6		30
1,2,4-Trimethylbenzene	ND	95.7	110	116		120	122		70-130	5		30
1,4-Dioxane	ND	4780	4900	102		5100	106		65-136	4		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1290643-6 WG1290643-7 QC Sample: L1944397-01
 Client ID: DPT-41-10-12-20190924

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	104		101		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	92		90		70-130
Toluene-d8	97		98		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-01**Client ID:** DPT-41-10-12-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 15:05**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.4		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-02**Client ID:** DPT-41-18-20-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 15:40**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-03**Client ID:** DPT-41-20-22-20190924**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/24/19 15:45**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.1		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-04

Client ID: DPT-42-10-12-20190925

Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:05

Date Received: 09/25/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.134		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Gravel	20.7		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Gravel	23.3		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Gravel	44.0		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Sand	15.4		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Medium Sand	17.7		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Sand	8.70		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Sand	41.8		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Fines	14.2		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-05
 Client ID: DPT-42-16-18-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:15
 Date Received: 09/25/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.851		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Medium Sand	0.200		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Sand	0.300		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Sand	0.500		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Fines	99.5		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-06

Client ID: DPT-42-20-22-20190925

Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 10:35

Date Received: 09/25/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.731		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Gravel	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Coarse Sand	ND		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Medium Sand	0.300		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Fine Sand	25.5		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Sand	25.8		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
% Total Fines	74.2		%	0.100	NA	1	-	10/01/19 09:29	12,D6913/D7928	SM
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-07**Client ID:** DPT-42-26-28-20190925**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/25/19 11:00**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.2		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-08

Client ID: DPT-43-10-12-20190925

Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 11:55

Date Received: 09/25/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.4		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-09**Client ID:** DPT-43-18-20-20190925FD**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/25/19 12:15**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944397-10

Client ID: DPT-43-18-20-20190925

Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 12:10

Date Received: 09/25/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944397**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944397-11**Client ID:** DPT-43-22-24-20190925**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/25/19 12:40**Date Received:** 09/25/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	09/26/19 08:51	121,2540G	RI



Project Name: ESSEX HOPE

Lab Number: L1944397

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 04-06 Batch: WG1289516-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	10/02/19 10:52	13,-	SP

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944397

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 04-06 Batch: WG1289516-2								
Total Organic Carbon	99		-		75-125	-		25

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 04-06 QC Batch ID: WG1289516-4 WG1289516-5 QC Sample: L1944185-01 Client ID: MS Sample												
Total Organic Carbon	1.69	0.808	2.58	110		2.43	107		75-125	6		25

Lab Duplicate Analysis *Batch Quality Control*

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG1288805-1 QC Sample: L1944397-01 Client ID: DPT-41-10-12-20190924						
Solids, Total	88.4	86.5	%	2		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 04-06 QC Batch ID: WG1289516-3 QC Sample: L1944185-01 Client ID: DUP Sample						
Total Organic Carbon	1.69	1.71	%	1		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 04-06 QC Batch ID: WG1290625-1 QC Sample: L1944397-06 Client ID: DPT-42-20-22-20190925						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	ND	ND	%	NC		20
% Total Gravel	ND	ND	%	NC		20
% Coarse Sand	ND	ND	%	NC		20
% Medium Sand	0.300	0.200	%	40	Q	20
% Fine Sand	25.5	25.8	%	1		20
% Total Sand	25.8	26.0	%	1		20
% Total Fines	74.2	74.0	%	0		20

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944397-01A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01D	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01D1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14),TS(7)
L1944397-01E	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01E1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01F	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01F1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01G	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01G1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01H	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01H1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01I	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-01I1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-01J	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-01J1	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-01J2	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-02A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-02A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944397-02B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-02B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-02C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-02C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-02D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-03A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-03A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-03B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-03B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-03C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-03C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-03D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-04A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-04A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-04B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-04B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-04C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-04C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-04D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-04E	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944397-04F	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-TOC-LK(14)
L1944397-05A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-05A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-05B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-05B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-05C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944397-05C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-05D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-05E	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944397-05F	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-TOC-LK(14)
L1944397-06A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-06A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-06B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-06B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-06C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-06C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-06D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-06E	Plastic 8oz unpreserved for Grain Size	A	NA		3.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBBLER()
L1944397-06F	Glass 250ml/8oz unpreserved	A	NA		3.6	Y	Absent		A2-TOC-LK(14)
L1944397-07A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-07A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-07B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-07B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-07C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-07C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-07D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-08A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-08A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-08B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-08B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944397-08C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-08C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-08D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-09A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-09A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-09B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-09B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-09C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-09C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-09D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-10A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-10A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-10B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-10B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-10C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-10C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-10D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-11A	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-11A1	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-11B	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-11B1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-11C	5 gram Encore Sampler	A	NA		3.6	Y	Absent		NYTCL-8260HLW(14)
L1944397-11C1	Vial Water preserved split	A	NA		3.6	Y	Absent	26-SEP-19 08:25	NYTCL-8260HLW(14)
L1944397-11D	Plastic 2oz unpreserved for TS	A	NA		3.6	Y	Absent		TS(7)
L1944397-12A	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1944397-12B	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944397
Report Date: 10/09/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE**Lab Number:** L1944397**Project Number:** DWJMS004**Report Date:** 10/09/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

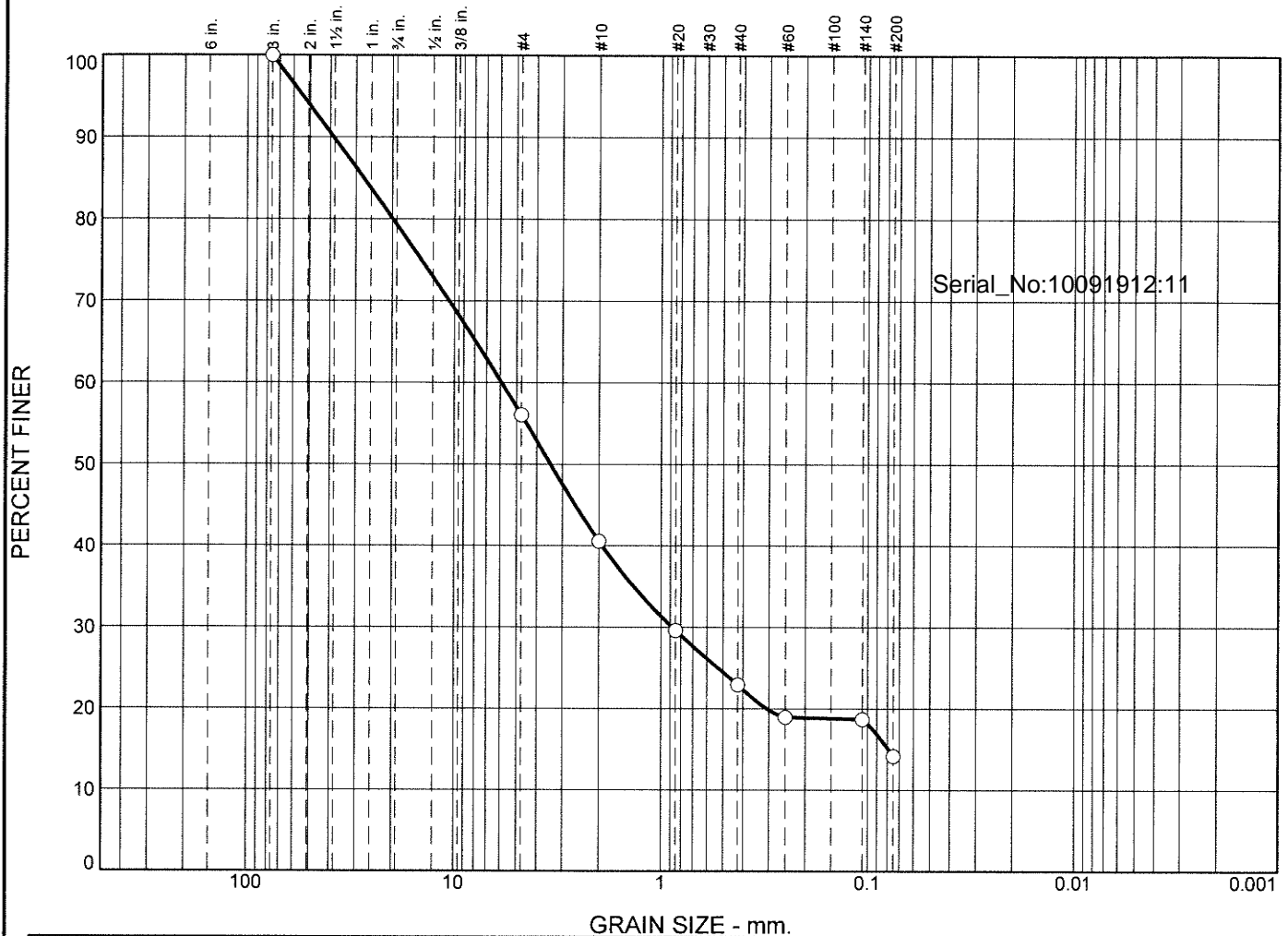


Serial_No:10091912:11

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.												
% +3"			% Gravel		% Sand			% Fines				
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay		
○	0.0		20.7	23.3	15.4	17.7	8.7	14.2				
×	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u	
○				27.5870	5.9167	3.4298	0.8809	0.0791				

Material Description							USCS	AASHTO
○								

Project No. Client: Project: ○ Source of Sample: DPT-42-10-12-20190925 Sample Number: L1944397-04 Date: ○ <div style="text-align: center;"> Alpha Analytical Mansfield, MA </div>	Remarks: <div style="text-align: right;"> Figure </div>
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GRAIN SIZE DISTRIBUTION TEST DATA

10/4/2019

Location: DPT-42-10-12-20190925

Sample Number: L1944397-04

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =97.31

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
97.31	0.00	3"	0.00	0.00	100.0
		#4	42.78	0.00	56.0
		#10	15.05	0.00	40.6
		#20	10.65	0.00	29.6
		#40	6.51	0.00	22.9
		#60	3.86	0.00	19.0
		#140	0.24	0.00	18.7
		#200	4.42	0.00	14.2

Serial_No:10091912:11

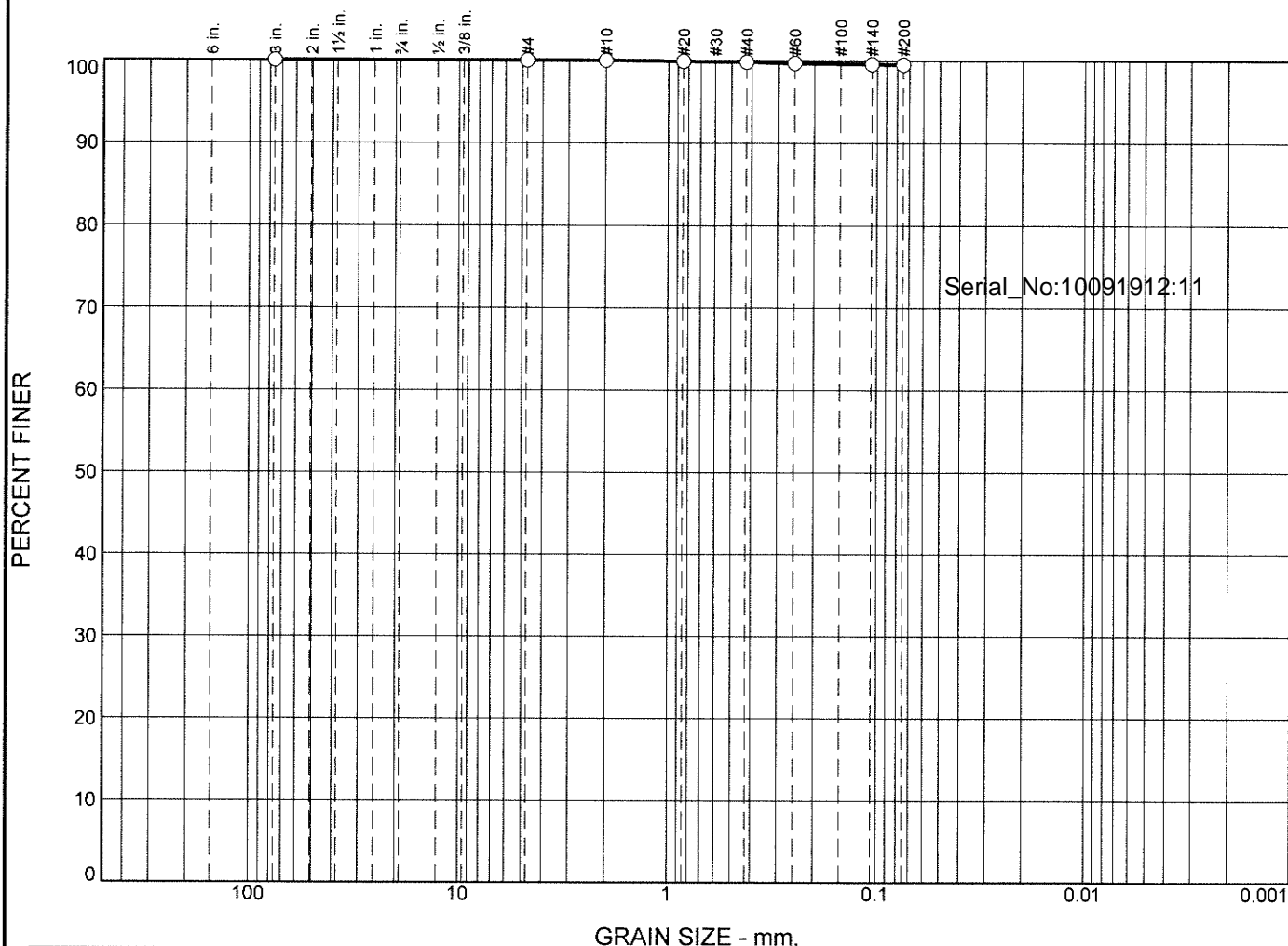
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	20.7	23.3	44.0	15.4	17.7	8.7	41.8			14.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0791	0.3062	0.8809	1.9284	3.4298	5.9167	19.8862	27.5870	38.5433	54.1232

Fineness Modulus
4.65

Particle Size Distribution Report



GRAIN SIZE - mm.												
% +3"		% Gravel		% Sand			% Fines					
		Coarse	Fine	Coarse	Medium	Fine	Silt		Clay			
○	0.0		0.0	0.0	0.0	0.2	0.3	99.5				
⊗	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u	
○												

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-42-16-18-20190925 Sample Number: L1944397-05 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
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GRAIN SIZE DISTRIBUTION TEST DATA

10/4/2019

Location: DPT-42-16-18-20190925

Sample Number: L1944397-05

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =83.05

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
83.05	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.01	0.00	100.0
		#20	0.06	0.00	99.9
		#40	0.08	0.00	99.8
		#60	0.11	0.00	99.7
		#140	0.10	0.00	99.6
		#200	0.05	0.00	99.5

Serial_No:10091912:11

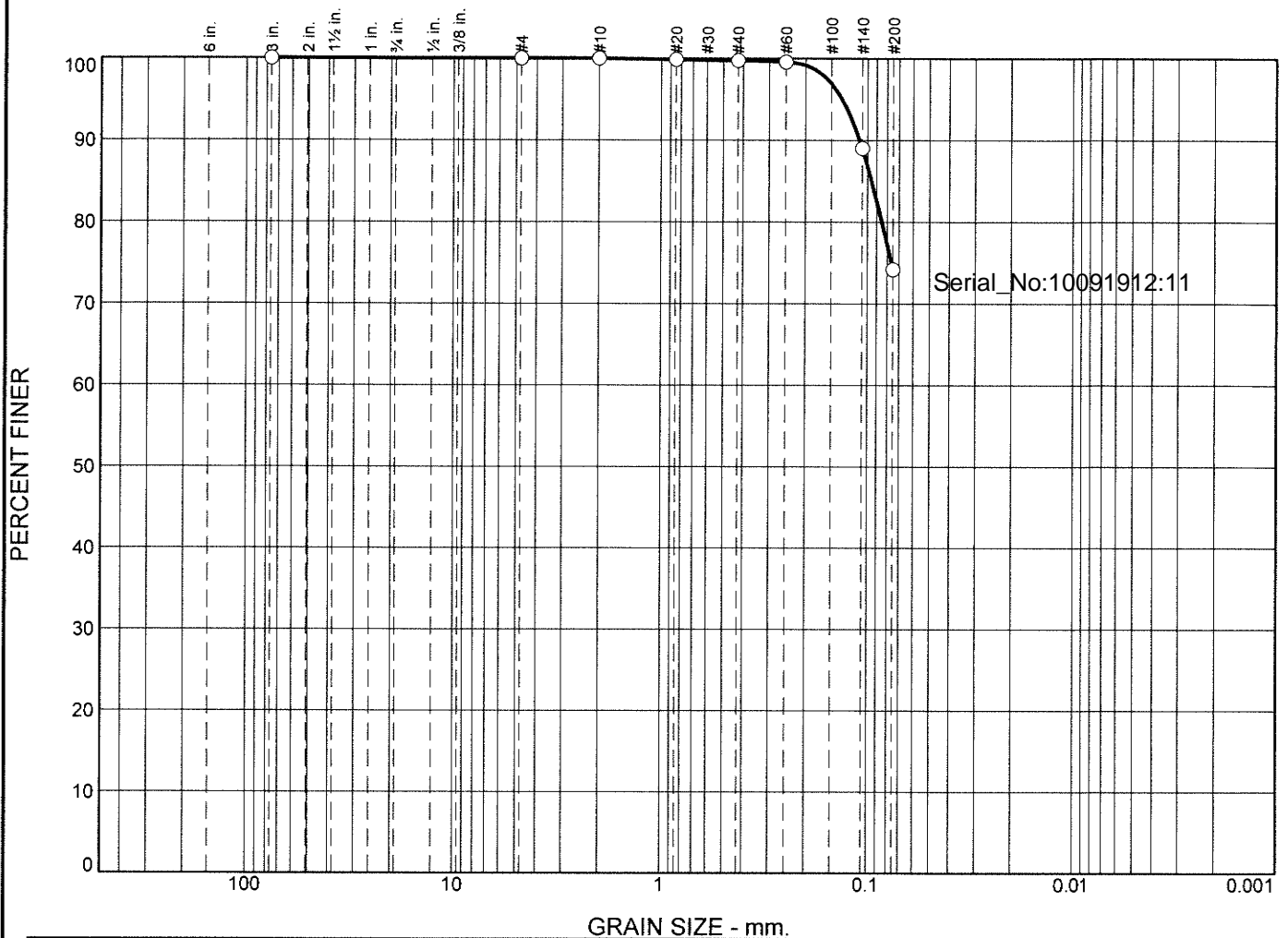
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5			99.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.01

Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"			% Gravel		% Sand				% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0		0.0	0.0	0.0	0.3	25.5	74.2			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>				0.0953							

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Project: <input type="radio"/> Source of Sample: DPT-42-20-22-20190925 Sample Number: L1944397-06 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: Figure
---	---	--

GRAIN SIZE DISTRIBUTION TEST DATA

10/4/2019

Location: DPT-42-20-22-20190925

Sample Number: L1944397-06

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =66.71

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
66.71	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.01	0.00	100.0
		#20	0.10	0.00	99.8
		#40	0.07	0.00	99.7
		#60	0.12	0.00	99.6
		#140	7.03	0.00	89.0
		#200	9.89	0.00	74.2

Serial_No:10091912:11

Fractional Components

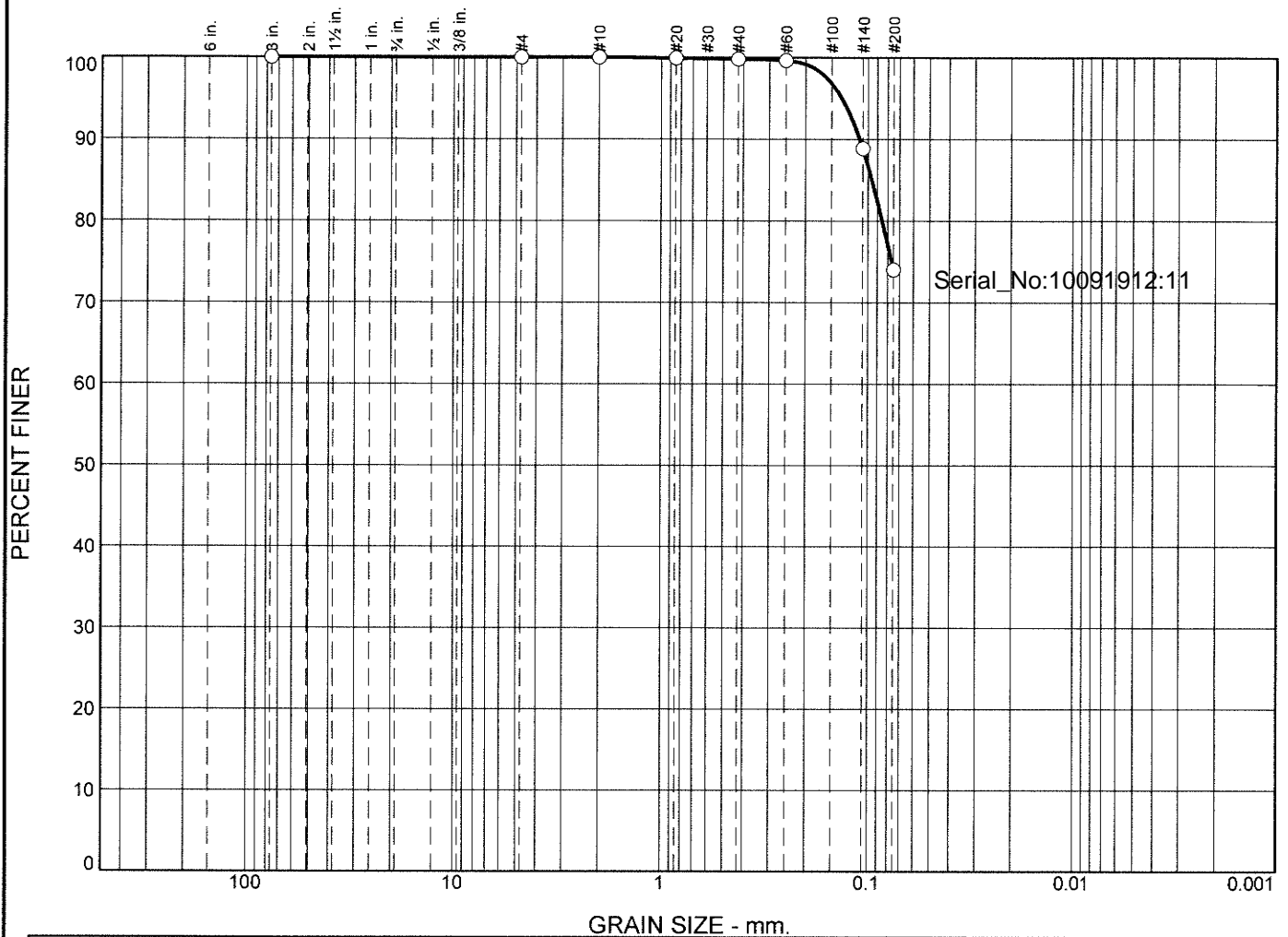
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	25.5	25.8			74.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.0850	0.0953	0.1092	0.1330

Fineness Modulus
0.04

Alpha Analytical

Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"			% Gravel		% Sand			% Fines			
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
○	0.0		0.0	0.0	0.0	0.2	25.8	74.0			
⊗	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○				0.0957							

Material Description								USCS	AASHTO

Project No. Project: <input type="radio"/> Source: DPT-42-20-22-20190925 Sample No.: WG1290625-1 Date: <input type="radio"/>	Client: Alpha Analytical Mansfield, MA	Remarks: <div>Figure</div>

GRAIN SIZE DISTRIBUTION TEST DATA

10/4/2019

Location: DPT-42-20-22-20190925

Sample Number: WG1290625-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 78.03

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
78.03	0.00	3"	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.00	0.00	100.0
		#20	0.07	0.00	99.9
		#40	0.09	0.00	99.8
		#60	0.14	0.00	99.6
		#140	8.40	0.00	88.9
		#200	11.57	0.00	74.0

Serial_No:10091912:11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	25.8	26.0			74.0

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.0853	0.0957	0.1098	0.1338

Fineness Modulus
0.04

Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


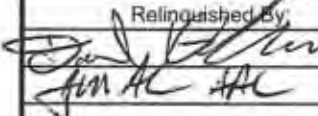
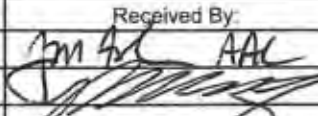
3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-896-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 2		Date Rec'd In Lab 9/26/19		ALPHA Job # C1944397					
Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3266		Project Information Project Name: <u>Essex Hope</u> Project Location: <u>Jamestown NY</u> Project # <u>DWJMS004</u> (Use Project name as Project #) <input type="checkbox"/> Project Manager: <u>Shamus Keohane</u> ALPHAQuote #: <u>PO 148007814</u> Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:				Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other <u>Per PO</u>		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO # <u>148007814</u>					
Client Information Client: <u>JACOBS</u> Address: <u>125 Blackstone Ave</u> <u>Jamestown NY</u> Phone: <u>514-492-2011</u> Fax: Email: <u>Jim.Govine@Jacobs</u>		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other <u>Per PO</u> <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge				Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:							
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: <u>See Program QA/QC as accosted to PO</u> Please specify Metals or TAL.						ANALYSIS VOCs <u>10260</u> Grain Size Total Organic Carbon		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do (Please Specify below)					
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		VOCs Grain Size Total Organic Carbon		Sample Specific Comments	
44397-01		DPT-41-10-12-20190924		09/24/19 1505		Soil		JRG		X			
-01		DPT-41-10-12-20190924/MS		1505						X			
-01		DPT-41-10-12-20190924/50		1505						X			
-02		DPT-41-18-20-20190929		1540						X			
-03		DPT-41-20-22-20190924		1545						X			
-04		DPT-42-10-12-20190925		9/25/19 1005				DK		X X X			
-05		DPT-42-20-22-20190925		1015				JRG		X X X			
-06		DPT-42-20-22-20190925		1035						X X X			
-07		DPT-42-26-28-20190925		1100						X			
-08		DPT-43-10-12-20190925		1155				DK		X			
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		E A				Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved, BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
		Relinquished By: 		Date/Time 9/25/19 1500 9/25/19 16150		Received By: 		Date/Time 9/25/19 15100 9/26/19 0630					

11944397



ANALYTICAL REPORT

Lab Number:	L1944659
Client:	Jacobs Engineering Group 300 Hunter Ave. Suite 305 St. Louis, MO 63124
ATTN:	Shane Lowe
Phone:	(314) 335-3024
Project Name:	ESSEX HOPE
Project Number:	DWJMS004
Report Date:	10/09/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1944659-01	DPT-28-9-11-20190925	SOIL	JAMESTOWN, NY	09/25/19 14:30	09/26/19
L1944659-02	DPT-28-11-13-20190925	SOIL	JAMESTOWN, NY	09/25/19 14:45	09/26/19
L1944659-03	DPT-28-14-16-20190925	SOIL	JAMESTOWN, NY	09/25/19 15:15	09/26/19
L1944659-04	EB-005-20190925	WATER	JAMESTOWN, NY	09/25/19 16:10	09/26/19
L1944659-05	DPT-29-10-12-20190926	SOIL	JAMESTOWN, NY	09/26/19 08:30	09/26/19
L1944659-06	DPT-29-18-20-20190926	SOIL	JAMESTOWN, NY	09/26/19 08:40	09/26/19
L1944659-07	DPT-29-20-22-20190926	SOIL	JAMESTOWN, NY	09/26/19 09:00	09/26/19
L1944659-08	DPT-29-26-28-20190926	SOIL	JAMESTOWN, NY	09/26/19 09:15	09/26/19
L1944659-09	DPT-30-10-12-20190926	SOIL	JAMESTOWN, NY	09/26/19 10:00	09/26/19
L1944659-10	DPT-30-18-20-20190926	SOIL	JAMESTOWN, NY	09/26/19 10:15	09/26/19
L1944659-11	DPT-30-18-20-20190926FD	SOIL	JAMESTOWN, NY	09/26/19 10:25	09/26/19
L1944659-12	DPT-30-20-22-20190926	SOIL	JAMESTOWN, NY	09/26/19 10:35	09/26/19
L1944659-13	EB-006-20190926	WATER	JAMESTOWN, NY	09/26/19 11:00	09/26/19
L1944659-14	DPT-31-10-12-20190926	SOIL	JAMESTOWN, NY	09/26/19 11:20	09/26/19
L1944659-15	DPT-31-17-19-20190926	SOIL	JAMESTOWN, NY	09/26/19 11:30	09/26/19
L1944659-16	DPT-31-21-23-20190926	SOIL	JAMESTOWN, NY	09/26/19 12:00	09/26/19
L1944659-17	TB-013-20190926	WATER	JAMESTOWN, NY	09/26/19 00:00	09/26/19

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Case Narrative (continued)

Report Submission

October 09, 2019: This final report includes the results of all requested analyses.

October 03, 2019: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1944659-02, -03, -07, -08, -12, -15, and -16: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of target compounds in the sample.

L1944659-09: The acetone result should be considered estimated because the concentration exceeded the level of calibration. This analyte was not present in the high-level analysis.

L1944659-16: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1944659-17: The Trip Blank has a result for acetone present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1291782-6/-7 MS/MSD recoveries, performed on L1944659-03, are outside the acceptance criteria for trichlorofluoromethane (28%/25%) and chloroethane (35%/33%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

The WG1291782-8/-9 MS/MSD recoveries, performed on L1944659-15, are outside the acceptance criteria for trichlorofluoromethane (25%/24%), chloroethane (33%/31%), and hexachlorobutadiene (MS 57%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

The WG1291782-8/-9 MS/MSD RPDs, performed on L1944659-15, are outside the acceptance criteria for n-butylbenzene (37%) and hexachlorobutadiene (53%).

The initial calibration, associated with L1944659-01, -02, -03, -05 through -12, -14, -15, and -16, did not meet the method required minimum response factor for the calibration standards for 1,2-dibromo-3-

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Case Narrative (continued)

chloropropane and 1,4-dioxane.

The initial calibration, associated with L1944659-04, -13, and -17, did not meet the method required minimum response factor for the calibration standards for bromomethane, dibromomethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,4-dioxane.

The continuing calibration, associated with L1944659-01, -02, -03, -05 through -12, -14, -15, and -16, did not meet the method required minimum response factor for 1,4-dioxane.

The continuing calibration, associated with L1944659-04, -13, and -17, did not meet the method required minimum response factor for bromomethane, acetone, 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

WG1291309-2: The continuing calibration verification standard has the percent deviation for 4-methyl-2-pentanone (24%D) above the 20% CCV criteria, but within overall method allowances.


WG1291781-2: The continuing calibration verification standard has the percent deviation for bromomethane (31%D), chloroethane (33%D), and dichlorodifluoromethane (22%D) above the 20% CCV criteria, but within overall method allowances.

Grain Size Analysis

The WG1290658-1 Laboratory Duplicate RPDs for % medium sand (77%), % fine sand (67%), and % total sand (61%), performed on L1944659-06, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 10/09/19

ORGANICS

VOLATILES

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-01
 Client ID: DPT-28-9-11-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 14:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:43
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.9	2.3	1
1,1-Dichloroethane	ND		ug/kg	0.99	0.14	1
Chloroform	ND		ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	0.99	0.23	1
1,2-Dichloropropane	ND		ug/kg	0.99	0.12	1
Dibromochloromethane	ND		ug/kg	0.99	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	0.99	0.26	1
Tetrachloroethene	ND		ug/kg	0.49	0.19	1
Chlorobenzene	ND		ug/kg	0.49	0.12	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.69	1
1,2-Dichloroethane	ND		ug/kg	0.99	0.25	1
1,1,1-Trichloroethane	ND		ug/kg	0.49	0.16	1
Bromodichloromethane	ND		ug/kg	0.49	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	0.99	0.27	1
cis-1,3-Dichloropropene	ND		ug/kg	0.49	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.49	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.49	0.16	1
Bromoform	ND		ug/kg	4.0	0.24	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.49	0.16	1
Benzene	ND		ug/kg	0.49	0.16	1
Toluene	ND		ug/kg	0.99	0.54	1
Ethylbenzene	ND		ug/kg	0.99	0.14	1
Chloromethane	ND		ug/kg	4.0	0.92	1
Bromomethane	ND		ug/kg	2.0	0.57	1
Vinyl chloride	ND		ug/kg	0.99	0.33	1
Chloroethane	ND		ug/kg	2.0	0.45	1
1,1-Dichloroethene	ND		ug/kg	0.99	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-01
 Client ID: DPT-28-9-11-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 14:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.82		ug/kg	0.49	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	0.62	J	ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.55	1
o-Xylene	ND		ug/kg	0.99	0.29	1
Xylenes, Total	ND		ug/kg	0.99	0.29	1
cis-1,2-Dichloroethene	ND		ug/kg	0.99	0.17	1
1,2-Dichloroethene, Total	ND		ug/kg	0.99	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	0.99	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.9	0.90	1
Acetone	130		ug/kg	9.9	4.8	1
Carbon disulfide	ND		ug/kg	9.9	4.5	1
2-Butanone	2.7	J	ug/kg	9.9	2.2	1
Vinyl acetate	ND		ug/kg	9.9	2.1	1
4-Methyl-2-pentanone	ND		ug/kg	9.9	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.12	1
2-Hexanone	ND		ug/kg	9.9	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.20	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	0.99	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.49	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.14	1
n-Butylbenzene	ND		ug/kg	0.99	0.16	1
sec-Butylbenzene	ND		ug/kg	0.99	0.14	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	0.99	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	0.99	0.11	1
p-Isopropyltoluene	ND		ug/kg	0.99	0.11	1
Naphthalene	0.66	J	ug/kg	4.0	0.64	1
n-Propylbenzene	ND		ug/kg	0.99	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-01

Date Collected: 09/25/19 14:30

Client ID: DPT-28-9-11-20190925

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33	1
1,4-Dioxane	ND		ug/kg	79	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	85		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-02
 Client ID: DPT-28-11-13-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 14:45
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 00:32
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	360	160	1
1,1-Dichloroethane	ND		ug/kg	71	10.	1
Chloroform	ND		ug/kg	110	10.	1
Carbon tetrachloride	ND		ug/kg	71	16.	1
1,2-Dichloropropane	ND		ug/kg	71	8.9	1
Dibromochloromethane	ND		ug/kg	71	10.	1
1,1,2-Trichloroethane	ND		ug/kg	71	19.	1
Tetrachloroethene	ND		ug/kg	36	14.	1
Chlorobenzene	ND		ug/kg	36	9.0	1
Trichlorofluoromethane	ND		ug/kg	280	50.	1
1,2-Dichloroethane	ND		ug/kg	71	18.	1
1,1,1-Trichloroethane	ND		ug/kg	36	12.	1
Bromodichloromethane	ND		ug/kg	36	7.8	1
trans-1,3-Dichloropropene	ND		ug/kg	71	19.	1
cis-1,3-Dichloropropene	ND		ug/kg	36	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	36	11.	1
1,1-Dichloropropene	ND		ug/kg	36	11.	1
Bromoform	ND		ug/kg	280	18.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	36	12.	1
Benzene	ND		ug/kg	36	12.	1
Toluene	ND		ug/kg	71	39.	1
Ethylbenzene	ND		ug/kg	71	10.	1
Chloromethane	ND		ug/kg	280	66.	1
Bromomethane	44	J	ug/kg	140	41.	1
Vinyl chloride	ND		ug/kg	71	24.	1
Chloroethane	ND		ug/kg	140	32.	1
1,1-Dichloroethene	ND		ug/kg	71	17.	1
trans-1,2-Dichloroethene	16	J	ug/kg	110	9.8	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-02

Date Collected: 09/25/19 14:45

Client ID: DPT-28-11-13-20190925

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	6000		ug/kg	36	9.8	1
1,2-Dichlorobenzene	ND		ug/kg	140	10.	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	40.	1
o-Xylene	ND		ug/kg	71	21.	1
Xylenes, Total	ND		ug/kg	71	21.	1
cis-1,2-Dichloroethene	550		ug/kg	71	12.	1
1,2-Dichloroethene, Total	570	J	ug/kg	71	9.8	1
Dibromomethane	ND		ug/kg	140	17.	1
Styrene	ND		ug/kg	71	14.	1
Dichlorodifluoromethane	ND		ug/kg	710	65.	1
Acetone	ND		ug/kg	710	340	1
Carbon disulfide	ND		ug/kg	710	320	1
2-Butanone	ND		ug/kg	710	160	1
Vinyl acetate	ND		ug/kg	710	150	1
4-Methyl-2-pentanone	ND		ug/kg	710	91.	1
1,2,3-Trichloropropane	ND		ug/kg	140	9.0	1
2-Hexanone	ND		ug/kg	710	84.	1
Bromochloromethane	ND		ug/kg	140	15.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	71	20.	1
1,3-Dichloropropane	ND		ug/kg	140	12.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	36	9.4	1
Bromobenzene	ND		ug/kg	140	10.	1
n-Butylbenzene	ND		ug/kg	71	12.	1
sec-Butylbenzene	ND		ug/kg	71	10.	1
tert-Butylbenzene	ND		ug/kg	140	8.4	1
o-Chlorotoluene	ND		ug/kg	140	14.	1
p-Chlorotoluene	ND		ug/kg	140	7.7	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	210	71.	1
Hexachlorobutadiene	ND		ug/kg	280	12.	1
Isopropylbenzene	ND		ug/kg	71	7.8	1
p-Isopropyltoluene	ND		ug/kg	71	7.8	1
Naphthalene	ND		ug/kg	280	46.	1
n-Propylbenzene	ND		ug/kg	71	12.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-02

Date Collected: 09/25/19 14:45

Client ID: DPT-28-11-13-20190925

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	23.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	19.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	14.	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	24.	1
1,4-Dioxane	ND		ug/kg	5700	2500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-03
 Client ID: DPT-28-14-16-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 15:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 00:56
 Analyst: JC
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	310	140	1
1,1-Dichloroethane	ND		ug/kg	63	9.1	1
Chloroform	ND		ug/kg	94	8.8	1
Carbon tetrachloride	ND		ug/kg	63	14.	1
1,2-Dichloropropane	ND		ug/kg	63	7.9	1
Dibromochloromethane	ND		ug/kg	63	8.8	1
1,1,2-Trichloroethane	ND		ug/kg	63	17.	1
Tetrachloroethene	ND		ug/kg	31	12.	1
Chlorobenzene	ND		ug/kg	31	8.0	1
Trichlorofluoromethane	ND		ug/kg	250	44.	1
1,2-Dichloroethane	ND		ug/kg	63	16.	1
1,1,1-Trichloroethane	ND		ug/kg	31	10.	1
Bromodichloromethane	ND		ug/kg	31	6.9	1
trans-1,3-Dichloropropene	ND		ug/kg	63	17.	1
cis-1,3-Dichloropropene	ND		ug/kg	31	9.9	1
1,3-Dichloropropene, Total	ND		ug/kg	31	9.9	1
1,1-Dichloropropene	ND		ug/kg	31	10.	1
Bromoform	ND		ug/kg	250	15.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	31	10.	1
Benzene	ND		ug/kg	31	10.	1
Toluene	ND		ug/kg	63	34.	1
Ethylbenzene	ND		ug/kg	63	8.9	1
Chloromethane	ND		ug/kg	250	59.	1
Bromomethane	ND		ug/kg	120	36.	1
Vinyl chloride	ND		ug/kg	63	21.	1
Chloroethane	ND		ug/kg	120	28.	1
1,1-Dichloroethene	15	J	ug/kg	63	15.	1
trans-1,2-Dichloroethene	40	J	ug/kg	94	8.6	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-03
 Client ID: DPT-28-14-16-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 15:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	7300		ug/kg	31	8.6	1
1,2-Dichlorobenzene	ND		ug/kg	120	9.1	1
1,3-Dichlorobenzene	ND		ug/kg	120	9.3	1
1,4-Dichlorobenzene	ND		ug/kg	120	11.	1
Methyl tert butyl ether	ND		ug/kg	120	13.	1
p/m-Xylene	ND		ug/kg	120	35.	1
o-Xylene	ND		ug/kg	63	18.	1
Xylenes, Total	ND		ug/kg	63	18.	1
cis-1,2-Dichloroethene	490		ug/kg	63	11.	1
1,2-Dichloroethene, Total	530	J	ug/kg	63	8.6	1
Dibromomethane	ND		ug/kg	120	15.	1
Styrene	ND		ug/kg	63	12.	1
Dichlorodifluoromethane	ND		ug/kg	630	58.	1
Acetone	ND		ug/kg	630	300	1
Carbon disulfide	ND		ug/kg	630	290	1
2-Butanone	ND		ug/kg	630	140	1
Vinyl acetate	ND		ug/kg	630	140	1
4-Methyl-2-pentanone	ND		ug/kg	630	80.	1
1,2,3-Trichloropropane	ND		ug/kg	120	8.0	1
2-Hexanone	ND		ug/kg	630	74.	1
Bromochloromethane	ND		ug/kg	120	13.	1
2,2-Dichloropropane	ND		ug/kg	120	13.	1
1,2-Dibromoethane	ND		ug/kg	63	18.	1
1,3-Dichloropropane	ND		ug/kg	120	10.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	31	8.3	1
Bromobenzene	ND		ug/kg	120	9.1	1
n-Butylbenzene	ND		ug/kg	63	10.	1
sec-Butylbenzene	ND		ug/kg	63	9.2	1
tert-Butylbenzene	ND		ug/kg	120	7.4	1
o-Chlorotoluene	ND		ug/kg	120	12.	1
p-Chlorotoluene	ND		ug/kg	120	6.8	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	190	63.	1
Hexachlorobutadiene	ND		ug/kg	250	11.	1
Isopropylbenzene	ND		ug/kg	63	6.9	1
p-Isopropyltoluene	ND		ug/kg	63	6.9	1
Naphthalene	ND		ug/kg	250	41.	1
n-Propylbenzene	ND		ug/kg	63	11.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-03

Date Collected: 09/25/19 15:15

Client ID: DPT-28-14-16-20190925

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	120	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	120	17.	1
1,3,5-Trimethylbenzene	ND		ug/kg	120	12.	1
1,2,4-Trimethylbenzene	ND		ug/kg	120	21.	1
1,4-Dioxane	ND		ug/kg	5000	2200	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-04
 Client ID: EB-005-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 16:10
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 09:49
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-04
 Client ID: EB-005-20190925
 Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 16:10
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	4.7	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-04

Date Collected: 09/25/19 16:10

Client ID: EB-005-20190925

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-05
 Client ID: DPT-29-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 22:07
 Analyst: JC
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.6	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.20	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.72	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.17	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.16	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.56	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.97	1
Bromomethane	ND		ug/kg	2.1	0.60	1
Vinyl chloride	ND		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.47	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	0.26	J	ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-05
 Client ID: DPT-29-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.28	J	ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	1.1	J	ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	0.26	J	ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.95	1
Acetone	150		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.7	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-05

Date Collected: 09/26/19 08:30

Client ID: DPT-29-10-12-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	83	36.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-06
 Client ID: DPT-29-18-20-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:40
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 22:31
 Analyst: JC
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.60	0.23	1
Chlorobenzene	ND		ug/kg	0.60	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.8	0.83	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.30	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	0.20	1
Bromodichloromethane	ND		ug/kg	0.60	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.60	0.19	1
Bromoform	ND		ug/kg	4.8	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	0.20	1
Benzene	ND		ug/kg	0.60	0.20	1
Toluene	ND		ug/kg	1.2	0.65	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.8	1.1	1
Bromomethane	ND		ug/kg	2.4	0.69	1
Vinyl chloride	10		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.54	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-06
 Client ID: DPT-29-18-20-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:40
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.23	J	ug/kg	0.60	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.20	1
Methyl tert butyl ether	0.73	J	ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.67	1
o-Xylene	ND		ug/kg	1.2	0.35	1
Xylenes, Total	ND		ug/kg	1.2	0.35	1
cis-1,2-Dichloroethene	6.4		ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	6.4		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	190		ug/kg	12	5.7	1
Carbon disulfide	ND		ug/kg	12	5.4	1
2-Butanone	ND		ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.6	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.33	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.8	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.8	0.77	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-06

Date Collected: 09/26/19 08:40

Client ID: DPT-29-18-20-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.38	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	95	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-07
 Client ID: DPT-29-20-22-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 09:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 11:01
 Analyst: JC
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	330	150	1
1,1-Dichloroethane	ND		ug/kg	66	9.6	1
Chloroform	ND		ug/kg	99	9.2	1
Carbon tetrachloride	ND		ug/kg	66	15.	1
1,2-Dichloropropane	ND		ug/kg	66	8.2	1
Dibromochloromethane	ND		ug/kg	66	9.2	1
1,1,2-Trichloroethane	ND		ug/kg	66	18.	1
Tetrachloroethene	ND		ug/kg	33	13.	1
Chlorobenzene	ND		ug/kg	33	8.4	1
Trichlorofluoromethane	ND		ug/kg	260	46.	1
1,2-Dichloroethane	ND		ug/kg	66	17.	1
1,1,1-Trichloroethane	ND		ug/kg	33	11.	1
Bromodichloromethane	ND		ug/kg	33	7.2	1
trans-1,3-Dichloropropene	ND		ug/kg	66	18.	1
cis-1,3-Dichloropropene	ND		ug/kg	33	10.	1
1,3-Dichloropropene, Total	ND		ug/kg	33	10.	1
1,1-Dichloropropene	ND		ug/kg	33	10.	1
Bromoform	ND		ug/kg	260	16.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	33	11.	1
Benzene	ND		ug/kg	33	11.	1
Toluene	ND		ug/kg	66	36.	1
Ethylbenzene	ND		ug/kg	66	9.3	1
Chloromethane	ND		ug/kg	260	62.	1
Bromomethane	43	J	ug/kg	130	38.	1
Vinyl chloride	780		ug/kg	66	22.	1
Chloroethane	ND		ug/kg	130	30.	1
1,1-Dichloroethene	34	J	ug/kg	66	16.	1
trans-1,2-Dichloroethene	48	J	ug/kg	99	9.0	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-07
 Client ID: DPT-29-20-22-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 09:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	84		ug/kg	33	9.0	1
1,2-Dichlorobenzene	ND		ug/kg	130	9.5	1
1,3-Dichlorobenzene	ND		ug/kg	130	9.8	1
1,4-Dichlorobenzene	ND		ug/kg	130	11.	1
Methyl tert butyl ether	ND		ug/kg	130	13.	1
p/m-Xylene	ND		ug/kg	130	37.	1
o-Xylene	ND		ug/kg	66	19.	1
Xylenes, Total	ND		ug/kg	66	19.	1
cis-1,2-Dichloroethene	18000		ug/kg	66	12.	1
1,2-Dichloroethene, Total	18000	J	ug/kg	66	9.0	1
Dibromomethane	ND		ug/kg	130	16.	1
Styrene	ND		ug/kg	66	13.	1
Dichlorodifluoromethane	ND		ug/kg	660	60.	1
Acetone	ND		ug/kg	660	320	1
Carbon disulfide	ND		ug/kg	660	300	1
2-Butanone	ND		ug/kg	660	150	1
Vinyl acetate	ND		ug/kg	660	140	1
4-Methyl-2-pentanone	ND		ug/kg	660	84.	1
1,2,3-Trichloropropane	ND		ug/kg	130	8.4	1
2-Hexanone	ND		ug/kg	660	78.	1
Bromochloromethane	ND		ug/kg	130	14.	1
2,2-Dichloropropane	ND		ug/kg	130	13.	1
1,2-Dibromoethane	ND		ug/kg	66	18.	1
1,3-Dichloropropane	ND		ug/kg	130	11.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	33	8.7	1
Bromobenzene	ND		ug/kg	130	9.6	1
n-Butylbenzene	ND		ug/kg	66	11.	1
sec-Butylbenzene	ND		ug/kg	66	9.6	1
tert-Butylbenzene	ND		ug/kg	130	7.8	1
o-Chlorotoluene	ND		ug/kg	130	13.	1
p-Chlorotoluene	ND		ug/kg	130	7.1	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	66.	1
Hexachlorobutadiene	ND		ug/kg	260	11.	1
Isopropylbenzene	ND		ug/kg	66	7.2	1
p-Isopropyltoluene	ND		ug/kg	66	7.2	1
Naphthalene	ND		ug/kg	260	43.	1
n-Propylbenzene	ND		ug/kg	66	11.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-07**Date Collected:** 09/26/19 09:00**Client ID:** DPT-29-20-22-20190926**Date Received:** 09/26/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	130	21.	1
1,2,4-Trichlorobenzene	ND		ug/kg	130	18.	1
1,3,5-Trimethylbenzene	ND		ug/kg	130	13.	1
1,2,4-Trimethylbenzene	ND		ug/kg	130	22.	1
1,4-Dioxane	ND		ug/kg	5300	2300	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	89		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-08
 Client ID: DPT-29-26-28-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 09:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 01:44
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	390	180	1
1,1-Dichloroethane	ND		ug/kg	78	11.	1
Chloroform	ND		ug/kg	120	11.	1
Carbon tetrachloride	ND		ug/kg	78	18.	1
1,2-Dichloropropane	ND		ug/kg	78	9.7	1
Dibromochloromethane	ND		ug/kg	78	11.	1
1,1,2-Trichloroethane	ND		ug/kg	78	21.	1
Tetrachloroethene	ND		ug/kg	39	15.	1
Chlorobenzene	ND		ug/kg	39	9.8	1
Trichlorofluoromethane	ND		ug/kg	310	54.	1
1,2-Dichloroethane	ND		ug/kg	78	20.	1
1,1,1-Trichloroethane	ND		ug/kg	39	13.	1
Bromodichloromethane	ND		ug/kg	39	8.4	1
trans-1,3-Dichloropropene	ND		ug/kg	78	21.	1
cis-1,3-Dichloropropene	ND		ug/kg	39	12.	1
1,3-Dichloropropene, Total	ND		ug/kg	39	12.	1
1,1-Dichloropropene	ND		ug/kg	39	12.	1
Bromoform	ND		ug/kg	310	19.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	39	13.	1
Benzene	14	J	ug/kg	39	13.	1
Toluene	ND		ug/kg	78	42.	1
Ethylbenzene	ND		ug/kg	78	11.	1
Chloromethane	ND		ug/kg	310	72.	1
Bromomethane	ND		ug/kg	160	45.	1
Vinyl chloride	84		ug/kg	78	26.	1
Chloroethane	ND		ug/kg	160	35.	1
1,1-Dichloroethene	43	J	ug/kg	78	18.	1
trans-1,2-Dichloroethene	190		ug/kg	120	11.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-08
 Client ID: DPT-29-26-28-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 09:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	7500		ug/kg	39	11.	1
1,2-Dichlorobenzene	ND		ug/kg	160	11.	1
1,3-Dichlorobenzene	ND		ug/kg	160	11.	1
1,4-Dichlorobenzene	ND		ug/kg	160	13.	1
Methyl tert butyl ether	ND		ug/kg	160	16.	1
p/m-Xylene	ND		ug/kg	160	43.	1
o-Xylene	ND		ug/kg	78	22.	1
Xylenes, Total	ND		ug/kg	78	22.	1
cis-1,2-Dichloroethene	7600		ug/kg	78	14.	1
1,2-Dichloroethene, Total	7800		ug/kg	78	11.	1
Dibromomethane	ND		ug/kg	160	18.	1
Styrene	ND		ug/kg	78	15.	1
Dichlorodifluoromethane	ND		ug/kg	780	71.	1
Acetone	ND		ug/kg	780	370	1
Carbon disulfide	ND		ug/kg	780	350	1
2-Butanone	ND		ug/kg	780	170	1
Vinyl acetate	ND		ug/kg	780	170	1
4-Methyl-2-pentanone	ND		ug/kg	780	99.	1
1,2,3-Trichloropropane	ND		ug/kg	160	9.8	1
2-Hexanone	ND		ug/kg	780	91.	1
Bromochloromethane	ND		ug/kg	160	16.	1
2,2-Dichloropropane	ND		ug/kg	160	16.	1
1,2-Dibromoethane	ND		ug/kg	78	22.	1
1,3-Dichloropropane	ND		ug/kg	160	13.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	39	10.	1
Bromobenzene	ND		ug/kg	160	11.	1
n-Butylbenzene	ND		ug/kg	78	13.	1
sec-Butylbenzene	ND		ug/kg	78	11.	1
tert-Butylbenzene	ND		ug/kg	160	9.1	1
o-Chlorotoluene	ND		ug/kg	160	15.	1
p-Chlorotoluene	ND		ug/kg	160	8.4	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	230	77.	1
Hexachlorobutadiene	ND		ug/kg	310	13.	1
Isopropylbenzene	ND		ug/kg	78	8.4	1
p-Isopropyltoluene	ND		ug/kg	78	8.4	1
Naphthalene	ND		ug/kg	310	50.	1
n-Propylbenzene	ND		ug/kg	78	13.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-08

Date Collected: 09/26/19 09:15

Client ID: DPT-29-26-28-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	160	25.	1
1,2,4-Trichlorobenzene	ND		ug/kg	160	21.	1
1,3,5-Trimethylbenzene	ND		ug/kg	160	15.	1
1,2,4-Trimethylbenzene	ND		ug/kg	160	26.	1
1,4-Dioxane	ND		ug/kg	6200	2700	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	87		70-130

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-09
 Client ID: DPT-30-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 22:55
 Analyst: JC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.0	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.50	0.20	1
Chlorobenzene	ND		ug/kg	0.50	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.0	0.70	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17	1
Bromodichloromethane	ND		ug/kg	0.50	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.50	0.16	1
Bromoform	ND		ug/kg	4.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17	1
Benzene	ND		ug/kg	0.50	0.17	1
Toluene	ND		ug/kg	1.0	0.55	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.0	0.94	1
Bromomethane	ND		ug/kg	2.0	0.59	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.46	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-09
 Client ID: DPT-30-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	1.5		ug/kg	0.50	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	0.96	J	ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.56	1
o-Xylene	ND		ug/kg	1.0	0.29	1
Xylenes, Total	ND		ug/kg	1.0	0.29	1
cis-1,2-Dichloroethene	0.61	J	ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	0.61	J	ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.92	1
Acetone	410	E	ug/kg	10	4.9	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	8.6	J	ug/kg	10	2.2	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.20	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.19	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.0	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.0	0.66	1
n-Propylbenzene	ND		ug/kg	1.0	0.17	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-09

Date Collected: 09/26/19 10:00

Client ID: DPT-30-10-12-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	81	35.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-10
 Client ID: DPT-30-18-20-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 23:19
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.6	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.20	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.72	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.17	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.16	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.56	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.97	1
Bromomethane	ND		ug/kg	2.1	0.60	1
Vinyl chloride	2.2		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.47	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-10
 Client ID: DPT-30-18-20-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:15
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	16		ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	0.63	J	ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	3.9		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	3.9		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.95	1
Acetone	180		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.7	1
2-Butanone	3.3	J	ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
n-Propylbenzene	ND		ug/kg	1.0	0.18	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-10

Date Collected: 09/26/19 10:15

Client ID: DPT-30-18-20-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.34	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	83	36.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	91		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-11
 Client ID: DPT-30-18-20-20190926FD
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:25
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 23:43
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	2.7	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.17	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.27	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.32	1
Tetrachloroethene	ND		ug/kg	0.60	0.23	1
Chlorobenzene	ND		ug/kg	0.60	0.15	1
Trichlorofluoromethane	ND		ug/kg	4.8	0.83	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.31	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	0.20	1
Bromodichloromethane	ND		ug/kg	0.60	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	0.19	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	0.19	1
1,1-Dichloropropene	ND		ug/kg	0.60	0.19	1
Bromoform	ND		ug/kg	4.8	0.29	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	0.20	1
Benzene	ND		ug/kg	0.60	0.20	1
Toluene	ND		ug/kg	1.2	0.65	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	4.8	1.1	1
Bromomethane	ND		ug/kg	2.4	0.69	1
Vinyl chloride	2.3		ug/kg	1.2	0.40	1
Chloroethane	ND		ug/kg	2.4	0.54	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.28	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.16	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-11

Date Collected: 09/26/19 10:25

Client ID: DPT-30-18-20-20190926FD

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.42	J	ug/kg	0.60	0.16	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	0.17	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	0.20	1
Methyl tert butyl ether	0.79	J	ug/kg	2.4	0.24	1
p/m-Xylene	ND		ug/kg	2.4	0.67	1
o-Xylene	ND		ug/kg	1.2	0.35	1
Xylenes, Total	ND		ug/kg	1.2	0.35	1
cis-1,2-Dichloroethene	2.5		ug/kg	1.2	0.21	1
1,2-Dichloroethene, Total	2.5		ug/kg	1.2	0.16	1
Dibromomethane	ND		ug/kg	2.4	0.28	1
Styrene	ND		ug/kg	1.2	0.23	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	140		ug/kg	12	5.7	1
Carbon disulfide	ND		ug/kg	12	5.4	1
2-Butanone	ND		ug/kg	12	2.6	1
Vinyl acetate	ND		ug/kg	12	2.6	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.5	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	0.15	1
2-Hexanone	ND		ug/kg	12	1.4	1
Bromochloromethane	ND		ug/kg	2.4	0.24	1
2,2-Dichloropropane	ND		ug/kg	2.4	0.24	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.33	1
1,3-Dichloropropane	ND		ug/kg	2.4	0.20	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	0.16	1
Bromobenzene	ND		ug/kg	2.4	0.17	1
n-Butylbenzene	ND		ug/kg	1.2	0.20	1
sec-Butylbenzene	ND		ug/kg	1.2	0.17	1
tert-Butylbenzene	ND		ug/kg	2.4	0.14	1
o-Chlorotoluene	ND		ug/kg	2.4	0.23	1
p-Chlorotoluene	ND		ug/kg	2.4	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	1.2	1
Hexachlorobutadiene	ND		ug/kg	4.8	0.20	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	4.8	0.78	1
n-Propylbenzene	ND		ug/kg	1.2	0.20	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-11**Date Collected:** 09/26/19 10:25**Client ID:** DPT-30-18-20-20190926FD**Date Received:** 09/26/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	0.38	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	0.32	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	0.23	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	0.40	1
1,4-Dioxane	ND		ug/kg	95	42.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-12
 Client ID: DPT-30-20-22-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:35
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 11:26
 Analyst: JC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	340	160	1
1,1-Dichloroethane	ND		ug/kg	68	9.8	1
Chloroform	ND		ug/kg	100	9.5	1
Carbon tetrachloride	ND		ug/kg	68	16.	1
1,2-Dichloropropane	ND		ug/kg	68	8.5	1
Dibromochloromethane	ND		ug/kg	68	9.5	1
1,1,2-Trichloroethane	ND		ug/kg	68	18.	1
Tetrachloroethene	ND		ug/kg	34	13.	1
Chlorobenzene	ND		ug/kg	34	8.6	1
Trichlorofluoromethane	ND		ug/kg	270	47.	1
1,2-Dichloroethane	ND		ug/kg	68	17.	1
1,1,1-Trichloroethane	ND		ug/kg	34	11.	1
Bromodichloromethane	ND		ug/kg	34	7.4	1
trans-1,3-Dichloropropene	ND		ug/kg	68	18.	1
cis-1,3-Dichloropropene	ND		ug/kg	34	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	34	11.	1
1,1-Dichloropropene	ND		ug/kg	34	11.	1
Bromoform	ND		ug/kg	270	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	34	11.	1
Benzene	ND		ug/kg	34	11.	1
Toluene	ND		ug/kg	68	37.	1
Ethylbenzene	ND		ug/kg	68	9.6	1
Chloromethane	ND		ug/kg	270	63.	1
Bromomethane	ND		ug/kg	140	39.	1
Vinyl chloride	480		ug/kg	68	23.	1
Chloroethane	ND		ug/kg	140	31.	1
1,1-Dichloroethene	50	J	ug/kg	68	16.	1
trans-1,2-Dichloroethene	52	J	ug/kg	100	9.3	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-12

Date Collected: 09/26/19 10:35

Client ID: DPT-30-20-22-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	11	J	ug/kg	34	9.3	1
1,2-Dichlorobenzene	ND		ug/kg	140	9.8	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	38.	1
o-Xylene	ND		ug/kg	68	20.	1
Xylenes, Total	ND		ug/kg	68	20.	1
cis-1,2-Dichloroethene	19000		ug/kg	68	12.	1
1,2-Dichloroethene, Total	19000	J	ug/kg	68	9.3	1
Dibromomethane	ND		ug/kg	140	16.	1
Styrene	ND		ug/kg	68	13.	1
Dichlorodifluoromethane	ND		ug/kg	680	62.	1
Acetone	ND		ug/kg	680	330	1
Carbon disulfide	ND		ug/kg	680	310	1
2-Butanone	ND		ug/kg	680	150	1
Vinyl acetate	ND		ug/kg	680	140	1
4-Methyl-2-pentanone	ND		ug/kg	680	87.	1
1,2,3-Trichloropropane	ND		ug/kg	140	8.6	1
2-Hexanone	ND		ug/kg	680	80.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	68	19.	1
1,3-Dichloropropane	ND		ug/kg	140	11.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	34	9.0	1
Bromobenzene	ND		ug/kg	140	9.8	1
n-Butylbenzene	ND		ug/kg	68	11.	1
sec-Butylbenzene	ND		ug/kg	68	9.9	1
tert-Butylbenzene	ND		ug/kg	140	8.0	1
o-Chlorotoluene	ND		ug/kg	140	13.	1
p-Chlorotoluene	ND		ug/kg	140	7.3	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	68.	1
Hexachlorobutadiene	ND		ug/kg	270	11.	1
Isopropylbenzene	ND		ug/kg	68	7.4	1
p-Isopropyltoluene	ND		ug/kg	68	7.4	1
Naphthalene	ND		ug/kg	270	44.	1
n-Propylbenzene	ND		ug/kg	68	12.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-12

Date Collected: 09/26/19 10:35

Client ID: DPT-30-20-22-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	22.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	18.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	13.	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	23.	1
1,4-Dioxane	ND		ug/kg	5400	2400	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-13
 Client ID: EB-006-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 10:12
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-13
 Client ID: EB-006-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.18	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.9	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-13

Date Collected: 09/26/19 11:00

Client ID: EB-006-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-14
 Client ID: DPT-31-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:20
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 00:07
 Analyst: JC
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.4	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.54	0.21	1
Chlorobenzene	ND		ug/kg	0.54	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.76	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.54	0.18	1
Bromodichloromethane	ND		ug/kg	0.54	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.54	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.54	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.54	0.17	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.54	0.18	1
Benzene	ND		ug/kg	0.54	0.18	1
Toluene	ND		ug/kg	1.1	0.59	1
Ethylbenzene	ND		ug/kg	1.1	0.15	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.63	1
Vinyl chloride	ND		ug/kg	1.1	0.36	1
Chloroethane	ND		ug/kg	2.2	0.49	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-14
 Client ID: DPT-31-10-12-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:20
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.36	J	ug/kg	0.54	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	1.0	J	ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.61	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.21	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	130		ug/kg	11	5.2	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.3	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.22	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.30	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.54	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.18	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.71	1
n-Propylbenzene	ND		ug/kg	1.1	0.19	1



Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-14**Date Collected:** 09/26/19 11:20**Client ID:** DPT-31-10-12-20190926**Date Received:** 09/26/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.35	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.36	1
1,4-Dioxane	ND		ug/kg	87	38.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-15
 Client ID: DPT-31-17-19-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 02:32
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	360	160	1
1,1-Dichloroethane	ND		ug/kg	71	10.	1
Chloroform	ND		ug/kg	110	9.9	1
Carbon tetrachloride	ND		ug/kg	71	16.	1
1,2-Dichloropropane	ND		ug/kg	71	8.9	1
Dibromochloromethane	ND		ug/kg	71	9.9	1
1,1,2-Trichloroethane	ND		ug/kg	71	19.	1
Tetrachloroethene	ND		ug/kg	36	14.	1
Chlorobenzene	ND		ug/kg	36	9.0	1
Trichlorofluoromethane	ND		ug/kg	280	49.	1
1,2-Dichloroethane	ND		ug/kg	71	18.	1
1,1,1-Trichloroethane	ND		ug/kg	36	12.	1
Bromodichloromethane	ND		ug/kg	36	7.7	1
trans-1,3-Dichloropropene	ND		ug/kg	71	19.	1
cis-1,3-Dichloropropene	ND		ug/kg	36	11.	1
1,3-Dichloropropene, Total	ND		ug/kg	36	11.	1
1,1-Dichloropropene	ND		ug/kg	36	11.	1
Bromoform	ND		ug/kg	280	17.	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	36	12.	1
Benzene	ND		ug/kg	36	12.	1
Toluene	ND		ug/kg	71	38.	1
Ethylbenzene	ND		ug/kg	71	10.	1
Chloromethane	ND		ug/kg	280	66.	1
Bromomethane	ND		ug/kg	140	41.	1
Vinyl chloride	ND		ug/kg	71	24.	1
Chloroethane	ND		ug/kg	140	32.	1
1,1-Dichloroethene	ND		ug/kg	71	17.	1
trans-1,2-Dichloroethene	ND		ug/kg	110	9.7	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-15
 Client ID: DPT-31-17-19-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 11:30
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	4200		ug/kg	36	9.7	1
1,2-Dichlorobenzene	ND		ug/kg	140	10.	1
1,3-Dichlorobenzene	ND		ug/kg	140	10.	1
1,4-Dichlorobenzene	ND		ug/kg	140	12.	1
Methyl tert butyl ether	ND		ug/kg	140	14.	1
p/m-Xylene	ND		ug/kg	140	40.	1
o-Xylene	ND		ug/kg	71	21.	1
Xylenes, Total	ND		ug/kg	71	21.	1
cis-1,2-Dichloroethene	170		ug/kg	71	12.	1
1,2-Dichloroethene, Total	170		ug/kg	71	9.7	1
Dibromomethane	ND		ug/kg	140	17.	1
Styrene	ND		ug/kg	71	14.	1
Dichlorodifluoromethane	ND		ug/kg	710	65.	1
Acetone	ND		ug/kg	710	340	1
Carbon disulfide	ND		ug/kg	710	320	1
2-Butanone	ND		ug/kg	710	160	1
Vinyl acetate	ND		ug/kg	710	150	1
4-Methyl-2-pentanone	ND		ug/kg	710	91.	1
1,2,3-Trichloropropane	ND		ug/kg	140	9.0	1
2-Hexanone	ND		ug/kg	710	84.	1
Bromochloromethane	ND		ug/kg	140	14.	1
2,2-Dichloropropane	ND		ug/kg	140	14.	1
1,2-Dibromoethane	ND		ug/kg	71	20.	1
1,3-Dichloropropane	ND		ug/kg	140	12.	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	36	9.4	1
Bromobenzene	ND		ug/kg	140	10.	1
n-Butylbenzene	ND		ug/kg	71	12.	1
sec-Butylbenzene	ND		ug/kg	71	10.	1
tert-Butylbenzene	ND		ug/kg	140	8.4	1
o-Chlorotoluene	ND		ug/kg	140	14.	1
p-Chlorotoluene	ND		ug/kg	140	7.7	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	210	71.	1
Hexachlorobutadiene	ND		ug/kg	280	12.	1
Isopropylbenzene	ND		ug/kg	71	7.7	1
p-Isopropyltoluene	ND		ug/kg	71	7.7	1
Naphthalene	ND		ug/kg	280	46.	1
n-Propylbenzene	ND		ug/kg	71	12.	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-15

Date Collected: 09/26/19 11:30

Client ID: DPT-31-17-19-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	23.	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	19.	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	14.	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	24.	1
1,4-Dioxane	ND		ug/kg	5700	2500	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-16 D
 Client ID: DPT-31-21-23-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 12:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260C
 Analytical Date: 10/03/19 02:56
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	1700	790	5
1,1-Dichloroethane	ND		ug/kg	340	50.	5
Chloroform	ND		ug/kg	520	48.	5
Carbon tetrachloride	ND		ug/kg	340	79.	5
1,2-Dichloropropane	ND		ug/kg	340	43.	5
Dibromochloromethane	ND		ug/kg	340	48.	5
1,1,2-Trichloroethane	ND		ug/kg	340	92.	5
Tetrachloroethene	ND		ug/kg	170	67.	5
Chlorobenzene	ND		ug/kg	170	44.	5
Trichlorofluoromethane	ND		ug/kg	1400	240	5
1,2-Dichloroethane	ND		ug/kg	340	88.	5
1,1,1-Trichloroethane	ND		ug/kg	170	57.	5
Bromodichloromethane	ND		ug/kg	170	37.	5
trans-1,3-Dichloropropene	ND		ug/kg	340	94.	5
cis-1,3-Dichloropropene	ND		ug/kg	170	54.	5
1,3-Dichloropropene, Total	ND		ug/kg	170	54.	5
1,1-Dichloropropene	ND		ug/kg	170	55.	5
Bromoform	ND		ug/kg	1400	84.	5
1,1,2,2-Tetrachloroethane	ND		ug/kg	170	57.	5
Benzene	ND		ug/kg	170	57.	5
Toluene	ND		ug/kg	340	190	5
Ethylbenzene	ND		ug/kg	340	48.	5
Chloromethane	ND		ug/kg	1400	320	5
Bromomethane	ND		ug/kg	690	200	5
Vinyl chloride	ND		ug/kg	340	120	5
Chloroethane	ND		ug/kg	690	160	5
1,1-Dichloroethene	ND		ug/kg	340	82.	5
trans-1,2-Dichloroethene	130	J	ug/kg	520	47.	5

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-16 D

Date Collected: 09/26/19 12:00

Client ID: DPT-31-21-23-20190926

Date Received: 09/26/19

Sample Location: JAMESTOWN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	60000		ug/kg	170	47.	5
1,2-Dichlorobenzene	ND		ug/kg	690	49.	5
1,3-Dichlorobenzene	ND		ug/kg	690	51.	5
1,4-Dichlorobenzene	ND		ug/kg	690	59.	5
Methyl tert butyl ether	ND		ug/kg	690	69.	5
p/m-Xylene	ND		ug/kg	690	190	5
o-Xylene	ND		ug/kg	340	100	5
Xylenes, Total	ND		ug/kg	340	100	5
cis-1,2-Dichloroethene	45000		ug/kg	340	60.	5
1,2-Dichloroethene, Total	45000	J	ug/kg	340	47.	5
Dibromomethane	ND		ug/kg	690	82.	5
Styrene	ND		ug/kg	340	67.	5
Dichlorodifluoromethane	ND		ug/kg	3400	310	5
Acetone	ND		ug/kg	3400	1600	5
Carbon disulfide	ND		ug/kg	3400	1600	5
2-Butanone	ND		ug/kg	3400	760	5
Vinyl acetate	ND		ug/kg	3400	740	5
4-Methyl-2-pentanone	ND		ug/kg	3400	440	5
1,2,3-Trichloropropane	ND		ug/kg	690	44.	5
2-Hexanone	ND		ug/kg	3400	400	5
Bromochloromethane	ND		ug/kg	690	70.	5
2,2-Dichloropropane	ND		ug/kg	690	69.	5
1,2-Dibromoethane	ND		ug/kg	340	96.	5
1,3-Dichloropropane	ND		ug/kg	690	57.	5
1,1,1,2-Tetrachloroethane	ND		ug/kg	170	45.	5
Bromobenzene	ND		ug/kg	690	50.	5
n-Butylbenzene	ND		ug/kg	340	57.	5
sec-Butylbenzene	ND		ug/kg	340	50.	5
tert-Butylbenzene	ND		ug/kg	690	40.	5
o-Chlorotoluene	ND		ug/kg	690	66.	5
p-Chlorotoluene	ND		ug/kg	690	37.	5
1,2-Dibromo-3-chloropropane	ND		ug/kg	1000	340	5
Hexachlorobutadiene	ND		ug/kg	1400	58.	5
Isopropylbenzene	ND		ug/kg	340	37.	5
p-Isopropyltoluene	ND		ug/kg	340	37.	5
Naphthalene	ND		ug/kg	1400	220	5
n-Propylbenzene	ND		ug/kg	340	59.	5

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-16 D
 Client ID: DPT-31-21-23-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 12:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	690	110	5
1,2,4-Trichlorobenzene	ND		ug/kg	690	93.	5
1,3,5-Trimethylbenzene	ND		ug/kg	690	66.	5
1,2,4-Trimethylbenzene	ND		ug/kg	690	110	5
1,4-Dioxane	ND		ug/kg	27000	12000	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	88		70-130

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS**

Lab ID: L1944659-17
 Client ID: TB-013-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 00:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/02/19 10:35
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-17
 Client ID: TB-013-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 00:00
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	7.7		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-17**Date Collected:** 09/26/19 00:00**Client ID:** TB-013-20190926**Date Received:** 09/26/19**Sample Location:** JAMESTOWN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 09:26
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04,13,17 Batch: WG1291309-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 09:26
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04,13,17 Batch: WG1291309-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 09:26
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04,13,17 Batch: WG1291309-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	0.76	J	ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	0.79	J	ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/02/19 21:19
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-06,09-11,14 Batch: WG1291781-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	ND		ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.95	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:19
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-06,09-11,14 Batch: WG1291781-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:19
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-06,09-11,14 Batch: WG1291781-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	0.71	J	ug/kg	4.0	0.65
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:19
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08,15-16 Batch: WG1291782-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	ND		ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	47	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:19
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08,15-16 Batch: WG1291782-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/02/19 21:19
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08,15-16 Batch: WG1291782-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	36	J	ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	86		70-130

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/03/19 07:24
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,12 Batch: WG1291848-5					
Methylene chloride	ND		ug/kg	250	110
1,1-Dichloroethane	ND		ug/kg	50	7.2
Chloroform	ND		ug/kg	75	7.0
Carbon tetrachloride	ND		ug/kg	50	12.
1,2-Dichloropropane	ND		ug/kg	50	6.2
Dibromochloromethane	ND		ug/kg	50	7.0
1,1,2-Trichloroethane	ND		ug/kg	50	13.
Tetrachloroethene	ND		ug/kg	25	9.8
Chlorobenzene	ND		ug/kg	25	6.4
Trichlorofluoromethane	ND		ug/kg	200	35.
1,2-Dichloroethane	ND		ug/kg	50	13.
1,1,1-Trichloroethane	ND		ug/kg	25	8.4
Bromodichloromethane	ND		ug/kg	25	5.4
trans-1,3-Dichloropropene	ND		ug/kg	50	14.
cis-1,3-Dichloropropene	ND		ug/kg	25	7.9
1,3-Dichloropropene, Total	ND		ug/kg	25	7.9
1,1-Dichloropropene	ND		ug/kg	25	8.0
Bromoform	ND		ug/kg	200	12.
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	8.3
Benzene	ND		ug/kg	25	8.3
Toluene	ND		ug/kg	50	27.
Ethylbenzene	ND		ug/kg	50	7.0
Chloromethane	ND		ug/kg	200	47.
Bromomethane	53	J	ug/kg	100	29.
Vinyl chloride	ND		ug/kg	50	17.
Chloroethane	ND		ug/kg	100	23.
1,1-Dichloroethene	ND		ug/kg	50	12.
trans-1,2-Dichloroethene	ND		ug/kg	75	6.8
Trichloroethene	ND		ug/kg	25	6.8

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/03/19 07:24
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,12 Batch: WG1291848-5					
1,2-Dichlorobenzene	ND		ug/kg	100	7.2
1,3-Dichlorobenzene	ND		ug/kg	100	7.4
1,4-Dichlorobenzene	ND		ug/kg	100	8.6
Methyl tert butyl ether	ND		ug/kg	100	10.
p/m-Xylene	ND		ug/kg	100	28.
o-Xylene	ND		ug/kg	50	14.
Xylenes, Total	ND		ug/kg	50	14.
cis-1,2-Dichloroethene	ND		ug/kg	50	8.8
1,2-Dichloroethene, Total	ND		ug/kg	50	6.8
Dibromomethane	ND		ug/kg	100	12.
Styrene	ND		ug/kg	50	9.8
Dichlorodifluoromethane	ND		ug/kg	500	46.
Acetone	ND		ug/kg	500	240
Carbon disulfide	ND		ug/kg	500	230
2-Butanone	ND		ug/kg	500	110
Vinyl acetate	ND		ug/kg	500	110
4-Methyl-2-pentanone	ND		ug/kg	500	64.
1,2,3-Trichloropropane	ND		ug/kg	100	6.4
2-Hexanone	ND		ug/kg	500	59.
Bromochloromethane	ND		ug/kg	100	10.
2,2-Dichloropropane	ND		ug/kg	100	10.
1,2-Dibromoethane	ND		ug/kg	50	14.
1,3-Dichloropropane	ND		ug/kg	100	8.4
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	6.6
Bromobenzene	ND		ug/kg	100	7.2
n-Butylbenzene	ND		ug/kg	50	8.4
sec-Butylbenzene	ND		ug/kg	50	7.3
tert-Butylbenzene	ND		ug/kg	100	5.9
o-Chlorotoluene	ND		ug/kg	100	9.6

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/03/19 07:24
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,12 Batch: WG1291848-5					
p-Chlorotoluene	ND		ug/kg	100	5.4
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	50.
Hexachlorobutadiene	ND		ug/kg	200	8.4
Isopropylbenzene	ND		ug/kg	50	5.4
p-Isopropyltoluene	ND		ug/kg	50	5.4
Naphthalene	ND		ug/kg	200	32.
n-Propylbenzene	ND		ug/kg	50	8.6
1,2,3-Trichlorobenzene	ND		ug/kg	100	16.
1,2,4-Trichlorobenzene	ND		ug/kg	100	14.
1,3,5-Trimethylbenzene	ND		ug/kg	100	9.6
1,2,4-Trimethylbenzene	ND		ug/kg	100	17.
1,4-Dioxane	ND		ug/kg	4000	1800

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	87		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04,13,17 Batch: WG1291309-3 WG1291309-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	94		95		70-130	1		20
Carbon tetrachloride	95		94		63-132	1		20
1,2-Dichloropropane	120		110		70-130	9		20
Dibromochloromethane	91		92		63-130	1		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	93		92		62-150	1		20
1,2-Dichloroethane	92		93		70-130	1		20
1,1,1-Trichloroethane	97		97		67-130	0		20
Bromodichloromethane	93		95		67-130	2		20
trans-1,3-Dichloropropene	80		78		70-130	3		20
cis-1,3-Dichloropropene	95		95		70-130	0		20
1,1-Dichloropropene	110		100		70-130	10		20
Bromoform	83		85		54-136	2		20
1,1,2,2-Tetrachloroethane	110		110		67-130	0		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
Chloromethane	120		110		64-130	9		20
Bromomethane	88		89		39-139	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04,13,17 Batch: WG1291309-3 WG1291309-4								
Vinyl chloride	120		120		55-140	0		20
Chloroethane	100		100		55-138	0		20
1,1-Dichloroethene	110		110		61-145	0		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	96		94		70-130	2		20
1,2-Dichlorobenzene	100		110		70-130	10		20
1,3-Dichlorobenzene	110		110		70-130	0		20
1,4-Dichlorobenzene	110		100		70-130	10		20
Methyl tert butyl ether	83		78		63-130	6		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	110		110		70-130	0		20
cis-1,2-Dichloroethene	100		110		70-130	10		20
Dibromomethane	94		96		70-130	2		20
1,2,3-Trichloropropane	110		100		64-130	10		20
Styrene	110		110		70-130	0		20
Dichlorodifluoromethane	92		89		36-147	3		20
Acetone	110		120		58-148	9		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	98		100		63-138	2		20
Vinyl acetate	100		100		70-130	0		20
4-Methyl-2-pentanone	120		120		59-130	0		20
2-Hexanone	100		100		57-130	0		20
Bromochloromethane	99		98		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04,13,17 Batch: WG1291309-3 WG1291309-4								
2,2-Dichloropropane	92		86		63-133	7		20
1,2-Dibromoethane	100		100		70-130	0		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	99		97		64-130	2		20
Bromobenzene	100		100		70-130	0		20
n-Butylbenzene	120		120		53-136	0		20
sec-Butylbenzene	120		120		70-130	0		20
tert-Butylbenzene	120		120		70-130	0		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	89		96		41-144	8		20
Hexachlorobutadiene	120		110		63-130	9		20
Isopropylbenzene	120		120		70-130	0		20
p-Isopropyltoluene	120		120		70-130	0		20
Naphthalene	120		120		70-130	0		20
n-Propylbenzene	120		120		69-130	0		20
1,2,3-Trichlorobenzene	110		100		70-130	10		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	120		120		64-130	0		20
1,2,4-Trimethylbenzene	120		120		70-130	0		20
1,4-Dioxane	112		114		56-162	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04,13,17 Batch: WG1291309-3 WG1291309-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		93		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	106		106		70-130
Dibromofluoromethane	95		94		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-06,09-11,14 Batch: WG1291781-3 WG1291781-4								
Methylene chloride	85		84		70-130	1		30
1,1-Dichloroethane	98		98		70-130	0		30
Chloroform	97		97		70-130	0		30
Carbon tetrachloride	99		98		70-130	1		30
1,2-Dichloropropane	96		98		70-130	2		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	94		95		70-130	1		30
Tetrachloroethene	100		98		70-130	2		30
Chlorobenzene	102		100		70-130	2		30
Trichlorofluoromethane	89		88		70-139	1		30
1,2-Dichloroethane	96		98		70-130	2		30
1,1,1-Trichloroethane	100		100		70-130	0		30
Bromodichloromethane	98		99		70-130	1		30
trans-1,3-Dichloropropene	100		101		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	96		96		70-130	0		30
Bromoform	92		93		70-130	1		30
1,1,2,2-Tetrachloroethane	100		101		70-130	1		30
Benzene	94		94		70-130	0		30
Toluene	100		98		70-130	2		30
Ethylbenzene	104		101		70-130	3		30
Chloromethane	107		105		52-130	2		30
Bromomethane	88		82		57-147	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-06,09-11,14 Batch: WG1291781-3 WG1291781-4								
Vinyl chloride	89		88		67-130	1		30
Chloroethane	78		78		50-151	0		30
1,1-Dichloroethene	93		92		65-135	1		30
trans-1,2-Dichloroethene	94		93		70-130	1		30
Trichloroethene	96		97		70-130	1		30
1,2-Dichlorobenzene	100		99		70-130	1		30
1,3-Dichlorobenzene	103		100		70-130	3		30
1,4-Dichlorobenzene	102		100		70-130	2		30
Methyl tert butyl ether	86		87		66-130	1		30
p/m-Xylene	104		102		70-130	2		30
o-Xylene	102		100		70-130	2		30
cis-1,2-Dichloroethene	93		92		70-130	1		30
Dibromomethane	91		92		70-130	1		30
Styrene	102		101		70-130	1		30
Dichlorodifluoromethane	82		80		30-146	2		30
Acetone	115		115		54-140	0		30
Carbon disulfide	88		88		59-130	0		30
2-Butanone	102		102		70-130	0		30
Vinyl acetate	107		108		70-130	1		30
4-Methyl-2-pentanone	98		99		70-130	1		30
1,2,3-Trichloropropane	97		99		68-130	2		30
2-Hexanone	110		110		70-130	0		30
Bromochloromethane	94		93		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-06,09-11,14 Batch: WG1291781-3 WG1291781-4								
2,2-Dichloropropane	95		92		70-130	3		30
1,2-Dibromoethane	97		99		70-130	2		30
1,3-Dichloropropane	95		96		69-130	1		30
1,1,1,2-Tetrachloroethane	104		103		70-130	1		30
Bromobenzene	98		96		70-130	2		30
n-Butylbenzene	109		106		70-130	3		30
sec-Butylbenzene	107		104		70-130	3		30
tert-Butylbenzene	106		103		70-130	3		30
o-Chlorotoluene	106		104		70-130	2		30
p-Chlorotoluene	106		104		70-130	2		30
1,2-Dibromo-3-chloropropane	93		92		68-130	1		30
Hexachlorobutadiene	97		94		67-130	3		30
Isopropylbenzene	106		104		70-130	2		30
p-Isopropyltoluene	108		104		70-130	4		30
Naphthalene	103		103		70-130	0		30
n-Propylbenzene	108		105		70-130	3		30
1,2,3-Trichlorobenzene	98		96		70-130	2		30
1,2,4-Trichlorobenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	106		103		70-130	3		30
1,2,4-Trimethylbenzene	106		104		70-130	2		30
1,4-Dioxane	111		113		65-136	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-06,09-11,14 Batch: WG1291781-3 WG1291781-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 Batch: WG1291782-3 WG1291782-4								
Methylene chloride	85		84		70-130	1		30
1,1-Dichloroethane	98		98		70-130	0		30
Chloroform	97		97		70-130	0		30
Carbon tetrachloride	99		98		70-130	1		30
1,2-Dichloropropane	96		98		70-130	2		30
Dibromochloromethane	102		103		70-130	1		30
1,1,2-Trichloroethane	94		95		70-130	1		30
Tetrachloroethene	100		98		70-130	2		30
Chlorobenzene	102		100		70-130	2		30
Trichlorofluoromethane	89		88		70-139	1		30
1,2-Dichloroethane	96		98		70-130	2		30
1,1,1-Trichloroethane	100		100		70-130	0		30
Bromodichloromethane	98		99		70-130	1		30
trans-1,3-Dichloropropene	100		101		70-130	1		30
cis-1,3-Dichloropropene	94		94		70-130	0		30
1,1-Dichloropropene	96		96		70-130	0		30
Bromoform	92		93		70-130	1		30
1,1,2,2-Tetrachloroethane	100		101		70-130	1		30
Benzene	94		94		70-130	0		30
Toluene	100		98		70-130	2		30
Ethylbenzene	104		101		70-130	3		30
Chloromethane	107		105		52-130	2		30
Bromomethane	88		82		57-147	7		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 Batch: WG1291782-3 WG1291782-4								
Vinyl chloride	89		88		67-130	1		30
Chloroethane	78		78		50-151	0		30
1,1-Dichloroethene	93		92		65-135	1		30
trans-1,2-Dichloroethene	94		93		70-130	1		30
Trichloroethene	96		97		70-130	1		30
1,2-Dichlorobenzene	100		99		70-130	1		30
1,3-Dichlorobenzene	103		100		70-130	3		30
1,4-Dichlorobenzene	102		100		70-130	2		30
Methyl tert butyl ether	86		87		66-130	1		30
p/m-Xylene	104		102		70-130	2		30
o-Xylene	102		100		70-130	2		30
cis-1,2-Dichloroethene	93		92		70-130	1		30
Dibromomethane	91		92		70-130	1		30
Styrene	102		101		70-130	1		30
Dichlorodifluoromethane	82		80		30-146	2		30
Acetone	115		115		54-140	0		30
Carbon disulfide	88		88		59-130	0		30
2-Butanone	102		102		70-130	0		30
Vinyl acetate	107		108		70-130	1		30
4-Methyl-2-pentanone	98		99		70-130	1		30
1,2,3-Trichloropropane	97		99		68-130	2		30
2-Hexanone	110		110		70-130	0		30
Bromochloromethane	94		93		70-130	1		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 Batch: WG1291782-3 WG1291782-4								
2,2-Dichloropropane	95		92		70-130	3		30
1,2-Dibromoethane	97		99		70-130	2		30
1,3-Dichloropropane	95		96		69-130	1		30
1,1,1,2-Tetrachloroethane	104		103		70-130	1		30
Bromobenzene	98		96		70-130	2		30
n-Butylbenzene	109		106		70-130	3		30
sec-Butylbenzene	107		104		70-130	3		30
tert-Butylbenzene	106		103		70-130	3		30
o-Chlorotoluene	106		104		70-130	2		30
p-Chlorotoluene	106		104		70-130	2		30
1,2-Dibromo-3-chloropropane	93		92		68-130	1		30
Hexachlorobutadiene	97		94		67-130	3		30
Isopropylbenzene	106		104		70-130	2		30
p-Isopropyltoluene	108		104		70-130	4		30
Naphthalene	103		103		70-130	0		30
n-Propylbenzene	108		105		70-130	3		30
1,2,3-Trichlorobenzene	98		96		70-130	2		30
1,2,4-Trichlorobenzene	100		97		70-130	3		30
1,3,5-Trimethylbenzene	106		103		70-130	3		30
1,2,4-Trimethylbenzene	106		104		70-130	2		30
1,4-Dioxane	111		113		65-136	2		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 Batch: WG1291782-3 WG1291782-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,12 Batch: WG1291848-3 WG1291848-4								
Methylene chloride	78		76		70-130	3		30
1,1-Dichloroethane	91		88		70-130	3		30
Chloroform	91		88		70-130	3		30
Carbon tetrachloride	90		87		70-130	3		30
1,2-Dichloropropane	90		88		70-130	2		30
Dibromochloromethane	96		95		70-130	1		30
1,1,2-Trichloroethane	91		90		70-130	1		30
Tetrachloroethene	91		88		70-130	3		30
Chlorobenzene	94		92		70-130	2		30
Trichlorofluoromethane	80		78		70-139	3		30
1,2-Dichloroethane	92		91		70-130	1		30
1,1,1-Trichloroethane	92		89		70-130	3		30
Bromodichloromethane	92		90		70-130	2		30
trans-1,3-Dichloropropene	96		95		70-130	1		30
cis-1,3-Dichloropropene	90		87		70-130	3		30
1,1-Dichloropropene	90		86		70-130	5		30
Bromoform	87		87		70-130	0		30
1,1,2,2-Tetrachloroethane	96		95		70-130	1		30
Benzene	88		85		70-130	3		30
Toluene	92		90		70-130	2		30
Ethylbenzene	96		92		70-130	4		30
Chloromethane	98		93		52-130	5		30
Bromomethane	82		76		57-147	8		30

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,12 Batch: WG1291848-3 WG1291848-4								
Vinyl chloride	81		78		67-130	4		30
Chloroethane	70		68		50-151	3		30
1,1-Dichloroethene	84		80		65-135	5		30
trans-1,2-Dichloroethene	85		83		70-130	2		30
Trichloroethene	88		86		70-130	2		30
1,2-Dichlorobenzene	95		93		70-130	2		30
1,3-Dichlorobenzene	98		95		70-130	3		30
1,4-Dichlorobenzene	97		94		70-130	3		30
Methyl tert butyl ether	83		81		66-130	2		30
p/m-Xylene	96		93		70-130	3		30
o-Xylene	93		91		70-130	2		30
cis-1,2-Dichloroethene	86		83		70-130	4		30
Dibromomethane	86		85		70-130	1		30
Styrene	94		90		70-130	4		30
Dichlorodifluoromethane	74		70		30-146	6		30
Acetone	107		106		54-140	1		30
Carbon disulfide	81		77		59-130	5		30
2-Butanone	98		97		70-130	1		30
Vinyl acetate	101		99		70-130	2		30
4-Methyl-2-pentanone	91		93		70-130	2		30
1,2,3-Trichloropropane	95		95		68-130	0		30
2-Hexanone	104		106		70-130	2		30
Bromochloromethane	88		85		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,12 Batch: WG1291848-3 WG1291848-4								
2,2-Dichloropropane	89		85		70-130	5		30
1,2-Dibromoethane	93		92		70-130	1		30
1,3-Dichloropropane	91		91		69-130	0		30
1,1,1,2-Tetrachloroethane	97		96		70-130	1		30
Bromobenzene	93		91		70-130	2		30
n-Butylbenzene	96		93		70-130	3		30
sec-Butylbenzene	96		92		70-130	4		30
tert-Butylbenzene	96		92		70-130	4		30
o-Chlorotoluene	99		96		70-130	3		30
p-Chlorotoluene	100		97		70-130	3		30
1,2-Dibromo-3-chloropropane	85		85		68-130	0		30
Hexachlorobutadiene	77		76		67-130	1		30
Isopropylbenzene	98		94		70-130	4		30
p-Isopropyltoluene	96		94		70-130	2		30
Naphthalene	95		94		70-130	1		30
n-Propylbenzene	99		96		70-130	3		30
1,2,3-Trichlorobenzene	92		89		70-130	3		30
1,2,4-Trichlorobenzene	95		92		70-130	3		30
1,3,5-Trimethylbenzene	98		95		70-130	3		30
1,2,4-Trimethylbenzene	100		96		70-130	4		30
1,4-Dioxane	96		98		65-136	2		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,12 Batch: WG1291848-3 WG1291848-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	90		90		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 03 Client ID: DPT-28-14-16-20190925 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-6 WG1291782-7 QC Sample: L1944659-												
Methylene chloride	ND	6300	5100	81		5200	82		70-130	2		30
1,1-Dichloroethane	ND	6300	6200	98		6300	100		70-130	1		30
Chloroform	ND	6300	5900	94		6000	94		70-130	1		30
Carbon tetrachloride	ND	6300	6300	100		6300	101		70-130	1		30
1,2-Dichloropropane	ND	6300	5900	94		6000	95		70-130	1		30
Dibromochloromethane	ND	6300	6300	99		6300	100		70-130	1		30
1,1,2-Trichloroethane	ND	6300	5700	90		5800	91		70-130	1		30
Tetrachloroethene	ND	6300	5800	92		6100	97		70-130	6		30
Chlorobenzene	ND	6300	5700	91		6000	96		70-130	5		30
Trichlorofluoromethane	ND	6300	1800	28	Q	1600	25	Q	70-139	10		30
1,2-Dichloroethane	ND	6300	5900	94		5900	94		70-130	0		30
1,1,1-Trichloroethane	ND	6300	6300	101		6400	101		70-130	0		30
Bromodichloromethane	ND	6300	6100	96		6200	98		70-130	2		30
trans-1,3-Dichloropropene	ND	6300	6100	96		6200	98		70-130	2		30
cis-1,3-Dichloropropene	ND	6300	5800	92		5900	94		70-130	2		30
1,1-Dichloropropene	ND	6300	6200	98		6300	99		70-130	2		30
Bromoform	ND	6300	5800	91		5900	94		70-130	3		30
1,1,2,2-Tetrachloroethane	ND	6300	6000	96		6200	98		70-130	2		30
Benzene	ND	6300	5800	92		5900	93		70-130	1		30
Toluene	ND	6300	5900	94		6100	97		70-130	3		30
Ethylbenzene	ND	6300	5900	94		6300	100		70-130	6		30
Chloromethane	ND	6300	6800	107		6700	106		52-130	2		30
Bromomethane	ND	6300	4100	65		4000	63		57-147	2		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 03 Client ID: DPT-28-14-16-20190925 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-6 WG1291782-7 QC Sample: L1944659-												
Vinyl chloride	ND	6300	5500	86		5400	86		67-130	0		30
Chloroethane	ND	6300	2200	35	Q	2100	33	Q	50-151	8		30
1,1-Dichloroethene	15J	6300	6100	97		6200	98		65-135	2		30
trans-1,2-Dichloroethene	40J	6300	5900	93		6000	95		70-130	2		30
Trichloroethene	7300	6300	13000	92		13000	86		70-130	3		30
1,2-Dichlorobenzene	ND	6300	5500	87		5900	94		70-130	7		30
1,3-Dichlorobenzene	ND	6300	5500	87		6000	95		70-130	9		30
1,4-Dichlorobenzene	ND	6300	5300	84		5800	92		70-130	9		30
Methyl tert butyl ether	ND	6300	5400	85		5500	87		66-130	2		30
p/m-Xylene	ND	12000	12000	98		13000	104		70-130	7		30
o-Xylene	ND	12000	12000	98		12000	102		70-130	5		30
cis-1,2-Dichloroethene	490	6300	6200	91		6200	91		70-130	1		30
Dibromomethane	ND	6300	5600	88		5600	89		70-130	1		30
Styrene	ND	12000	12000	100		13000	105		70-130	5		30
Dichlorodifluoromethane	ND	6300	5500	88		5300	85		30-146	4		30
Acetone	ND	6300	6700	107		7100	112		54-140	5		30
Carbon disulfide	ND	6300	5800	91		6000	95		59-130	4		30
2-Butanone	ND	6300	6000	94		6000	95		70-130	1		30
Vinyl acetate	ND	6300	6900	110		7000	112		70-130	2		30
4-Methyl-2-pentanone	ND	6300	5900	93		6000	95		70-130	2		30
1,2,3-Trichloropropane	ND	6300	5900	93		6000	94		68-130	2		30
2-Hexanone	ND	6300	6600	105		6700	106		70-130	2		30
Bromochloromethane	ND	6300	5500	88		5500	86		70-130	1		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 03 Client ID: DPT-28-14-16-20190925 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-6 WG1291782-7 QC Sample: L1944659-												
2,2-Dichloropropane	ND	6300	6000	95		6100	96		70-130	1		30
1,2-Dibromoethane	ND	6300	5800	92		5900	93		70-130	1		30
1,3-Dichloropropane	ND	6300	5700	91		5800	92		69-130	1		30
1,1,1,2-Tetrachloroethane	ND	6300	6200	99		6300	100		70-130	2		30
Bromobenzene	ND	6300	5500	88		5800	93		70-130	5		30
n-Butylbenzene	ND	6300	5400	86		6600	104		70-130	19		30
sec-Butylbenzene	ND	6300	5800	92		6600	105		70-130	13		30
tert-Butylbenzene	ND	6300	5800	92		6500	102		70-130	10		30
o-Chlorotoluene	ND	6300	5800	92		6400	101		70-130	9		30
p-Chlorotoluene	ND	6300	5700	91		6300	100		70-130	10		30
1,2-Dibromo-3-chloropropane	ND	6300	5600	90		5900	94		68-130	5		30
Hexachlorobutadiene	ND	6300	4600	73		5900	94		67-130	26		30
Isopropylbenzene	ND	6300	6000	96		6600	105		70-130	9		30
p-Isopropyltoluene	ND	6300	5600	88		6500	103		70-130	16		30
Naphthalene	ND	6300	5600	89		6000	95		70-130	6		30
n-Propylbenzene	ND	6300	5900	94		6600	105		70-130	11		30
1,2,3-Trichlorobenzene	ND	6300	5300	83		5800	92		70-130	10		30
1,2,4-Trichlorobenzene	ND	6300	5100	82		5800	92		70-130	12		30
1,3,5-Trimethylbenzene	ND	6300	5800	92		6400	102		70-130	10		30
1,2,4-Trimethylbenzene	ND	6300	5700	91		6400	101		70-130	11		30
1,4-Dioxane	ND	310000	270000	88		270000	87		65-136	1		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-6 WG1291782-7 QC Sample: L1944659-03 Client ID: DPT-28-14-16-20190925

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	90		90		70-130
Toluene-d8	96		97		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 15 Client ID: DPT-31-17-19-20190926 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-8 WG1291782-9 QC Sample: L1944659-												
Methylene chloride	ND	7100	6000	84		5900	82		70-130	2		30
1,1-Dichloroethane	ND	7100	7200	101		7100	100		70-130	1		30
Chloroform	ND	7100	6700	95		6700	94		70-130	1		30
Carbon tetrachloride	ND	7100	7100	100		7200	101		70-130	0		30
1,2-Dichloropropane	ND	7100	6800	95		6700	94		70-130	1		30
Dibromochloromethane	ND	7100	7100	100		7200	101		70-130	1		30
1,1,2-Trichloroethane	ND	7100	6600	92		6600	92		70-130	0		30
Tetrachloroethene	ND	7100	6300	89		6800	96		70-130	7		30
Chlorobenzene	ND	7100	6300	88		6700	95		70-130	7		30
Trichlorofluoromethane	ND	7100	1800	25	Q	1700	24	Q	70-139	3		30
1,2-Dichloroethane	ND	7100	6800	95		6600	94		70-130	2		30
1,1,1-Trichloroethane	ND	7100	7200	101		7200	101		70-130	0		30
Bromodichloromethane	ND	7100	6900	98		6900	97		70-130	1		30
trans-1,3-Dichloropropene	ND	7100	6900	98		7000	98		70-130	0		30
cis-1,3-Dichloropropene	ND	7100	6600	92		6600	93		70-130	0		30
1,1-Dichloropropene	ND	7100	7000	98		7000	99		70-130	1		30
Bromoform	ND	7100	6600	92		6600	93		70-130	0		30
1,1,2,2-Tetrachloroethane	ND	7100	6900	97		7000	98		70-130	1		30
Benzene	ND	7100	6600	93		6600	93		70-130	0		30
Toluene	ND	7100	6600	92		6900	97		70-130	5		30
Ethylbenzene	ND	7100	6300	89		7000	98		70-130	10		30
Chloromethane	ND	7100	7800	109		7600	107		52-130	2		30
Bromomethane	ND	7100	4700	66		4500	64		57-147	3		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 15 Client ID: DPT-31-17-19-20190926 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-8 WG1291782-9 QC Sample: L1944659-												
Vinyl chloride	ND	7100	6400	89		6300	89		67-130	1		30
Chloroethane	ND	7100	2300	33	Q	2200	31	Q	50-151	4		30
1,1-Dichloroethene	ND	7100	7200	101		7100	100		65-135	1		30
trans-1,2-Dichloroethene	ND	7100	6800	96		6800	95		70-130	0		30
Trichloroethene	4200	7100	10000	87		11000	93		70-130	4		30
1,2-Dichlorobenzene	ND	7100	5700	80		6600	92		70-130	14		30
1,3-Dichlorobenzene	ND	7100	5500	78		6700	94		70-130	19		30
1,4-Dichlorobenzene	ND	7100	5400	76		6500	92		70-130	19		30
Methyl tert butyl ether	ND	7100	6400	90		6200	88		66-130	2		30
p/m-Xylene	ND	14000	12000	88		14000	99		70-130	12		30
o-Xylene	ND	14000	12000	89		14000	97		70-130	9		30
cis-1,2-Dichloroethene	170	7100	6700	92		6600	91		70-130	1		30
Dibromomethane	ND	7100	6400	90		6300	89		70-130	1		30
Styrene	ND	14000	13000	90		14000	99		70-130	10		30
Dichlorodifluoromethane	ND	7100	6200	88		6000	84		30-146	4		30
Acetone	ND	7100	8100	114		8300	117		54-140	3		30
Carbon disulfide	ND	7100	6700	95		6800	96		59-130	1		30
2-Butanone	ND	7100	7100	99		7000	99		70-130	1		30
Vinyl acetate	ND	7100	8200	115		8000	112		70-130	2		30
4-Methyl-2-pentanone	ND	7100	6900	97		7000	99		70-130	2		30
1,2,3-Trichloropropane	ND	7100	6600	93		6700	95		68-130	2		30
2-Hexanone	ND	7100	7700	109		7900	111		70-130	2		30
Bromochloromethane	ND	7100	6200	88		6200	87		70-130	1		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab 15 Client ID: DPT-31-17-19-20190926 Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-8 WG1291782-9 QC Sample: L1944659-												
2,2-Dichloropropane	ND	7100	6900	97		6800	96		70-130	1		30
1,2-Dibromoethane	ND	7100	6600	93		6700	94		70-130	1		30
1,3-Dichloropropane	ND	7100	6500	92		6500	92		69-130	0		30
1,1,1,2-Tetrachloroethane	ND	7100	6900	97		7100	100		70-130	3		30
Bromobenzene	ND	7100	5900	83		6500	92		70-130	10		30
n-Butylbenzene	ND	7100	5000	71		7300	103		70-130	37	Q	30
sec-Butylbenzene	ND	7100	5700	81		7300	103		70-130	25		30
tert-Butylbenzene	ND	7100	5900	83		7200	101		70-130	19		30
o-Chlorotoluene	ND	7100	6000	84		7000	99		70-130	16		30
p-Chlorotoluene	ND	7100	5800	82		7000	98		70-130	18		30
1,2-Dibromo-3-chloropropane	ND	7100	6500	92		6700	94		68-130	2		30
Hexachlorobutadiene	ND	7100	4000	57	Q	6900	97		67-130	53	Q	30
Isopropylbenzene	ND	7100	6300	89		7300	103		70-130	15		30
p-Isopropyltoluene	ND	7100	5400	76		7200	101		70-130	29		30
Naphthalene	ND	7100	6300	88		6800	96		70-130	8		30
n-Propylbenzene	ND	7100	5900	84		7300	102		70-130	20		30
1,2,3-Trichlorobenzene	ND	7100	5500	77		6600	94		70-130	19		30
1,2,4-Trichlorobenzene	ND	7100	5200	74		6700	94		70-130	24		30
1,3,5-Trimethylbenzene	ND	7100	5900	83		7100	100		70-130	19		30
1,2,4-Trimethylbenzene	ND	7100	5800	81		7100	100		70-130	20		30
1,4-Dioxane	ND	360000	320000	88		320000	88		65-136	1		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08,15-16 QC Batch ID: WG1291782-8 WG1291782-9 QC Sample: L1944659-15 Client ID: DPT-31-17-19-20190926

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	91		90		70-130
Toluene-d8	97		97		70-130

INORGANICS & MISCELLANEOUS

Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-01**Client ID:** DPT-28-9-11-20190925**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/25/19 14:30**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.3		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-02**Client ID:** DPT-28-11-13-20190925**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/25/19 14:45**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-03

Client ID: DPT-28-14-16-20190925

Sample Location: JAMESTOWN, NY

Date Collected: 09/25/19 15:15

Date Received: 09/26/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-05
Client ID: DPT-29-10-12-20190926
Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:30
Date Received: 09/26/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.104		%	0.050	0.050	1	-	10/07/19 10:25	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Gravel	51.3		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Gravel	51.3		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Sand	16.7		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Medium Sand	14.8		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Sand	5.20		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Sand	36.7		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Fines	12.0		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-06
 Client ID: DPT-29-18-20-20190926
 Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 08:40
 Date Received: 09/26/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.740		%	0.050	0.050	1	-	10/07/19 10:41	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Sand	0.200		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Medium Sand	0.900		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Sand	0.400		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Sand	1.50		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Fines	98.5		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-07

Client ID: DPT-29-20-22-20190926

Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 09:00

Date Received: 09/26/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon	0.506		%	0.050	0.050	1	-	10/07/19 10:46	13,-	SP
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Coarse Sand	ND		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Medium Sand	0.100		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Fine Sand	4.70		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Sand	4.80		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
% Total Fines	95.2		%	0.100	NA	1	-	10/01/19 10:38	12,D6913/D7928	MC
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-08**Client ID:** DPT-29-26-28-20190926**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 09:15**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-09

Client ID: DPT-30-10-12-20190926

Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:00

Date Received: 09/26/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

SAMPLE RESULTS

Lab ID: L1944659-10

Client ID: DPT-30-18-20-20190926

Sample Location: JAMESTOWN, NY

Date Collected: 09/26/19 10:15

Date Received: 09/26/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-11**Client ID:** DPT-30-18-20-20190926FD**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 10:25**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.3		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-12**Client ID:** DPT-30-20-22-20190926**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 10:35**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-14**Client ID:** DPT-31-10-12-20190926**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 11:20**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-15**Client ID:** DPT-31-17-19-20190926**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 11:30**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19**SAMPLE RESULTS****Lab ID:** L1944659-16**Client ID:** DPT-31-21-23-20190926**Sample Location:** JAMESTOWN, NY**Date Collected:** 09/26/19 12:00**Date Received:** 09/26/19**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.5		%	0.100	NA	1	-	09/27/19 08:04	121,2540G	RI



Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 05-07 Batch: WG1289548-1										
Total Organic Carbon	ND		%	0.050	0.050	1	-	10/08/19 08:31	13,-	SP

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX HOPE**Project Number:** DWJMS004**Lab Number:** L1944659**Report Date:** 10/09/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Organic Carbon - Mansfield Lab Associated sample(s): 05-07 Batch: WG1289548-2								
Total Organic Carbon	96		-		75-125	-		25

Matrix Spike Analysis Batch Quality Control

Project Name: ESSEX HOPE

Lab Number: L1944659

Project Number: DWJMS004

Report Date: 10/09/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 05-07 QC Batch ID: WG1289548-4 QC Sample: L1944659-05 Client ID: DPT-29-10-12-20190926												
Total Organic Carbon	0.104	1.2	1.40	108		-	-		75-125	-		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX HOPE

Project Number: DWJMS004

Lab Number: L1944659

Report Date: 10/09/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,05-12,14-16 QC Batch ID: WG1289338-1 QC Sample: L1944659-03 Client ID: DPT-28-14-16-20190925						
Solids, Total	81.9	81.0	%	1		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 05-07 QC Batch ID: WG1289548-3 QC Sample: L1944659-05 Client ID: DPT-29-10-12-20190926						
Total Organic Carbon	0.104	0.118	%	13		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 05-07 QC Batch ID: WG1290658-1 QC Sample: L1944659-06 Client ID: DPT-29-18-20-20190926						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	ND	ND	%	NC		20
% Total Gravel	ND	ND	%	NC		20
% Coarse Sand	0.200	0.200	%	0		20
% Medium Sand	0.900	0.400	%	77	Q	20
% Fine Sand	0.400	0.200	%	67	Q	20
% Total Sand	1.50	0.800	%	61	Q	20
% Total Fines	98.5	99.2	%	1		20

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-01A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-01A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-01B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-01B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-01C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-01C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-01D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-02A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-02A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-02B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-02B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-02C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-02C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-02D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-03A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03D	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03D1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03E	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No: 10091919:03
Lab Number: L1944659
Report Date: 10/09/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-03E1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03F	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03F1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03G	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03G1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03H	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03H1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03I	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-03I1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-03J	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-03J1	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-03J2	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-04A	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-04B	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-04C	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-05A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-05A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-05B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-05B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-05C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-05C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-05D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-05E	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		A2-TOC-LK(14)
L1944659-05F	Plastic 8oz unpreserved for Grain Size	A	NA		3.3	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944659-06A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-06A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-06B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-06B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-06C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-06C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-06D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-06E	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		A2-TOC-LK(14)
L1944659-06F	Plastic 8oz unpreserved for Grain Size	A	NA		3.3	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944659-07A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-07A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-07B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-07B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-07C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-07C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-07D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-07E	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		A2-TOC-LK(14)
L1944659-07F	Plastic 8oz unpreserved for Grain Size	A	NA		3.3	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L1944659-08A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-08A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-08B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-08B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-08C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-08C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-08D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-09A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-09A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-09B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-09B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-09C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-09C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-09D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-10A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-10A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-10B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-10B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-10C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-10C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-10D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-11A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-11A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-11B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-11B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-11C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-11C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-11D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-12A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-12A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-12B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-12B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-12C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-12C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-12D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-13A	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE**Lab Number:** L1944659**Project Number:** DWJMS004**Report Date:** 10/09/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-13B	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-13C	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-14A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-14A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-14B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-14B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-14C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-14C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-14D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-15A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-15C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-15D	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15D1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15E	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15E1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-15F	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15F1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-15G	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15G1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15H	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-15H1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-15J	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-15J1	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-15J2	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Serial_No:10091919:03
Lab Number: L1944659
Report Date: 10/09/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944659-16A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-16A1	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-16B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-16B1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-16C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L1944659-16C1	Vial Water preserved split	A	NA		3.3	Y	Absent	27-SEP-19 08:01	NYTCL-8260HLW(14)
L1944659-16D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L1944659-17A	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)
L1944659-17B	Vial HCl preserved	A	NA		3.3	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX HOPE
Project Number: DWJMS004

Lab Number: L1944659
Report Date: 10/09/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

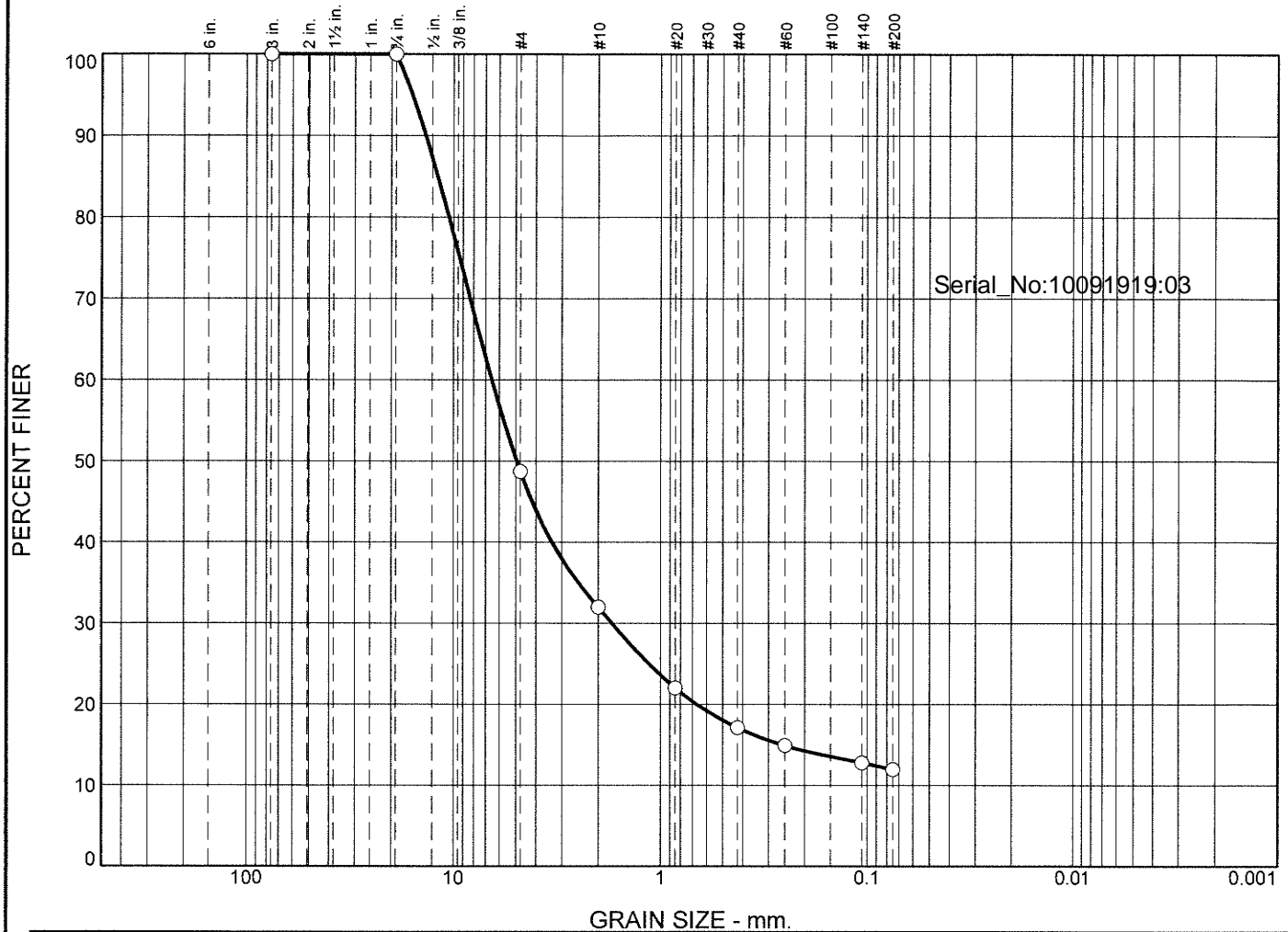
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:10091919:03

ASTM D6913/D7928 GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE DISTRIBUTION TEST DATA

10/8/2019

Location: DPT-29-10-12-20190926

Sample Number: L1944659-05

Testing Remarks: Sampled by SM

Tested by MCH

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.13

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Serial_No:10091919:03

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
92.13	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	47.26	0.00	48.7
		#10	15.39	0.00	32.0
		#20	9.17	0.00	22.0
		#40	4.50	0.00	17.2
		#60	2.06	0.00	14.9
		#140	1.95	0.00	12.8
		#200	0.78	0.00	12.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	51.3	51.3	16.7	14.8	5.2	36.7			12.0

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.2558	0.6660	1.7163	3.3429	4.9502	6.5205	10.5483	11.9459	13.6455	15.8397

Fineness Modulus
4.67

Alpha Analytical

Particle Size Distribution Report

Serial No: 10091919:03

GRAIN SIZE - mm.									
% +3"		% Gravel		% Sand			% Fines		
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0.0		0.0	0.0	0.2	0.9	0.4	98.5		

Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu

Material Description								USCS	AASHTO

Project No. **Client:**

Project:

○ **Source of Sample:** DPT-29-18-20-20190926 **Sample Number:** L1944659-06

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

GRAIN SIZE DISTRIBUTION TEST DATA

10/8/2019

Location: DPT-29-18-20-20190926

Sample Number: L1944659-06

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =78.47

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
78.47	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.13	0.00	99.8
		#20	0.43	0.00	99.3
		#40	0.31	0.00	98.9
		#60	0.16	0.00	98.7
		#140	0.07	0.00	98.6
		#200	0.07	0.00	98.5

Serial_No:10091919:03

Fractional Components

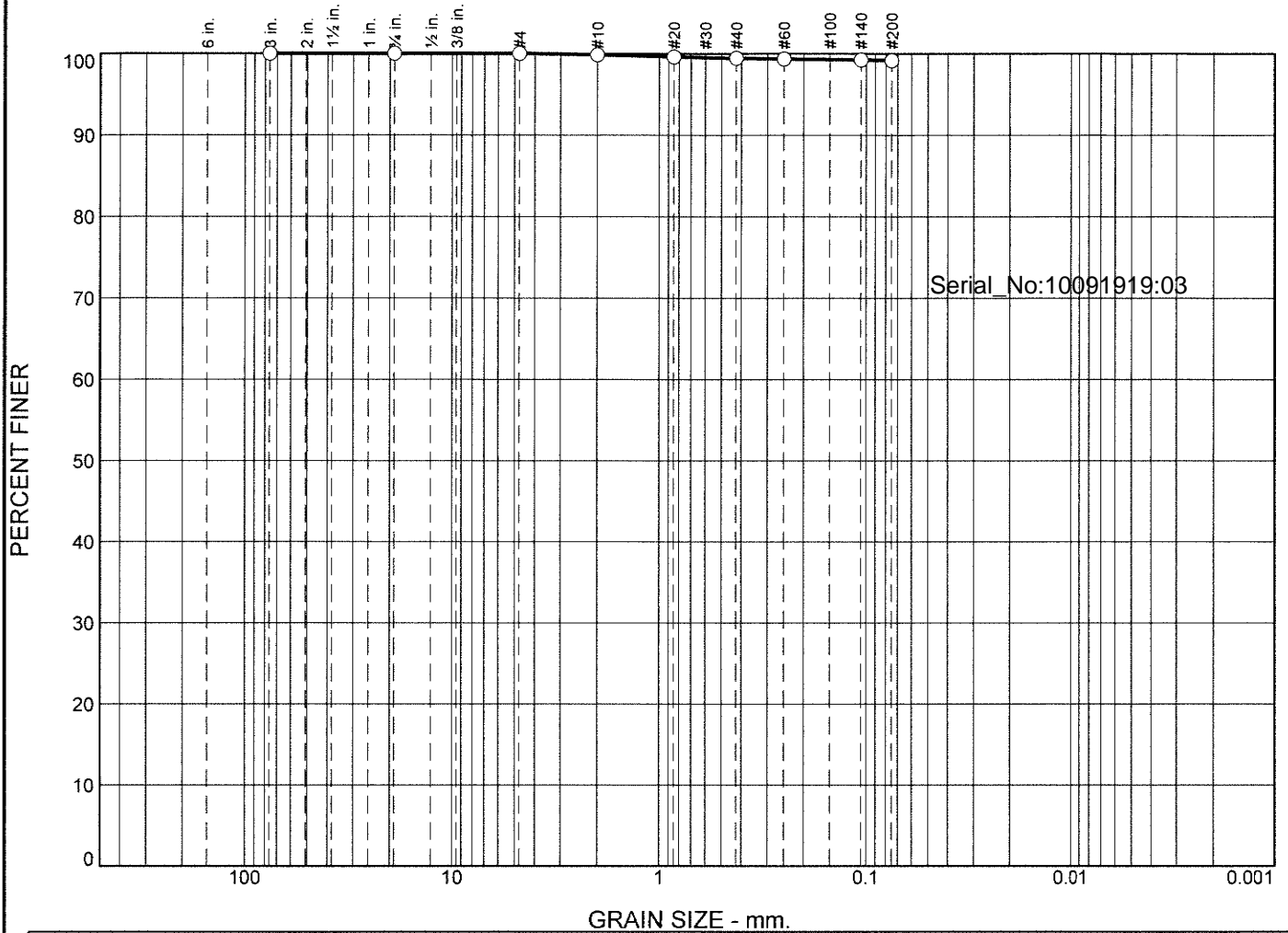
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.9	0.4	1.5			98.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.04

Alpha Analytical

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines			
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0		0.0	0.0	0.2	0.4	0.2	99.2			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>											

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Client: Project: <input type="radio"/> Source: DPT-29-18-20-20190926 Sample No.: WG1290658-1 Date: <input type="radio"/>	Remarks:
Alpha Analytical Mansfield, MA	Figure

GRAIN SIZE DISTRIBUTION TEST DATA

10/8/2019

Location: DPT-29-18-20-20190926

Sample Number: WG1290658-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 79.34

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.34	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.12	0.00	99.8
		#20	0.19	0.00	99.6
		#40	0.13	0.00	99.4
		#60	0.08	0.00	99.3
		#140	0.09	0.00	99.2
		#200	0.05	0.00	99.2

Serial_No:10091919:03

Fractional Components

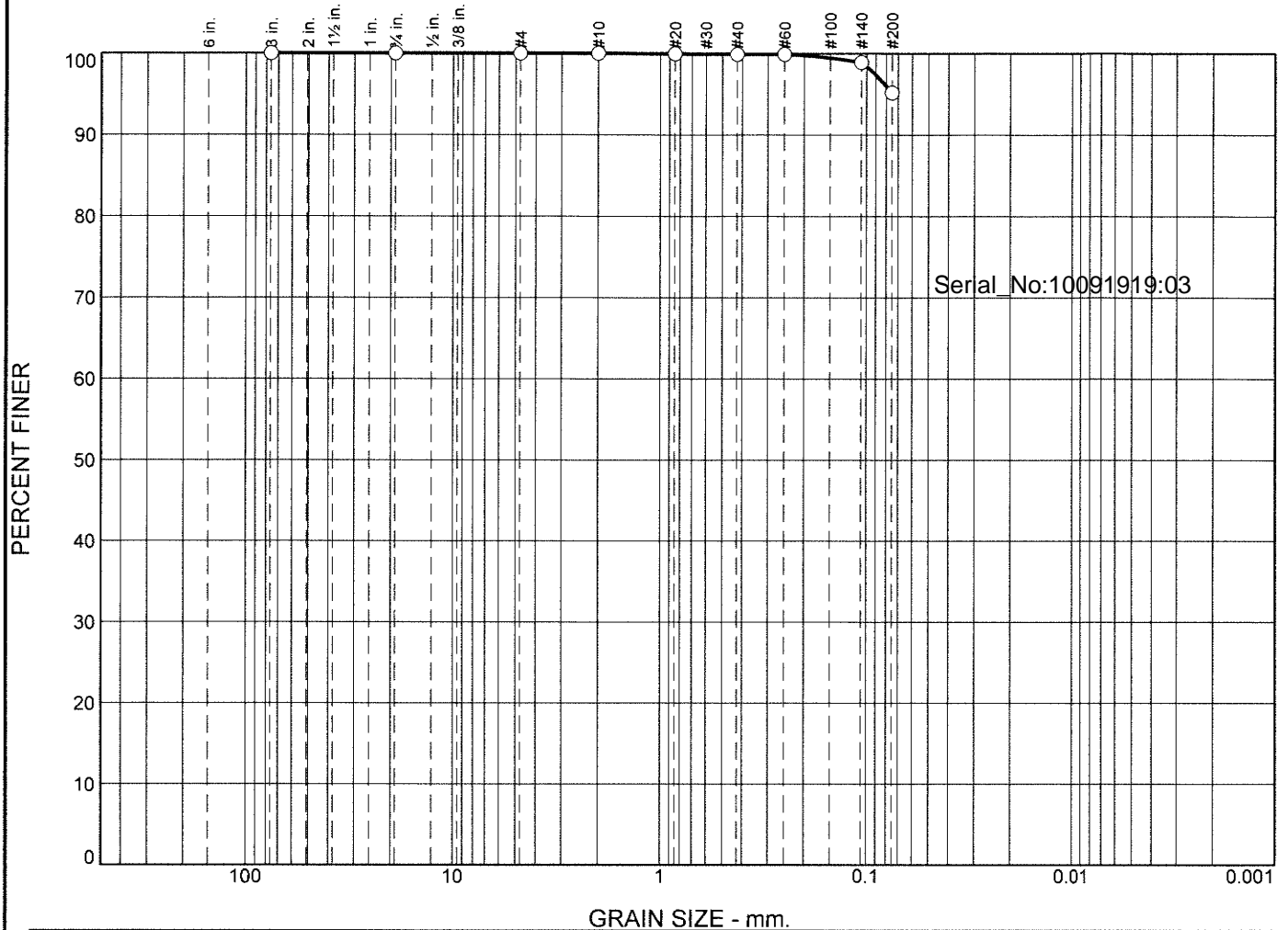
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.8			99.2

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Fineness Modulus
0.02

Alpha Analytical

Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines			
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay	
<input type="radio"/>	0.0		0.0	0.0	0.0	0.1	4.7	95.2			
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>											

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No. Client: Project: <input type="radio"/> Source of Sample: DPT-29-20-22-20190926 Sample Number: L1944659-07 Date: <input type="radio"/>	Remarks:
Alpha Analytical Mansfield, MA	Figure

GRAIN SIZE DISTRIBUTION TEST DATA

10/8/2019

Location: DPT-29-20-22-20190926

Sample Number: L1944659-07

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =81.21

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
81.21	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.01	0.00	100.0
		#20	0.03	0.00	100.0
		#40	0.04	0.00	99.9
		#60	0.00	0.00	99.9
		#140	0.81	0.00	98.9
		#200	3.02	0.00	95.2

Serial_No:10091919:03

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	4.7	4.8			95.2

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95

Fineness Modulus
0.01

Alpha Analytical

Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


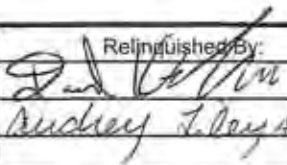
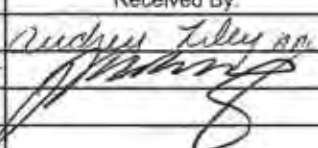
3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.


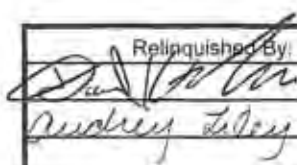
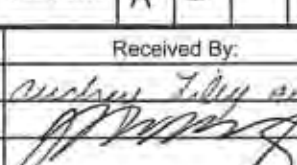
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page <div style="border: 1px solid black; padding: 2px; display: inline-block;">1 of 3</div>		Date Rec'd In Lab 9/27/19		ALPHA Job # L1944659	
		Project Information Project Name: Essex Hope Project Location: Jamestown, NY Project # DWJMS 004 (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input checked="" type="checkbox"/> Other Per Po		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO # 148007814			
Client Information Client: Jacobs Address: 125 Blackstone Ave Jamestown, NY Phone: 508-397-1904 Fax: _____ Email: Dane.Kortjahn@jacobs.com		Project Manager: Shamus Keelane ALPHAQuote #: PO 148007814 Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: _____ Rush (only if pre approved) <input type="checkbox"/> # of Days: _____		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input checked="" type="checkbox"/> Other Per Po <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities: Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other: _____			
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Other project specific requirements/comments: <div style="font-size: 1.2em; margin-top: 10px;">See Program QA/QC associated w/ PO</div>								Sample Specific Comments	
Please specify Metals or TAL									
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials	
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-02		DPT-28-11-13-20190925		9/25/19 1445		S		DK	
-03		DPT-28-14-16-20190925		9/25/19 1515		S		DK	
-03		DPT-28-14-16-20190925 MS		9/25/19 1515		S		DK	
-03		DPT-28-14-16-20190925 SD		9/25/19 1515		S		DK	
-04		EB-005-20190925		9/25/19 1610		W		DK	
-05		DPT-29-10-12-20190926		9/26/19 830		S		DK	
-06		DPT-29-18-20-20190926		9/26/19 840		S		DK	
-07		DPT-29-20-22-20190926		9/26/19 900		S		DK	
-08		DPT-29-26-28-20190926		9/26/19 915		S		DK	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		E P A V A A A B	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By: 		Date/Time 9/26/19 1500 9/26/19 1645		Received By: 		Date/Time 9/26/19 15:00 9/26/19 08:00	
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)									

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-896-9220 FAX: 508-896-9193		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page <div style="border: 1px solid black; padding: 2px; display: inline-block;">2 of 3</div>		Date Rec'd In Lab 9/27/19		ALPHA Job # U944659																																																																	
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Appendix D

Total Oxidant Demand Laboratory Report



1204 Springdale Street
Mount Horeb, WI 53572
(608) 437-7413

October 1, 2019

Mr. Shamus Keohane
Jacobs
120 St. James Ave, 5th Floor
Boston, MA 02116

Subject: Alkaline Persulfate TOD Testing Report for the Jamestown, NY Site.

Mr. Keohane:

Ursus Remediation Testing & Technologies, LLC (Ursus) is pleased to provide Jacobs this report for Total Oxidant Demand (TOD) testing for the Jamestown, NY Site.

OBJECTIVE

The objective of the study was to determine the amount of alkaline activated sodium persulfate required to overcome the oxidant demand in site soil.

BACKGROUND

Alkaline activated persulfate (in the form of sodium persulfate) was evaluated in the TOD study. Activation was performed by adding sodium hydroxide to the soil to achieve a pH of greater than 10.5. Ursus performed persulfate TOD testing following testing methodologies similar to those outlined by Haselow et. al 2003 and Peroxychem/FMC's Kloxur™ Treatability Protocol Template.

Two soil samples and two groundwater samples were tested (Table 1).

Table 1.
Samples Received for TOD Testing

Sample	Sample Date	Date Received	Sample Matrix	Sample Comments
MW-1245-10-12-20190910	9/10/2019	9/16/2019	Soil	2 8-oz soil jars. Headspace present
DDT-51-10-12-20190911	9/11/2019	9/16/2019	Soil	2 8-oz soil jars. One jar broke during shipping. Headspace present.
MW-1245	9/17/2019	9/18/2019	Groundwater	3 8-oz soil jars. Headspace present.
MW-315	9/17/2019	9/18/2019	Groundwater	3 8-oz soil jars. One bottle broke in transit. Headspace present.

MATERIALS AND METHODOLOGY

Materials

Sodium Persulfate – Na₂S₂O₈. Fisher reagent grade.

Sodium Hydroxide – NaOH. JT Baker reagent grade.

Methodology

Soil sample MW-1245-10-12-20190910 was slurried with groundwater sample MW-1245 and soil sample DDT-51-10-12-20190911 was slurried with groundwater sample MW-315 for testing. Soil was mixed with groundwater containing alkaline activate persulfate at a 1:1 ratio (50g soil/50 mls solution). The soil slurry samples were prepared immediately prior to TOD testing. Original soil and groundwater were refrigerated when not in use.

Acidity and Persulfate TOD Testing

Acidity testing was conducted to determine the amount of sodium hydroxide required for activation. The acidity of the slurry was determined prior to TOD testing. The slurry sample was titrated with a known amount of sodium hydroxide to determine the amount of alkalinity required to maintain the pH above 10.5.

Samples were exposed to ambient laboratory conditions in tightly capped reaction jars with periodic mixing. The samples were tested for persulfate TOD 48 hours, 96 hours, and 7 days post treatment. Sodium persulfate dosages of 2.0, 4.0, and 7.0 g/kg were tested.

RESULTS

Acidity

The amount of sodium hydroxide needed to adjust the sample for alkaline activation includes the mass needed to maintain the pH above 10.5, the mass needed to compensate for the decomposition of sodium persulfate and formation of sulfuric acid, and an adjustment for periods longer than 7 days. The baseline acidity for both soil slurries was 10.5g NaOH/kg. The required amount of sodium hydroxide for each dosage is shown in Table 2.

Table 2.
Grams of NaOH Added at Each Dosage for Alkaline Persulfate Activation.

Persulfate Dosage (g/kg)	Acidity (g NaOH/kg soil)
2.0	11.2
4.0	11.9
7.0	13.0

Persulfate TOD Testing

TOD was measured 48 hours, 96 hours, and 7 days post treatment. The TOD was set up on September 23, 2019. The 48 hour persulfate TOD (TOD_{48Hr}) was measured on September 25, 2019. The 96 hour persulfate TOD (TOD_{96Hr}) and the 7 Day persulfate TOD (TOD_{7Day}) were measured on September 28, 2019 and September 30, 2019, respectively.

At each sampling event, the soil slurry was allowed to settle, and an aliquot of the liquid fraction was decanted and analyzed for residual persulfate. The data for the TOD is shown in Table 3.

TOD results are discussed below.

1. The samples showed similar TOD results at each sampling interval.
2. TOD results are increasing, suggesting that the TOD may not have been met after 7 days.
3. The pH was above the target pH level of greater than 10.5 for all dosages. However, pH readings of upper 12 after the persulfate was spent would suggest that the baseline acidity is lower than what was found in testing. Acidity testing was rerun. An average acidity of 7.8 g NaOH/kg soil was found. The sodium hydroxide requirement should be adjusted using a baseline acidity of 7.8 g NaOH/kg soil.

Jacobs
Jamestown NY
October 1, 2019

4. A baseline acidity of 7.51g NaOH/kg soil for sample MW-1245 and 8.06g NaOH/kg soil for the DDT sample was found in the rerun acidity test.
5. TOD results and interpretation will not differ from those reported here if the TOD was performed at the lower baseline acidity.

Table 3.
Alkaline Activated Persulfate TOD_{48Hr}, TOD_{96Hr}, and TOD_{7Day} Results

Sample	Sodium Persulfate Dosage (g/kg)	TOD _{48Hr}		TOD _{96Hr}		TOD _{7Day}	
		pH	TOD g/kg at TOD _{48Hr}	pH	TOD g/kg at TOD _{96Hr}	pH	TOD g/kg at TOD _{7Day}
MW-1245-10-12-20190910/ MW-1245	2.0	12.72	1.7	12.85	>2	12.90	>2
	4.0	12.82	2.5	12.84	3.7	12.88	>4
	7.0	12.81	3.6	12.89	5.5	12.88	6.3
DDT-51-10-12-20190911/ MW-315	2.0	13.04	1.6	12.89	>2	12.96	>2
	4.0	12.81	2.2	12.94	3.5	12.92	>4
	7.0	12.80	3.6	12.94	5.3	12.90	6.2

REFERENCES

Peroxychem/FMC. Kloxur™ Activated Persulfate Treatability Protocol Template.

Haselow, J, S., Siegrist, R, L., Crimi, M., and Jarosch, T. 2003. Estimating the Total Oxidant Demand for In Situ Chemical Oxidation Design. Remediation Autumn 2003.

Sincerely,



Andrew Wenzel
Principal

Appendix E

Data Quality Review

120 St. James Avenue, 5th Floor
Boston, Massachusetts 02116
United States
T +1.617.963.3129
www.jacobs.com

Subject Data Quality Evaluation for the 2019 Supplemental Site Investigation
Project Name Essex-Hope Site, Jamestown, New York
Attention Essex Specialty Products, Inc.
From Jacobs Engineering Group Inc.
Date March 2020

1. Introduction

This data quality evaluation (DQE) report assesses the data quality of analytical results for groundwater and soil samples collected from the Essex-Hope State Superfund site (Site No. 907015) located at 125 Blackstone Avenue in Jamestown, New York (site). Jacobs Engineering Group Inc. (Jacobs) collected samples September 11 through September 26, 2019. Guidance for this DQE report came from the *Quality Assurance Project Plan, Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York* (QAPP; CH2M HILL Engineers, Inc. 2016); the QAPP Addendum (Jacobs 2019); the U.S. Environmental Protection Agency (EPA) *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (EPA 2017a); the EPA *NFG for Inorganic Superfunds Methods Data Review* (EPA 2017b); and individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as described in the QAPP and QAPP Addendum. This report is intended as a general data quality assessment designed to summarize data issues.

2. Analytical Data

Jacobs collected 76 soil normal samples, 24 normal groundwater samples, 8 soil field duplicate samples (FD), 3 groundwater FDs, 4 soil matrix spike (MS)/matrix spike duplicate (MSD) sets, 2 groundwater MS/MSD sets, 6 equipment blanks (EB), and 15 trip blanks (TB). The samples were reported in 15 sample delivery groups (Table 1).

Table 1. Sample Delivery Groups

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Sample Delivery Groups		
L1941269	L1941513	L1941835
L1942098	L1942450	L1942777
L1942778	L1942979	L1942981
L1943256	L1943458	L1943826
L1944061	L1944397	L1944659

Samples were collected and delivered to Alpha Analytical Laboratory in Westborough, Massachusetts. The samples were analyzed by one or more of the methods listed in Table 2.

Table 2. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Parameter	Method
Volatile Organic Compounds	SW8260C
Total Organic Carbon	Lloyd Kahn
Alkalinity	SM2320B
Chloride	EPA300
Total Iron/Manganese	SW6020B
Grain Size	ASTM D6913/D7928

The sample delivery groups were assessed by reviewing the chain-of-custody documentation, holding time compliance, initial and continuing calibration, method blanks/field blanks, laboratory control spiking sample (LCS)/laboratory control spiking sample duplicate (LCSD) recoveries and precision, MS/MSD recoveries and precision, internal standard recoveries, surrogate spike recoveries, FD precision, and required method quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the QAPP and QAPP Addendum. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts. The data flags are those listed in the QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

3. Findings

The following subsections contain overall summaries of the data validation. Qualified data are presented in Table 3.

3.1 Holding Time and Preservation

All holding time and preservation criteria were met.

3.2 Calibration

Initial and continuing calibration analyses were performed as required by the methods, and acceptance criteria were met with the following exceptions:

- The percent differences (%D) for 1,4-dioxane and 2-butanone were less than criteria in several volatile organic compound (VOC) initial calibration verification standards (ICVS), indicating a possible low bias. The data were qualified as estimated detected and nondetected results and flagged "J" and "UJ," respectively, in the associated samples.

- The %D for several analytes were greater than criteria in a few VOC ICVS, indicating a possible high bias. Detected results were qualified as estimated and flagged “J” in the associated samples. Nondetected results were not qualified.
- The %D for several analytes were less than criteria in multiple VOC continuing calibration verification standards (CCV), indicating a possible low bias. The data were qualified as estimated detected and nondetected results and flagged “J” and “UJ,” respectively, in the associated samples.
- The %D for several analytes were greater than criteria in multiple VOC CCVs, indicating a possible high bias. Detected results were qualified as estimated and flagged “J” in the associated samples. Nondetected results were not qualified.
- The concentration for acetone exceeded the calibration range of the instrument in multiple samples. The data were qualified as estimated and flagged “J” in the associated samples.
- Total iron and/or manganese were detected at concentrations less than the reporting limit (RL) in a few continuing calibration blanks associated with the metals analysis. The data were not qualified because the associated sample concentrations were significantly greater than the blank concentration.

3.3 Method Blanks

Method blanks were analyzed as required and at the required frequency and were free of contamination with the following exceptions:

- Several analytes were detected at concentrations less than the RL in a few VOC method blanks. The data were qualified as not detected and flagged “U” when the sample concentrations were less than five times the blank concentrations.

3.4 Laboratory Control Samples

LCS/LCSDs were analyzed as required, and accuracy and precision criteria were met with the following exceptions:

- The recovery for 2-butanone was less than the lower control limit in a few VOC LCS/LCSDs, indicating a possible low bias. The data were qualified as estimated detected and nondetected results and flagged “J” and “UJ,” respectively, in the associated samples.
- Acetone, 2-butanone, and/or chloromethane were recovered greater than the upper control limits in a few VOC LCS/LCSDs, indicating a possible high bias. Detected results were qualified as estimated and flagged “J” in the associated samples. Nondetected results were not qualified.

3.5 Surrogates

Surrogates were added to the samples and acceptance criteria were met with the following exceptions:

- One or more surrogates were recovered greater than the upper control limits in the VOC analysis for sample DPT-32-11-13-20190920, indicating a possible high bias. Detected results were qualified as estimated and flagged “J” in the sample. Nondetected results were not qualified.

3.6 Internal Standards

Internal standards were added to the samples, and acceptance criteria were met with the following exceptions:

- One or more internal standards were recovered less than the lower control limits in the VOC analysis for samples DPT-32-11-13-20190920 and DPT-39-20-22-20190919, indicating a possible lack of sensitivity to accurately detect the associated analytes. The data were qualified as estimated detected and nondetected results and flagged “J” and “UJ,” respectively, in the samples.

3.7 Matrix Spikes

MS/MSDs were analyzed as required, and accuracy and precision criteria were met with the following exceptions:

- A few analytes were recovered less than the lower control limits in several VOC MS/MSDs, indicating a possible low bias. The data were qualified as estimated nondetected results and flagged “UJ” in the respective parent sample. In addition, several analytes were recovered greater than the upper control limits in the MS/MSDs, indicating a possible high bias. Detected results were qualified as estimated and flagged “J” in the respective parent samples. Nondetected results were not qualified.
- Total iron and manganese exceeded MS/MSD criteria for sample MW-26S-20190918; however, the sample concentrations were greater than four times the spike concentrations, therefore the data were not qualified.
- The relative percent differences (RPD) for bromomethane exceeded criteria in the MS/MSD for sample DPT-52-GW-12-14-20190911, and n-butylbenzene exceeded criteria in the MS/MSD for sample DPT-31-17-19-20190926. The data were not qualified because the respective parent samples did not contain reportable levels of these analytes.

3.8 Field Duplicates

FDs were collected, analyzed, and precision criteria were met with the following exceptions:

- The RPDs for a few analytes exceeded criteria in several VOC FD pairs. The data were qualified as estimated results and flagged “J” in the FD pairs.

3.9 Field Blanks

EBs and TBs were collected as required, analyzed, and were free of contamination with the following exceptions:

- A few analytes were detected at concentrations less than and/or greater than the RL in multiple VOC EBs and TBs. The data were qualified as not detected and flagged “U” when the associated sample concentrations were less than five times (10 times for common contaminants) the blank concentrations.

3.10 Chain-of-Custody

Required procedures were followed, and the chains-of-custody were free of errors.

4. Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the above-defined events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include FD, MS/MSD, and LCS/LCSD RPDs. Precision was generally acceptable; however, several analytes were qualified as estimated in multiple samples due to FD RPD issues. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.
- Accuracy of the data was verified by reviewing calibration, LCS/LCSD, MS/MSD, surrogate, and internal standard recoveries, as well as the evaluation of method/field blank data. Accuracy was generally acceptable; however, several analytes were qualified as estimated detected and nondetected results due to calibration, LCS/LCSD, MS/MSD, surrogate, and/or internal standard issues. Several analytes were qualified as not detected in a few samples due to method/field blank contamination.

- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures and verification of holding time compliance. No issues were reported for sample collection and storage procedures. The data were reported from analyses within the EPA-recommended holding time.
- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid.

The data can be used for project decisions taking into consideration the validation flags applied to the samples.

5. References

CH2M HILL Engineers, Inc. 2016. *Quality Assurance Project Plan for the Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York*. Prepared for Union Carbide Corporation. June.

Jacobs Engineering Group Inc. (Jacobs). 2019. *Quality Assurance Project Plan Addendum for the Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York*. Prepared for Essex Specialty Products, Inc. March.

U.S. Environmental Protection Agency (EPA). 2017a. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. OLEM 9355.0-136. EPA-540-R-2017-002. January.

U.S. Environmental Protection Agency (EPA). 2017b. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. OLEM 9355.0-135. EPA-540-R-2017-001. January.

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-28-11-13-20190925	SW8260C	Bromomethane	ug/kg	44	U	LB<RL; CCV<LCL (J)
DPT-28-11-13-20190925	SW8260C	Chloroethane	ug/kg	140	UJ	CCV<LCL
DPT-28-14-16-20190925	SW8260C	Bromomethane	ug/kg	120	UJ	CCV<LCL
DPT-28-14-16-20190925	SW8260C	Chloroethane	ug/kg	120	UJ	MS<LCL; SD<LCL; CCV<LCL
DPT-28-14-16-20190925	SW8260C	Trichlorofluoromethane	ug/kg	250	UJ	MS<LCL; SD<LCL
DPT-28-9-11-20190925	SW8260C	Acetone	ug/kg	130	J	ICVS>UCL
DPT-28-9-11-20190925	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-28-9-11-20190925	SW8260C	Chloroethane	ug/kg	2.0	UJ	CCV<LCL
DPT-28-9-11-20190925	SW8260C	Naphthalene	ug/kg	0.66	U	LB<RL
DPT-28-9-11-20190925	SW8260C	Trichloroethene	ug/kg	0.82	U	EB<RL
DPT-29-10-12-20190926	SW8260C	Acetone	ug/kg	150	J	ICVS>UCL
DPT-29-10-12-20190926	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-29-10-12-20190926	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-29-10-12-20190926	SW8260C	Trichloroethene	ug/kg	0.28	U	EB<RL
DPT-29-18-20-20190926	SW8260C	Acetone	ug/kg	190	J	ICVS>UCL
DPT-29-18-20-20190926	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-29-18-20-20190926	SW8260C	Chloroethane	ug/kg	2.4	UJ	CCV<LCL
DPT-29-18-20-20190926	SW8260C	Trichloroethene	ug/kg	0.23	U	EB<RL
DPT-29-20-22-20190926	SW8260C	Bromomethane	ug/kg	43	U	LB<RL; CCV<LCL (J)
DPT-29-20-22-20190926	SW8260C	Chloroethane	ug/kg	130	UJ	CCV<LCL
DPT-29-26-28-20190926	SW8260C	Bromomethane	ug/kg	160	UJ	CCV<LCL
DPT-29-26-28-20190926	SW8260C	Chloroethane	ug/kg	160	UJ	CCV<LCL
DPT-30-10-12-20190926	SW8260C	Acetone	ug/kg	410	J	ICLinearRange; ICVS>UCL
DPT-30-10-12-20190926	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-30-10-12-20190926	SW8260C	Chloroethane	ug/kg	2.0	UJ	CCV<LCL
DPT-30-18-20-20190926	SW8260C	Acetone	ug/kg	180	J	ICVS>UCL
DPT-30-18-20-20190926	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-30-18-20-20190926	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-30-18-20-20190926	SW8260C	Trichloroethene	ug/kg	16	J	FD>RPD

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-30-18-20-20190926FD	SW8260C	Acetone	ug/kg	140	J	ICVS>UCL
DPT-30-18-20-20190926FD	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-30-18-20-20190926FD	SW8260C	Chloroethane	ug/kg	2.4	UJ	CCV<LCL
DPT-30-18-20-20190926FD	SW8260C	Trichloroethene	ug/kg	0.42	U	EB<RL; FD>RPD (J)
DPT-30-20-22-20190926	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-30-20-22-20190926	SW8260C	Chloroethane	ug/kg	140	UJ	CCV<LCL
DPT-31-10-12-20190926	SW8260C	Acetone	ug/kg	130	J	ICVS>UCL
DPT-31-10-12-20190926	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-31-10-12-20190926	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL
DPT-31-10-12-20190926	SW8260C	Trichloroethene	ug/kg	0.36	U	EB<RL
DPT-31-17-19-20190926	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-31-17-19-20190926	SW8260C	Chloroethane	ug/kg	140	UJ	MS<LCL; SD<LCL; CCV<LCL
DPT-31-17-19-20190926	SW8260C	Hexachlorobutadiene	ug/kg	280	UJ	MS<LCL
DPT-31-17-19-20190926	SW8260C	Trichlorofluoromethane	ug/kg	280	UJ	MS<LCL; SD<LCL
DPT-31-21-23-20190926	SW8260C	Bromomethane	ug/kg	690	UJ	CCV<LCL
DPT-31-21-23-20190926	SW8260C	Chloroethane	ug/kg	690	UJ	CCV<LCL
DPT-32-11-13-20190920	SW8260C	1,1,1,2-Tetrachloroethane	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1,1-Trichloroethane	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1,2-Trichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1-Dichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1-Dichloroethene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,1-Dichloropropene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2,3-Trichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2,3-Trichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2,4-Trichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2,4-Trimethylbenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2-Dibromo-3-chloropropane	ug/kg	3.3	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2-Dibromoethane	ug/kg	1.1	UJ	IS<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-32-11-13-20190920	SW8260C	1,2-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2-Dichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2-Dichloroethene, Total	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,2-Dichloropropane	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,3,5-Trimethylbenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,3-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,3-Dichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,3-Dichloropropene, Total	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,4-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	1,4-Dioxane	ug/kg	88	UJ	ICVS<LCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	2,2-Dichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	2-Butanone	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	2-Hexanone	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	4-Methyl-2-pentanone	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Acetone	ug/kg	1500	J	Sur>UCL; ICLinearRange; CCV>UCL; LCS>UCL; LCSD>UCL
DPT-32-11-13-20190920	SW8260C	Benzene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Bromobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Bromochloromethane	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Bromodichloromethane	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Bromoform	ug/kg	4.4	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	Carbon disulfide	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Carbon tetrachloride	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Chlorobenzene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	Chloroform	ug/kg	0.26	U	LB<RL; IS<LCL (J); Sur>UCL (J)
DPT-32-11-13-20190920	SW8260C	Chloromethane	ug/kg	4.4	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Dibromochloromethane	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Dibromomethane	ug/kg	2.2	UJ	IS<LCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-32-11-13-20190920	SW8260C	Dichlorodifluoromethane	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Ethylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Hexachlorobutadiene	ug/kg	4.4	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Isopropylbenzene	ug/kg	0.66	J	Sur>UCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	Methyl tert butyl ether	ug/kg	2.4	J	Sur>UCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	Methylene chloride	ug/kg	5.5	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Naphthalene	ug/kg	4.4	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Styrene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Tetrachloroethene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Toluene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Trichloroethene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Trichlorofluoromethane	ug/kg	4.4	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Vinyl acetate	ug/kg	11	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Vinyl chloride	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	Xylenes, Total	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	cis-1,2-Dichloroethene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	cis-1,3-Dichloropropene	ug/kg	0.55	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	n-Butylbenzene	ug/kg	1.6	J	Sur>UCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	n-Propylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	o-Chlorotoluene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	o-Xylene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	p-Chlorotoluene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	p-Isopropyltoluene	ug/kg	1.1	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	p/m-Xylene	ug/kg	2.2	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	sec-Butylbenzene	ug/kg	2.9	J	Sur>UCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	tert-Butylbenzene	ug/kg	1.5	J	Sur>UCL; IS<LCL
DPT-32-11-13-20190920	SW8260C	trans-1,2-Dichloroethene	ug/kg	1.6	UJ	IS<LCL
DPT-32-11-13-20190920	SW8260C	trans-1,3-Dichloropropene	ug/kg	1.1	UJ	IS<LCL
DPT-32-20-22-20190920	SW8260C	1,4-Dioxane	ug/kg	110000	UJ	ICVS<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-32-20-22-20190920	SW8260C	Bromomethane	ug/kg	2800	UJ	CCV<LCL
DPT-32-20-22-20190920	SW8260C	Chloroethane	ug/kg	2800	UJ	CCV<LCL
DPT-32-20-22-20190920	SW8260C	Chloroform	ug/kg	310	U	LB<RL
DPT-32-22-24-20190920	SW8260C	1,4-Dioxane	ug/kg	56000	UJ	ICVS<LCL
DPT-32-22-24-20190920	SW8260C	Bromomethane	ug/kg	1400	UJ	CCV<LCL
DPT-32-22-24-20190920	SW8260C	Chloroethane	ug/kg	1400	UJ	CCV<LCL
DPT-32-22-24-20190920	SW8260C	Chloroform	ug/kg	160	U	LB<RL
DPT-32-22-24-20190920FD	SW8260C	Bromomethane	ug/kg	1400	UJ	CCV<LCL
DPT-32-22-24-20190920FD	SW8260C	Chloroethane	ug/kg	1400	UJ	CCV<LCL
DPT-32-22-24-20190920FD	SW8260C	Chloroform	ug/kg	180	U	LB<RL
DPT-33-10-12-20190920	SW8260C	2-Butanone	ug/kg	4.0	J	LCS>UCL; LCSD>UCL
DPT-33-10-12-20190920	SW8260C	Acetone	ug/kg	370	J	ICLinearRange; LCS>UCL; LCSD>UCL
DPT-33-10-12-20190920	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-33-10-12-20190920	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL
DPT-33-10-12-20190920	SW8260C	Chloroform	ug/kg	0.23	U	LB<RL
DPT-33-10-12-20190920	SW8260C	Dichlorodifluoromethane	ug/kg	11	UJ	CCV<LCL
DPT-33-10-12-20190920	SW8260C	Trichloroethene	ug/kg	0.38	U	EB<RL
DPT-33-24-26-20190920	SW8260C	1,4-Dioxane	ug/kg	30000	UJ	ICVS<LCL
DPT-33-24-26-20190920	SW8260C	Bromomethane	ug/kg	750	UJ	CCV<LCL
DPT-33-24-26-20190920	SW8260C	Chloroethane	ug/kg	750	UJ	CCV<LCL
DPT-33-24-26-20190920	SW8260C	Chloroform	ug/kg	87	U	LB<RL
DPT-33-26-28-20190920	SW8260C	1,4-Dioxane	ug/kg	23000	UJ	ICVS<LCL
DPT-33-26-28-20190920	SW8260C	Bromomethane	ug/kg	580	UJ	CCV<LCL
DPT-33-26-28-20190920	SW8260C	Chloroethane	ug/kg	580	UJ	CCV<LCL
DPT-33-26-28-20190920	SW8260C	Chloroform	ug/kg	67	U	LB<RL
DPT-34-14-16-20190918	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.65	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	1,2,3-Trichloropropane	ug/kg	2.6	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	2-Butanone	ug/kg	6.5	J	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-34-14-16-20190918	SW8260C	Acetone	ug/kg	410	J	ICLinearRange; FD>RPD

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-34-14-16-20190918	SW8260C	Bromomethane	ug/kg	2.6	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	Chloroethane	ug/kg	2.6	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	Chloromethane	ug/kg	5.2	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	13	UJ	CCV<LCL
DPT-34-14-16-20190918	SW8260C	Vinyl chloride	ug/kg	1.3	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.6	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	1,2,3-Trichloropropane	ug/kg	2.4	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	2-Butanone	ug/kg	12	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-34-14-16-20190918FD	SW8260C	Acetone	ug/kg	33	J	FD>RPD
DPT-34-14-16-20190918FD	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	Chloroethane	ug/kg	2.4	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	Chloromethane	ug/kg	4.8	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	Dichlorodifluoromethane	ug/kg	12	UJ	CCV<LCL
DPT-34-14-16-20190918FD	SW8260C	Vinyl chloride	ug/kg	1.2	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.63	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	1,2,3-Trichloropropane	ug/kg	2.5	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	2-Butanone	ug/kg	13	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-34-16-18-20190918	SW8260C	Bromomethane	ug/kg	2.5	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	Chloroethane	ug/kg	2.5	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	Chloromethane	ug/kg	5.0	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	13	UJ	CCV<LCL
DPT-34-16-18-20190918	SW8260C	Vinyl chloride	ug/kg	1.3	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.5	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	1,2,3-Trichloropropane	ug/kg	2.0	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	2-Butanone	ug/kg	10	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-34-9-11-20190918	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	Chloroethane	ug/kg	2.0	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	Chloromethane	ug/kg	4.0	UJ	CCV<LCL
DPT-34-9-11-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	10	UJ	CCV<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-34-9-11-20190918	SW8260C	Vinyl chloride	ug/kg	1.0	UJ	CCV<LCL
DPT-35-11-13-20190918	SW8260C	2-Butanone	ug/kg	1200	UJ	LCS<LCL; LCSD<LCL
DPT-35-11-13-20190918	SW8260C	Bromomethane	ug/kg	250	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.6	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	1,2,3-Trichloropropane	ug/kg	2.4	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	2-Butanone	ug/kg	12	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-35-13-15-20190918	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	Chloroethane	ug/kg	2.4	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	Chloromethane	ug/kg	4.8	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	12	UJ	CCV<LCL
DPT-35-13-15-20190918	SW8260C	Vinyl chloride	ug/kg	12	J	CCV<LCL
DPT-35-9-11-20190918	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.51	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	1,2,3-Trichloropropane	ug/kg	2.0	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	2-Butanone	ug/kg	10	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-35-9-11-20190918	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	Chloroethane	ug/kg	2.0	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	Chloromethane	ug/kg	4.0	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	10	UJ	CCV<LCL
DPT-35-9-11-20190918	SW8260C	Vinyl chloride	ug/kg	1.0	UJ	CCV<LCL
DPT-36-10-12-20190918	SW8260C	1,4-Dioxane	ug/kg	72	UJ	ICVS<LCL
DPT-36-10-12-20190918	SW8260C	2-Butanone	ug/kg	5.9	J	LCS>UCL; LCSD>UCL; CCV>UCL
DPT-36-10-12-20190918	SW8260C	Acetone	ug/kg	480	J	ICLinearRange; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-36-10-12-20190918	SW8260C	Chloroform	ug/kg	0.20	U	LB<RL
DPT-36-20-22-20190918	SW8260C	1,4-Dioxane	ug/kg	120000	UJ	ICVS<LCL
DPT-36-20-22-20190918	SW8260C	Bromomethane	ug/kg	3000	UJ	CCV<LCL
DPT-36-20-22-20190918	SW8260C	Carbon disulfide	ug/kg	15000	UJ	CCV<LCL
DPT-36-20-22-20190918	SW8260C	Chloroethane	ug/kg	3000	UJ	CCV<LCL
DPT-36-20-22-20190918	SW8260C	Chloroform	ug/kg	380	U	LB<RL
DPT-36-22-24-20190918	SW8260C	Bromomethane	ug/kg	1400	UJ	CCV<LCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-36-22-24-20190918	SW8260C	Chloroethane	ug/kg	1400	UJ	CCV<LCL
DPT-36-22-24-20190918	SW8260C	Chloroform	ug/kg	140	U	LB<RL
DPT-36-22-24-20190918	SW8260C	Dichlorodifluoromethane	ug/kg	7000	UJ	CCV<LCL
DPT-36-27-28-20190918	SW8260C	1,4-Dioxane	ug/kg	120000	UJ	ICVS<LCL
DPT-36-27-28-20190918	SW8260C	Bromomethane	ug/kg	2900	UJ	CCV<LCL
DPT-36-27-28-20190918	SW8260C	Carbon disulfide	ug/kg	14000	UJ	CCV<LCL
DPT-36-27-28-20190918	SW8260C	Chloroethane	ug/kg	2900	UJ	CCV<LCL
DPT-36-27-28-20190918	SW8260C	Chloroform	ug/kg	300	U	LB<RL
DPT-37-10-12-20190919	SW8260C	Acetone	ug/kg	240	J	LCS>UCL; LCSD>UCL
DPT-37-10-12-20190919	SW8260C	Chloroform	ug/kg	0.23	U	LB<RL
DPT-37-10-12-20190919	SW8260C	Chloromethane	ug/kg	1.5	J	LCS>UCL; LCSD>UCL
DPT-37-20-22-20190919	SW8260C	1,4-Dioxane	ug/kg	13000	UJ	ICVS<LCL
DPT-37-20-22-20190919	SW8260C	Bromomethane	ug/kg	320	UJ	CCV<LCL
DPT-37-20-22-20190919	SW8260C	Carbon disulfide	ug/kg	1600	UJ	CCV<LCL
DPT-37-20-22-20190919	SW8260C	Chloroethane	ug/kg	320	UJ	CCV<LCL
DPT-37-20-22-20190919	SW8260C	Chloroform	ug/kg	38	U	LB<RL
DPT-37-22-24-20190919	SW8260C	1,4-Dioxane	ug/kg	21000	UJ	ICVS<LCL
DPT-37-22-24-20190919	SW8260C	Bromomethane	ug/kg	530	UJ	CCV<LCL
DPT-37-22-24-20190919	SW8260C	Carbon disulfide	ug/kg	2600	UJ	CCV<LCL
DPT-37-22-24-20190919	SW8260C	Chloroethane	ug/kg	530	UJ	CCV<LCL
DPT-37-22-24-20190919	SW8260C	Chloroform	ug/kg	66	U	LB<RL
DPT-38-10-12-20190919	SW8260C	1,2-Dichloroethene, Total	ug/kg	4.1	J	FD>RPD
DPT-38-10-12-20190919	SW8260C	1,4-Dioxane	ug/kg	82	UJ	ICVS<LCL
DPT-38-10-12-20190919	SW8260C	Acetone	ug/kg	58	J	FD>RPD; LCS>UCL; LCSD>UCL
DPT-38-10-12-20190919	SW8260C	Chloroform	ug/kg	0.24	U	LB<RL
DPT-38-10-12-20190919	SW8260C	cis-1,2-Dichloroethene	ug/kg	4.1	J	FD>RPD
DPT-38-10-12-20190919FD	SW8260C	1,2-Dichloroethene, Total	ug/kg	2.4	J	FD>RPD
DPT-38-10-12-20190919FD	SW8260C	1,4-Dioxane	ug/kg	76	UJ	ICVS<LCL
DPT-38-10-12-20190919FD	SW8260C	Acetone	ug/kg	480	J	ICLinearRange; FD>RPD; LCS>UCL; LCSD>UCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-38-10-12-20190919FD	SW8260C	Chloroform	ug/kg	0.34	U	LB<RL
DPT-38-10-12-20190919FD	SW8260C	Chloromethane	ug/kg	1.2	J	LCS>UCL; LCSD>UCL; CCV>UCL
DPT-38-10-12-20190919FD	SW8260C	cis-1,2-Dichloroethene	ug/kg	2.4	J	FD>RPD
DPT-38-18-20-20190919	SW8260C	1,4-Dioxane	ug/kg	100	UJ	ICVS<LCL
DPT-38-18-20-20190919	SW8260C	Acetone	ug/kg	440	J	ICLinearRange; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-38-18-20-20190919	SW8260C	Carbon disulfide	ug/kg	12	UJ	CCV<LCL
DPT-38-18-20-20190919	SW8260C	Chloroethane	ug/kg	2.5	UJ	CCV<LCL
DPT-38-18-20-20190919	SW8260C	Chloroform	ug/kg	0.32	U	LB<RL
DPT-38-18-20-20190919	SW8260C	Chloromethane	ug/kg	1.7	J	LCS>UCL; LCSD>UCL; CCV>UCL
DPT-38-24-26-20190919	SW8260C	Bromomethane	ug/kg	240	UJ	CCV<LCL
DPT-38-24-26-20190919	SW8260C	Chloroethane	ug/kg	240	UJ	CCV<LCL
DPT-38-24-26-20190919	SW8260C	Chloroform	ug/kg	27	U	LB<RL
DPT-38-24-26-20190919	SW8260C	Dichlorodifluoromethane	ug/kg	1200	UJ	CCV<LCL
DPT-39-10-12-20190919	SW8260C	1,4-Dioxane	ug/kg	85	UJ	ICVS<LCL
DPT-39-10-12-20190919	SW8260C	Acetone	ug/kg	400	J	ICLinearRange; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-10-12-20190919	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-39-10-12-20190919	SW8260C	Carbon disulfide	ug/kg	10	UJ	CCV<LCL
DPT-39-10-12-20190919	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-39-10-12-20190919	SW8260C	Chloroform	ug/kg	0.35	U	LB<RL
DPT-39-10-12-20190919	SW8260C	Chloromethane	ug/kg	1.6	J	LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-18-20-20190919	SW8260C	1,4-Dioxane	ug/kg	84	UJ	ICVS<LCL
DPT-39-18-20-20190919	SW8260C	Acetone	ug/kg	480	J	ICLinearRange; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-18-20-20190919	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-39-18-20-20190919	SW8260C	Carbon disulfide	ug/kg	10	UJ	CCV<LCL
DPT-39-18-20-20190919	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-39-18-20-20190919	SW8260C	Chloroform	ug/kg	0.25	U	LB<RL
DPT-39-18-20-20190919	SW8260C	Chloromethane	ug/kg	1.8	J	LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-20-22-20190919	SW8260C	1,1,1,2-Tetrachloroethane	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,1,1-Trichloroethane	ug/kg	0.54	UJ	IS<LCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-39-20-22-20190919	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,1,2-Trichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,1-Dichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,1-Dichloroethene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,1-Dichloropropene	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2,3-Trichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2,3-Trichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2,4-Trichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2,4-Trimethylbenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dibromo-3-chloropropane	ug/kg	3.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dibromoethane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dichloroethane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dichloroethene, Total	ug/kg	74	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,2-Dichloropropane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,3,5-Trimethylbenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,3-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,3-Dichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,3-Dichloropropene, Total	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,4-Dichlorobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	1,4-Dioxane	ug/kg	87	UJ	IS<LCL; ICVS<LCL
DPT-39-20-22-20190919	SW8260C	2,2-Dichloropropane	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	2-Butanone	ug/kg	17	J	IS<LCL; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-20-22-20190919	SW8260C	2-Hexanone	ug/kg	11	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	4-Methyl-2-pentanone	ug/kg	11	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Acetone	ug/kg	900	J	ICLinearRange; IS<LCL; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-20-22-20190919	SW8260C	Benzene	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Bromobenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Bromochloromethane	ug/kg	2.2	UJ	IS<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-39-20-22-20190919	SW8260C	Bromodichloromethane	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Bromoform	ug/kg	4.3	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Bromomethane	ug/kg	2.2	UJ	IS<LCL; CCV<LCL
DPT-39-20-22-20190919	SW8260C	Carbon disulfide	ug/kg	11	UJ	IS<LCL; CCV<LCL
DPT-39-20-22-20190919	SW8260C	Carbon tetrachloride	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Chlorobenzene	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Chloroethane	ug/kg	2.2	UJ	IS<LCL; CCV<LCL
DPT-39-20-22-20190919	SW8260C	Chloroform	ug/kg	0.31	U	LB<RL; IS<LCL (J)
DPT-39-20-22-20190919	SW8260C	Chloromethane	ug/kg	1.8	J	IS<LCL; LCS>UCL; LCSD>UCL; CCV>UCL
DPT-39-20-22-20190919	SW8260C	Dibromochloromethane	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Dibromomethane	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Dichlorodifluoromethane	ug/kg	11	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Ethylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Hexachlorobutadiene	ug/kg	4.3	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Isopropylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Methyl tert butyl ether	ug/kg	2.9	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	Methylene chloride	ug/kg	2.5	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	Naphthalene	ug/kg	4.3	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Styrene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Tetrachloroethene	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Toluene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Trichloroethene	ug/kg	5.0	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	Trichlorofluoromethane	ug/kg	4.3	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Vinyl acetate	ug/kg	11	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Vinyl chloride	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	Xylenes, Total	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	cis-1,2-Dichloroethene	ug/kg	73	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	cis-1,3-Dichloropropene	ug/kg	0.54	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	n-Butylbenzene	ug/kg	1.1	UJ	IS<LCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-39-20-22-20190919	SW8260C	n-Propylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	o-Chlorotoluene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	o-Xylene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	p-Chlorotoluene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	p-Isopropyltoluene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	p/m-Xylene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	sec-Butylbenzene	ug/kg	1.1	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	tert-Butylbenzene	ug/kg	2.2	UJ	IS<LCL
DPT-39-20-22-20190919	SW8260C	trans-1,2-Dichloroethene	ug/kg	0.77	J	IS<LCL
DPT-39-20-22-20190919	SW8260C	trans-1,3-Dichloropropene	ug/kg	1.1	UJ	IS<LCL
DPT-40-10-12-20190917	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.52	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	1,2,3-Trichloropropane	ug/kg	2.1	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	2-Butanone	ug/kg	10	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-40-10-12-20190917	SW8260C	Acetone	ug/kg	42	J	FD>RPD
DPT-40-10-12-20190917	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	Chloromethane	ug/kg	4.2	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	Dichlorodifluoromethane	ug/kg	10	UJ	CCV<LCL
DPT-40-10-12-20190917	SW8260C	Vinyl chloride	ug/kg	1.0	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.59	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	1,2,3-Trichloropropane	ug/kg	2.4	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	2-Butanone	ug/kg	12	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-40-10-12-20190917FD	SW8260C	Acetone	ug/kg	150	J	FD>RPD
DPT-40-10-12-20190917FD	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	Chloroethane	ug/kg	2.4	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	Chloromethane	ug/kg	4.7	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	Dichlorodifluoromethane	ug/kg	12	UJ	CCV<LCL
DPT-40-10-12-20190917FD	SW8260C	Vinyl chloride	ug/kg	1.2	UJ	CCV<LCL
DPT-40-17-19-20190917	SW8260C	2-Butanone	ug/kg	780	UJ	LCS<LCL; LCSD<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-40-17-19-20190917	SW8260C	Bromomethane	ug/kg	160	UJ	CCV<LCL
DPT-40-19-21-20190917	SW8260C	2-Butanone	ug/kg	680	UJ	LCS<LCL; LCSD<LCL
DPT-40-19-21-20190917	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-41-10-12-20190924	SW8260C	Acetone	ug/kg	360	J	ICLinearRange; MS>UCL; SD>UCL; ICVS>UCL
DPT-41-10-12-20190924	SW8260C	Bromomethane	ug/kg	1.8	UJ	CCV<LCL
DPT-41-10-12-20190924	SW8260C	Methyl tert butyl ether	ug/kg	1.6	U	LB<RL
DPT-41-10-12-20190924	SW8260C	Trichloroethene	ug/kg	0.13	U	EB<RL
DPT-41-18-20-20190924	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-41-20-22-20190924	SW8260C	Bromomethane	ug/kg	1400	UJ	CCV<LCL
DPT-41-20-22-20190924	SW8260C	Chloroethane	ug/kg	1400	UJ	CCV<LCL
DPT-42-10-12-20190925	SW8260C	Acetone	ug/kg	160	J	ICVS>UCL
DPT-42-10-12-20190925	SW8260C	Bromomethane	ug/kg	1.8	UJ	CCV<LCL
DPT-42-10-12-20190925	SW8260C	Methyl tert butyl ether	ug/kg	1.4	U	LB<RL
DPT-42-16-18-20190925	SW8260C	Acetone	ug/kg	250	J	ICVS>UCL
DPT-42-16-18-20190925	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-42-16-18-20190925	SW8260C	Methyl tert butyl ether	ug/kg	1.2	U	LB<RL
DPT-42-20-22-20190925	SW8260C	Bromomethane	ug/kg	720	UJ	CCV<LCL
DPT-42-26-28-20190925	SW8260C	Bromomethane	ug/kg	1400	UJ	CCV<LCL
DPT-43-10-12-20190925	SW8260C	Acetone	ug/kg	260	J	ICVS>UCL
DPT-43-10-12-20190925	SW8260C	Bromomethane	ug/kg	1.9	UJ	CCV<LCL
DPT-43-10-12-20190925	SW8260C	Chloroethane	ug/kg	1.9	UJ	CCV<LCL
DPT-43-10-12-20190925	SW8260C	Methyl tert butyl ether	ug/kg	1.5	U	LB<RL
DPT-43-18-20-20190925	SW8260C	Acetone	ug/kg	8.2	U	EB<RL; TB>RL; ICVS>UCL (J)
DPT-43-18-20-20190925	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-43-18-20-20190925	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL
DPT-43-18-20-20190925	SW8260C	Methyl tert butyl ether	ug/kg	0.98	U	LB<RL
DPT-43-18-20-20190925FD	SW8260C	Acetone	ug/kg	290	J	ICVS>UCL
DPT-43-18-20-20190925FD	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-43-18-20-20190925FD	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-43-18-20-20190925FD	SW8260C	Methyl tert butyl ether	ug/kg	1.2	U	LB<RL
DPT-43-22-24-20190925	SW8260C	Acetone	ug/kg	360	J	ICLinearRange; ICVS>UCL
DPT-43-22-24-20190925	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-43-22-24-20190925	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL
DPT-43-22-24-20190925	SW8260C	Methyl tert butyl ether	ug/kg	1.5	U	LB<RL
DPT-44-10-12-20190917	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.54	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	1,2,3-Trichloropropane	ug/kg	2.1	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	2-Butanone	ug/kg	4.5	J	ICVS<LCL
DPT-44-10-12-20190917	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	Chloroform	ug/kg	0.31	U	LB<RL
DPT-44-10-12-20190917	SW8260C	Chloromethane	ug/kg	4.3	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	Dichlorodifluoromethane	ug/kg	11	UJ	CCV<LCL
DPT-44-10-12-20190917	SW8260C	Vinyl chloride	ug/kg	1.1	UJ	CCV<LCL
DPT-44-14-16-20190917	SW8260C	1,2,4-Trichlorobenzene	ug/kg	140	UJ	CCV<LCL
DPT-44-14-16-20190917	SW8260C	1,2-Dichloropropane	ug/kg	70	UJ	CCV<LCL
DPT-44-14-16-20190917	SW8260C	2-Butanone	ug/kg	700	UJ	LCS<LCL; LCSD<LCL
DPT-44-14-16-20190917	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-44-14-16-20190917	SW8260C	Styrene	ug/kg	70	UJ	CCV<LCL
DPT-44-14-16-20190917	SW8260C	Toluene	ug/kg	70	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	1,2,4-Trichlorobenzene	ug/kg	250	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	1,2,4-Trimethylbenzene	ug/kg	4800	J	FD>RPD
DPT-44-16-18-20190917	SW8260C	1,2-Dichloropropane	ug/kg	130	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	2-Butanone	ug/kg	1300	UJ	LCS<LCL; LCSD<LCL
DPT-44-16-18-20190917	SW8260C	Bromomethane	ug/kg	250	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	Styrene	ug/kg	130	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	Toluene	ug/kg	130	UJ	CCV<LCL
DPT-44-16-18-20190917	SW8260C	n-Propylbenzene	ug/kg	980	J	FD>RPD
DPT-44-16-18-20190917FD	SW8260C	1,2,4-Trichlorobenzene	ug/kg	290	UJ	CCV<LCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-44-16-18-20190917FD	SW8260C	1,2,4-Trimethylbenzene	ug/kg	10000	J	FD>RPD
DPT-44-16-18-20190917FD	SW8260C	1,2-Dichloropropane	ug/kg	140	UJ	CCV<LCL
DPT-44-16-18-20190917FD	SW8260C	2-Butanone	ug/kg	1400	UJ	LCS<LCL; LCSD<LCL
DPT-44-16-18-20190917FD	SW8260C	Bromomethane	ug/kg	290	UJ	CCV<LCL
DPT-44-16-18-20190917FD	SW8260C	Styrene	ug/kg	140	UJ	CCV<LCL
DPT-44-16-18-20190917FD	SW8260C	Toluene	ug/kg	140	UJ	CCV<LCL
DPT-44-16-18-20190917FD	SW8260C	n-Propylbenzene	ug/kg	1800	J	FD>RPD
DPT-45-10-12-20190924	SW8260C	Acetone	ug/kg	840	J	ICLinearRange; ICVS>UCL
DPT-45-10-12-20190924	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-45-10-12-20190924	SW8260C	Trichloroethene	ug/kg	0.27	U	EB<RL
DPT-45-17-19-20190924	SW8260C	Acetone	ug/kg	710	J	ICLinearRange; ICVS>UCL
DPT-45-17-19-20190924	SW8260C	Bromomethane	ug/kg	2.3	UJ	CCV<LCL
DPT-45-22-24-20190924	SW8260C	Bromomethane	ug/kg	690	UJ	CCV<LCL
DPT-45-27-28-20190924	SW8260C	Bromomethane	ug/kg	6800	UJ	CCV<LCL
DPT-46-10-12-20190924	SW8260C	Acetone	ug/kg	410	J	ICLinearRange; ICVS>UCL
DPT-46-10-12-20190924	SW8260C	Bromomethane	ug/kg	1.9	UJ	CCV<LCL
DPT-46-10-12-20190924	SW8260C	Chloroform	ug/kg	0.14	U	LB<RL
DPT-46-18-20-20190924	SW8260C	Acetone	ug/kg	510	J	ICLinearRange; ICVS>UCL
DPT-46-18-20-20190924	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-46-20-22-20190924	SW8260C	Bromomethane	ug/kg	300	UJ	CCV<LCL
DPT-47-11-13-20190924	SW8260C	2-Butanone	ug/kg	3.1	J	FD>RPD
DPT-47-11-13-20190924	SW8260C	Acetone	ug/kg	190	J	FD>RPD; ICVS>UCL
DPT-47-11-13-20190924	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-47-11-13-20190924	SW8260C	Chloroform	ug/kg	0.15	U	LB<RL
DPT-47-11-13-20190924FD	SW8260C	2-Butanone	ug/kg	14	J	FD>RPD
DPT-47-11-13-20190924FD	SW8260C	Acetone	ug/kg	960	J	ICLinearRange; FD>RPD; ICVS>UCL
DPT-47-11-13-20190924FD	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-47-11-13-20190924FD	SW8260C	Chloroform	ug/kg	0.18	U	LB<RL
DPT-47-18-20-20190924	SW8260C	Acetone	ug/kg	530	J	ICLinearRange; ICVS>UCL

Table 3. Analytical Parameters

2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-47-18-20-20190924	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-47-18-20-20190924	SW8260C	Chloroform	ug/kg	0.15	U	LB<RL
DPT-47-24-26-20190924	SW8260C	Acetone	ug/kg	570	J	ICLinearRange; ICVS>UCL
DPT-47-24-26-20190924	SW8260C	Bromomethane	ug/kg	2.4	UJ	CCV<LCL
DPT-47-24-26-20190924	SW8260C	Trichloroethene	ug/kg	0.51	U	EB<RL
DPT-48-10-12-20190917	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	0.52	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	1,2,3-Trichloropropane	ug/kg	2.1	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	2-Butanone	ug/kg	4.0	J	ICVS<LCL
DPT-48-10-12-20190917	SW8260C	Bromomethane	ug/kg	2.1	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	Chloroethane	ug/kg	2.1	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	Chloroform	ug/kg	0.32	U	LB<RL
DPT-48-10-12-20190917	SW8260C	Chloromethane	ug/kg	4.2	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	Dichlorodifluoromethane	ug/kg	10	UJ	CCV<LCL
DPT-48-10-12-20190917	SW8260C	Vinyl chloride	ug/kg	1.0	UJ	CCV<LCL
DPT-48-18-20-20190917	SW8260C	1,2,4-Trichlorobenzene	ug/kg	14000	UJ	CCV<LCL
DPT-48-18-20-20190917	SW8260C	1,2-Dichloropropane	ug/kg	7100	UJ	CCV<LCL
DPT-48-18-20-20190917	SW8260C	2-Butanone	ug/kg	71000	UJ	LCS<LCL; LCSD<LCL
DPT-48-18-20-20190917	SW8260C	Bromomethane	ug/kg	14000	UJ	CCV<LCL
DPT-48-18-20-20190917	SW8260C	Styrene	ug/kg	7100	UJ	CCV<LCL
DPT-48-18-20-20190917	SW8260C	Toluene	ug/kg	7100	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	76	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	1,2,3-Trichloropropane	ug/kg	300	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	2-Butanone	ug/kg	1500	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
DPT-48-20-22-20190917	SW8260C	Bromomethane	ug/kg	300	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	Chloroethane	ug/kg	300	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	Chloroform	ug/kg	46	U	LB<RL
DPT-48-20-22-20190917	SW8260C	Chloromethane	ug/kg	610	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	Dichlorodifluoromethane	ug/kg	1500	UJ	CCV<LCL
DPT-48-20-22-20190917	SW8260C	Vinyl chloride	ug/kg	640	J	CCV>UCL

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-48-27-29-20190917	SW8260C	1,1,2,2-Tetrachloroethane	ug/kg	64	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	1,2,3-Trichloropropane	ug/kg	260	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	2-Butanone	ug/kg	1300	UJ	ICVS<LCL
DPT-48-27-29-20190917	SW8260C	Bromomethane	ug/kg	260	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	Chloroethane	ug/kg	260	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	Chloroform	ug/kg	37	U	LB<RL
DPT-48-27-29-20190917	SW8260C	Chloromethane	ug/kg	510	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	Dichlorodifluoromethane	ug/kg	1300	UJ	CCV<LCL
DPT-48-27-29-20190917	SW8260C	Vinyl chloride	ug/kg	130	UJ	CCV<LCL
DPT-49-14-16-20190923	SW8260C	Acetone	ug/kg	350	J	ICLinearRange; ICVS>UCL
DPT-49-14-16-20190923	SW8260C	Bromomethane	ug/kg	2.2	UJ	CCV<LCL
DPT-49-14-16-20190923	SW8260C	Chloroethane	ug/kg	2.2	UJ	CCV<LCL
DPT-49-19-21-20190923	SW8260C	Bromomethane	ug/kg	530	UJ	CCV<LCL
DPT-49-19-21-20190923	SW8260C	Chloroethane	ug/kg	530	UJ	MS<LCL; SD<LCL; CCV<LCL
DPT-49-19-21-20190923	SW8260C	Chloroform	ug/kg	43	U	LB<RL
DPT-49-8-9-20190923	SW8260C	Acetone	ug/kg	290	J	ICVS>UCL; CCV>UCL
DPT-49-8-9-20190923	SW8260C	Bromomethane	ug/kg	2.0	UJ	CCV<LCL
DPT-49-8-9-20190923	SW8260C	Chloroethane	ug/kg	2.0	UJ	CCV<LCL
DPT-49-8-9-20190923	SW8260C	Chloroform	ug/kg	0.20	U	LB<RL
DPT-50-10-12-20190923	SW8260C	Acetone	ug/kg	260	J	ICVS>UCL
DPT-50-10-12-20190923	SW8260C	Bromomethane	ug/kg	1.9	UJ	CCV<LCL
DPT-50-10-12-20190923	SW8260C	Chloroethane	ug/kg	1.9	UJ	CCV<LCL
DPT-50-10-12-20190923	SW8260C	Chloroform	ug/kg	0.15	U	LB<RL
DPT-50-18-20-20190923	SW8260C	Acetone	ug/kg	440	J	ICLinearRange; ICVS>UCL
DPT-50-18-20-20190923	SW8260C	Bromomethane	ug/kg	2.3	UJ	CCV<LCL
DPT-50-18-20-20190923	SW8260C	Chloroethane	ug/kg	2.3	UJ	CCV<LCL
DPT-50-22-24-20190923	SW8260C	Bromomethane	ug/kg	300	UJ	CCV<LCL
DPT-50-22-24-20190923	SW8260C	Chloroethane	ug/kg	300	UJ	CCV<LCL
DPT-50-22-24-20190923	SW8260C	Chloroform	ug/kg	22	U	LB<RL

Table 3. Analytical Parameters
2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-50-27-28-20190923	SW8260C	Bromomethane	ug/kg	140	UJ	CCV<LCL
DPT-50-27-28-20190923	SW8260C	Chloroethane	ug/kg	140	UJ	CCV<LCL
DPT-50-27-28-20190923	SW8260C	Chloroform	ug/kg	12	U	LB<RL
DPT-51-GW-12-14-20190911	SW8260C	Bromomethane	ug/l	100	UJ	CCV<LCL
DPT-52-GW-12-14-20190911	SW8260C	Acetone	ug/l	10	U	EB<RL; TB>RL; MS>UCL (J), SD>UCL (J)
DPT-52-GW-12-14-20190911	SW8260C	Bromomethane	ug/l	2.5	UJ	MS<LCL; SD<LCL; CCV<LCL
DPT-53-GW-10-12-20190911	SW8260C	Acetone	ug/l	14	U	EB<RL; TB>RL
DPT-53-GW-10-12-20190911	SW8260C	Bromomethane	ug/l	5.0	UJ	CCV<LCL
DPT-54-GW-10-12-20190916	SW8260C	Acetone	ug/l	3.2	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-54-GW-10-12-20190916	SW8260C	Bromomethane	ug/l	5.0	UJ	CCV<LCL
DPT-54-GW-10-12-20190916	SW8260C	Chloroethane	ug/l	5.0	UJ	CCV<LCL
DPT-55-GW-10-12-20190916	SW8260C	Acetone	ug/l	3.7	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-55-GW-10-12-20190916	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-55-GW-10-12-20190916	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-55-GW-10-12-20190916FD	SW8260C	Acetone	ug/l	3.9	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-55-GW-10-12-20190916FD	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-55-GW-10-12-20190916FD	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-57-GW-10-12-20190912	SW8260C	Bromomethane	ug/l	50	UJ	CCV<LCL
DPT-57-GW-10-12-20190912	SW8260C	Chloroethane	ug/l	50	UJ	CCV<LCL
DPT-58-GW-10-12-20190912	SW8260C	Acetone	ug/l	5.3	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-58-GW-10-12-20190912	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-58-GW-10-12-20190912	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-59-GW-10-12-20190912	SW8260C	Acetone	ug/l	14	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-59-GW-10-12-20190912	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-59-GW-10-12-20190912	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-60-GW-10-12-20190912	SW8260C	Acetone	ug/l	6.4	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-60-GW-10-12-20190912	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-60-GW-10-12-20190912	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-60-GW-10-12-20190912FD	SW8260C	Acetone	ug/l	6.6	U	EB<RL; TB>RL; CCV>UCL (J)

Table 3. Analytical Parameters*2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York*

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
DPT-60-GW-10-12-20190912FD	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-60-GW-10-12-20190912FD	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-61-GW-10-12-20190912	SW8260C	Acetone	ug/l	7.3	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-61-GW-10-12-20190912	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-61-GW-10-12-20190912	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-62-GW-10-12-20190913	SW8260C	Acetone	ug/l	4.2	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-62-GW-10-12-20190913	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
DPT-62-GW-10-12-20190913	SW8260C	Chloroethane	ug/l	2.5	UJ	CCV<LCL
DPT-63-GW-10-12-20190911	SW8260C	Acetone	ug/l	10	U	EB<RL; TB>RL; CCV>UCL (J)
DPT-63-GW-10-12-20190911	SW8260C	Bromomethane	ug/l	10	UJ	CCV<LCL
DPT-63-GW-10-12-20190911	SW8260C	Chloroethane	ug/l	10	UJ	CCV<LCL
DPT-64-GW-10-12-20190911	SW8260C	Bromomethane	ug/l	50	UJ	CCV<LCL
DPT-64-GW-10-12-20190911	SW8260C	Chloroethane	ug/l	50	UJ	CCV<LCL
DPT-65-GW-10-12-20190911	SW8260C	Bromomethane	ug/l	6.2	UJ	CCV<LCL
MW-112S-20190917	SW8260C	Acetone	ug/l	3.0	U	EB<RL; TB>RL
MW-112S-20190917	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
MW-117S-20190918	SW8260C	Acetone	ug/l	2.2	U	EB<RL; TB>RL
MW-117S-20190918	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
MW-117S-20190918	SW8260C	Toluene	ug/l	2.0	J	ICVS>UCL
MW-124S-10-12-20190910	SW8260C	2-Butanone	ug/kg	1000	UJ	LCS<LCL; LCSD<LCL; ICVS<LCL
MW-124S-20190917	SW8260C	Bromomethane	ug/l	6.2	UJ	CCV<LCL
MW-24S-20190918	SW8260C	Bromomethane	ug/l	6.2	UJ	MS<LCL; SD<LCL; CCV<LCL
MW-26S-20190918	SW8260C	Bromomethane	ug/l	62	UJ	CCV<LCL
MW-27S-20190916	SW8260C	Acetone	ug/l	2.8	U	EB<RL; TB>RL
MW-27S-20190916	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
MW-28S-20190917	SW8260C	Acetone	ug/l	3.3	U	EB<RL; TB>RL
MW-28S-20190917	SW8260C	Bromomethane	ug/l	2.5	UJ	CCV<LCL
MW-28S-20190917	SW8260C	Trichloroethene	ug/l	0.44	U	TB<RL
MW-29S-20190918	SW8260C	Bromomethane	ug/l	25	UJ	CCV<LCL

Table 3. Analytical Parameters
2019 Supplemental Site Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
MW-29S-20190918FD	SW8260C	Bromomethane	ug/l	25	UJ	CCV<LCL
MW-30S-20190917	SW8260C	Bromomethane	ug/l	6.2	UJ	CCV<LCL
MW-31S-20190917	SW8260C	Bromomethane	ug/l	12	UJ	CCV<LCL

Validation Reasons:

CCV<LCL	The continuing calibration verification standard was recovered less than criteria
CCV>UCL	The continuing calibration verification standard was recovered greater than criteria
EB<RL	The analyte was detected in the equipment blank at a concentration less than the reporting limit
FD>RPD	The relative percent difference exceeded criteria in the field duplicate pair
ICLinearRange	The concentration of the analyte exceeded the calibration range of the instrument
ICVS<LCL	The initial calibration verification standard was recovered less than criteria
ICVS>UCL	The initial calibration verification standard was recovered greater than criteria
IS<LCL	The internal standard was recovered less than criteria
LB<RL	The analyte was detected in the method blank at a concentration less than the reporting limit
LCS<LCL	The laboratory control sample was recovered less than the lower control limit
LCS>UCL	The laboratory control sample was recovered greater than the upper control limit
LCSD<LCL	The laboratory control sample duplicate was recovered less than the lower control limit
LCSD>UCL	The laboratory control sample duplicate was recovered greater than the upper control limit
MS<LCL	The matrix spike sample was recovered less than the lower control limit
MS>UCL	The matrix spike sample was recovered greater than the upper control limit
SD<LCL	The matrix spike duplicate sample was recovered less than the lower control limit
SD>UCL	The matrix spike duplicate sample was recovered greater than the upper control limit
Sur>UCL	The surrogate was recovered greater than the upper control limit
TB<RL	The analyte was detected in the trip blank at a concentration less than the reporting limit
TB>RL	The analyte was detected in the trip blank at a concentration greater than the reporting limit

Appendix C
Offsite Vapor Intrusion
Investigation Report



Essex-Hope Site, Jamestown, New York

Offsite Vapor Intrusion Investigation Report

Draft

March 2020

Essex Specialty Products, Inc.



Essex-Hope Site, Jamestown, New York

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Client Name: Essex Specialty Products, Inc.
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Contents

Acronyms and Abbreviations	iii
1. Introduction	1-1
1.1 Scope and Purpose of this Investigation	1-1
1.2 Regulatory Guidance	1-2
1.3 Site Background	1-2
1.4 Site Historical Operations	1-3
1.4.1 West Building and Former AST and UST Areas	1-3
1.4.2 Plant 5 Building and North Parking Lot	1-3
1.5 Remedial Actions	1-4
1.6 Conceptual Site Model	1-4
1.6.1 Geology and Hydrogeology	1-4
1.6.2 Current Conditions in Shallow Groundwater	1-4
1.6.3 Vadose Zone Soil Vapor	1-5
1.6.4 Potential Preferential Pathways (Underground Utility Lines)	1-6
1.7 Inclusion Zone and Sampling Rationale	1-6
1.8 Offsite Historical and Current Operations	1-6
1.8.1 H&H Metal Specialty Inc.	1-6
1.8.2 Johnson Machine & Fibre Products	1-6
1.8.3 Rollform	1-7
1.9 Constituents of Interest	1-7
2. Field Activities	2-1
2.1 Deviations from the Workplan	2-1
2.2 Initial Site Walk/Building Surveys	2-2
2.3 Preferential Pathway Assessment	2-2
2.4 Subslab Vapor Survey	2-2
2.5 Shallow Soil Vapor Survey	2-3
2.6 Quality Assurance/Quality Control	2-3
3. Results	3-1
3.1 Initial Site Walk/Building Surveys	3-1
3.1.1 H&H Metal Specialty Inc.	3-1
3.1.2 Johnson Machine & Fibre Products	3-1
3.2 Preferential Pathway Assessment	3-2
3.3 Subslab Vapor Survey	3-2
3.4 Shallow Soil Vapor Survey	3-2
4. Data Evaluation	4-1
4.1 H&H Metal Specialty Inc.	4-1
4.1.1 Trichloroethene	4-1
4.1.2 cis-1,2-Dichloroethene	4-2
4.1.3 Vinyl Chloride	4-2
4.1.4 Tetrachloroethene	4-2
4.2 Johnson Machine & Fibre Products	4-2
4.2.1 Trichloroethene	4-3
4.2.2 cis-1,2-Dichloroethene	4-3
4.2.3 Vinyl Chloride	4-3
4.2.4 Tetrachloroethene	4-3

4.3	Precision Rollform Technologies	4-4
4.4	Additional Observations	4-4
5.	Conclusions and Recommendations	5-1
5.1	H&H Metal Specialty Inc.	5-1
5.2	Johnson Machine & Fibre Products	5-1
5.3	Precision Rollform Technologies	5-1
6.	References	6-1

Appendixes

A	Photograph Log
B	Updated Building Survey
C	Data Quality Evaluation
D	Laboratory Reports
E	Johnson Machine Notification Letter

Tables

1	EPA Groundwater Vapor Intrusion Screening Level Comparison with Nearby Wells
2	Subslab Soil Vapor Sampling Log – Johnson Machine & Fibre Products
3	Exterior Soil Vapor Sampling Log
4	Preferential Pathway Analytical Data
5	Subslab Analytical Results Table – H&H Metal Specialty Products, Inc.
6	Subslab Analytical Results Table—Johnson Machine & Fibre Products
7	Exterior Soil Vapor Probe Analytical Data

Figures

1	Site Location and Layout Map
2	Shallow WBZ Groundwater Results
3	Soil Vapor and Subslab Vapor Sampling Locations
4	Preferential Pathway Analytical Data
5	Subslab Vapor Analytical Results
6	Exterior Soil Vapor Analytical Results

Acronyms and Abbreviations

µg/L	microgram per liter
µg/m ³	microgram per cubic meter
AST	aboveground storage tank
bgs	below ground surface
CBTEX	cumene, benzene, toluene, ethylbenzene, and xylenes
CH2M	CH2M HILL Engineers, Inc.
COC	constituent of concern
CVOC	chlorinated volatile organic compound
DCE	dichloroethene
Dow	The Dow Chemical Company
EPA	U.S. Environmental Protection Agency
Essex	Essex Specialty Products, Inc.
FD	field duplicate
H&H Metal	H&H Metal Specialty Inc.
HVAC	heating, ventilation, and air conditioning
JMF	Johnson Machine & Fibre Products
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
QC	quality control
ROD	Record of Decision
Rollform	Rollform of Jamestown, Inc.
site	Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York
SSC	soil screening criteria
TCE	trichloroethene
THQ	target hazard quotient
TMB	trimethylbenzene
URS	URS Corporation
UST	underground storage tank
VI	vapor intrusion
VISL	vapor intrusion screening level
VOC	volatile organic compound
WBZ	water-bearing zone
WMS-SE	Waterloo Membrane Sampler

1. Introduction

This vapor intrusion (VI) report presents the details and results of the offsite VI investigation activities performed in November 2019 at the Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York (site; Figure 1). This report also compares the November 2019 results to the previous sampling results from the November and December 2018 investigation to further evaluate the potential for VI at offsite buildings above or adjacent to the chlorinated solvent groundwater plume at the site. The site is listed under the New York Superfund Program (Site Number 907015) and managed by the New York State Department of Environmental Conservation (NYSDEC). A Record of Decision (ROD) was issued in 1994 requiring the implementation of remedial actions at the site (NYSDEC 1994).

This work was conducted in accordance with the NYSDEC-approved *Offsite Vapor Intrusion Investigation Work Plan* for the site (CH2M HILL Engineers, Inc. [CH2M] 2018a) and the *Offsite Vapor Intrusion Investigation: Work Plan Addendum* (Jacobs Engineering Group Inc. [Jacobs] 2019a).

1.1 Scope and Purpose of this Investigation

In December and November 2018, an offsite VI investigation was conducted at three businesses near the site because of their proximity to trichloroethene (TCE) in the groundwater plume: Johnson Machine & Fibre Products (JMF), Rollform of Jamestown, Inc. (Rollform), and H&H Metal Specialty Inc. (H&H Metal). The Rollform business owner denied access for the investigation; therefore, samples in that business were not included during the December and November 2018 field investigation nor were they included during the November 2019 investigation that is described below. During the November and December 2018 investigation, the following activities were conducted:

- Collected preferential pathway samples in three sanitary sewers and three storm sewers that pass through the area of the chlorinated volatile organic compound (CVOC) groundwater plume
- Installed and sampled seven subslab probes at H&H Metal
- Installed and sampled four subslab probes at JMF
- Drilled, installed, and sampled 16 exterior soil vapor probes around the offsite properties mentioned above

Subslab results at H&H Metal had cis-1,2-dichloroethene (cis-1,2-DCE); TCE; and tetrachloroethene (PCE) detected at concentrations greater than New York State Department of Health (NYSDOH) and/or U.S. Environmental Protection Agency (EPA) soil vapor screening criteria in various samples. Two subslab soil vapor sample results exceeded the NYDOH and EPA soil vapor screening criteria for TCE at H&H Metal. At JMF, cis-1,2-DCE and/or TCE were detected at concentrations greater than the most conservative NYSDOH soil vapor screening criteria in all four subslab vapor samples collected within the facility. Two shallow exterior soil vapor samples exceeded the EPA soil vapor screening criteria for TCE. Additional details of the 2018 investigation are documented in the *Interim Offsite Vapor Intrusion Investigation Report* (Jacobs 2019b).

Based on the December and November 2018 investigation results, a November 2019 investigation was implemented and designed to obtain additional data to determine if VI associated with the CVOC groundwater plume from the site impacts downgradient receptors. The proposed field activities were meant to be a replication and confirmation of the December and November 2018 investigation that included soil vapor, subslab soil vapor, and preferential pathway sampling within and around offsite properties. The initial site investigation strategy was influenced by the nature of the existing adjacent businesses—many are metal-working or plastics facilities that are expected to have current and/or historical uses of chlorinated solvents. Thus, external soil vapor and subslab vapor samples were used as initial investigation techniques during the winter 2018 sampling event and then again during the November 2019 event. Although NYSDOH generally requires subslab vapor and indoor air for decision making related to the VI pathway, collecting external soil vapor samples in conjunction with subslab vapor

samples improves the ability to distinguish sources attributable to Essex Specialty Products, Inc. (Essex) from other sources.

Based on elevated subslab soil vapor results at H&H Metal obtained during the November and December 2018 investigation, and the unoccupied building with no active manufacturing (less interference from background indoor sources), an addendum to the work plan was submitted to NYSDEC on July 8, 2019 to include indoor and outdoor air sampling at H&H Metal during the November 2019 follow-up investigation (Jacobs 2019a), although indoor and outdoor air sampling were not conducted at H&H Metal. This report contains the details and results of the November 2019 offsite VI field investigation and a comparison of the November 2019 sample results to the original investigation results that were conducted in December and November 2018 (Section 4).

1.2 Regulatory Guidance

Relevant guidance from EPA and NYSDOH for this report includes:

- *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (EPA 2015)
- *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH 2006)
- *DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC 2010)

Detected volatile organic compound (VOC) concentrations in subslab and exterior soil vapor were evaluated against the following regulatory criteria:

- Calculated EPA commercial vapor intrusion screening levels (VISLs) (EPA 2020).
- NYSDOH subslab vapor concentrations criteria per *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH 2006) and *Updates to Soil Vapor / Indoor Air Decision Matrices* (NYSDOH 2017b). Note that indoor air data are required to determine if any further action is needed per the NYSDOH decision matrices.

In March 1994, a ROD document presenting the selected remedial action for the site was established (NYSDEC 1994). The selected remedy included groundwater extraction and treatment, soil excavation and disposal, subsurface soil treatment, capping, and monitoring. Based on a baseline risk assessment, the increased cancer risk calculated for the offsite receptor populations at the site (1.14×10^{-4}) exceeded the Superfund site remediation goal in the National Oil and Hazardous Substances Pollution Contingency Plan (10^{-4} to 10^{-7}).

The most significant exposure pathways for offsite residents were determined to be the future use of groundwater and inhalation of volatilized compounds from source area plumes. The presence of TCE and its degradation product, vinyl chloride, was the primary cause for the calculated risk level. The calculated risk estimate was based on the human consumption of groundwater. The ROD states that the actual risk for offsite receptors (based on groundwater consumption) are expected to be significantly lower than the calculated risk estimates, however possible VI risk was not considered during this risk assessment. Remedial action objectives were developed for site soil and groundwater and are listed in Table 2 of the ROD (NYSDEC 1994).

1.3 Site Background

The 4.7-acre site, which Custom Production Manufacturing Inc. owns but no longer occupies (building is no longer in use), is located at 125 Blackstone Avenue in Jamestown, New York (Figure 1). The site is in an industrialized area of the city that has seen various degrees of industrial use over the past 75 years. Contamination onsite is the result of historical practices conducted at the facility as first discussed in a 1992 remedial investigation report (O'Brien & Gere Engineers, Inc. 1992). The historical uses of the site have resulted in contamination primarily associated with polychlorinated biphenyls (PCBs), CVOCs, and petroleum constituents such as benzenes and xylenes.

1.4 Site Historical Operations

Historically, two distinct operations occupied the site: Jamestown Finishes at the southern portion of the site (along Blackstone Avenue) and Hope's Windows in the northern portion (along Hopkins Avenue).

1.4.1 West Building and Former AST and UST Areas

The southern portion of the site is divided into the following subareas for describing the site history and constituents of concern (COCs):

- West Building
- Former Aboveground Storage Tank (AST) Area
- Former Underground Storage Tank (UST) Area

The West Building was built in the early 1900s and subsequently was expanded several times. A variety of owners/operators used the West Building to produce paints, varnishes, and other industrial coatings under the name Jamestown Finishes or Jamestown Finishing Products (NYSDEC 1994). The former AST Area was northwest of the West Building. Soil and water in the shallow water-bearing zone (WBZ) in the West Building and former AST Area historically have been impacted by cumene, benzene, toluene, ethylbenzene, and xylenes (CBTEX) and, to a lesser extent, TCE and its daughter products cis-1,2-DCE and vinyl chloride (herein referred to as CVOCs). East of the West Building is the former UST area, which historically contained USTs for storing acetone, xylenes, and other solvents used in the production of coatings. Historical impacts in this area included CBTEX in soil and CBTEX; 1,2,4-trimethylbenzene (1,2,4-TMB); and 1,3,5-TMB in the shallow WBZ.

1.4.2 Plant 5 Building and North Parking Lot

Hope's Windows previously occupied the northern portion of the site (along Hopkins Avenue). This portion of the site is divided into the following subareas for describing the site history and COCs:

- Plant 5 Building
- North Parking Lot

The Plant 5 Building historically was used to manufacture window screens until the early 1970s, when manufacturing switched to the production of aluminum windows (McFarlene 1991). The building also was used to store aluminum and to cut, punch, notch, weld, and assemble aluminum parts.

A TCE degreaser pit and paint primer tank were in the southwestern corner of the building but were removed before Essex Chemical Company purchased the site in 1985. The TCE degreasing pit reportedly was cleaned and pumped to a sump in the North Parking Lot (west of the Plant 5 Building), which was reported to have an earthen bottom (The Dow Chemical Company [Dow] 1992). The sump and surrounding soil were excavated in the mid-1990s as one of the ROD remedies (NYSDEC 1994).

Impacts to soil and groundwater have included PCBs in soil in the North Parking Lot and CVOCs in soil, the shallow WBZ, and the deep WBZ under the North Parking Lot and the Plant 5 Building. Both shallow and deep groundwater impacts have been detected offsite, with shallow groundwater impacts extending offsite east along Hopkins Avenue and deep groundwater impacts extending offsite to the northeast.

After Essex purchased the Plant 5 Building in 1985, the building reportedly was used as a raw materials warehouse. The building has been used for light metals fabrication since Custom Production Manufacturing Inc. purchased the site in 2000. During a 2014 VI survey, numerous chemicals, including TCE; PCE; petroleum distillates; methyl isobutyl ketone; toluene; methylene chloride; 1,1,1-trichloroethane; and acetone were observed stored at the facility (URS Corporation [URS] 2015).

1.5 Remedial Actions

Numerous remedial actions have been undertaken at the site in response to the 1994 ROD, including:

- A pump and treat system that continues to extract and treat shallow and deep groundwater
- Soil excavation in the North Parking Lot
- Air sparging of the shallow WBZ in the North Parking Lot, former AST Area, and former UST Area
- Soil vapor extraction of vadose zone soil in these same areas (operation of the air sparge/soil vapor extraction system has ceased)

Supplemental and voluntary remedial actions implemented include removing the USTs and adjacent soil, conducting a pilot test of zero-valent iron injections in the North Parking Lot, installing a subslab vapor mitigation system at an offsite residence (159 Hopkins Avenue), and implementing in-situ chemical oxidation injections in the shallow WBZ in the former UST Area and deep WBZ near the northeastern corner of the former Plant 5 Building in 2012 (VeruTEK Technologies 2010; URS 2012).

Currently, five operational recovery wells are part of the existing pump and treat system. Recovery wells are in the North Parking Lot and downgradient along Hopkins Avenue.

1.6 Conceptual Site Model

1.6.1 Geology and Hydrogeology

The subsurface geological and hydrogeological features have been characterized into four units, described in descending order from grade:

- A shallow sand and gravel layer that generally ranges from 10 to 15 feet thick. A water table aquifer, herein referred to as the shallow WBZ, is in this unit with saturated thicknesses generally 10 feet thick. Groundwater levels fluctuates seasonally between 8 and 12 feet below ground surface (bgs).
- A shallow silty clay layer is generally encountered around 15 feet bgs. The shallow silty clay deposits are generally 5 to 10 feet thick but can vary considerably. This unit does not appear to be present under the North Parking Lot; where present, the shallow silty clay serves as an aquitard separating the shallow and deep WBZs.
- A deep silty sand is generally encountered around 20 feet bgs and ranges from 13 to at least 31.5 feet thick. A confined to semiconfined aquifer (deep WBZ) is in this unit.
- A deep silty clay has been determined to represent the lower confining layer. The deep silty clay is typically encountered between 37 and 47 feet bgs.

Groundwater flow direction for both the shallow and deep WBZs is to the east-northeast, toward the Chadakoin River.

1.6.2 Current Conditions in Shallow Groundwater

Shallow groundwater with COCs exceeding remedial action objectives exists onsite and offsite. In summary, shallow WBZ contamination consists of two distinct areas: the CVOC impacts extending from the North Parking Lot sump area under the Plant 5 Building area and offsite and a petroleum-constituent plume in the former UST Area in the southern portion of the site. The ongoing pump and treat system for the shallow WBZ consists of two operating recovery wells (RW-1S and RW-2S); RW-3S in the former AST/UST Area was shut off in August 2017 because of declining concentrations.

TCE; cis-1,2-DCE; 1,2,4-TMB; 1,3,5-TMB; vinyl chloride; ethylbenzene; and xylenes are the primary COCs in the shallow WBZ, which extends approximately 7 to 20 feet bgs. TCE; cis-1,2-DCE; vinyl chloride; and acetone are the primary COCs in the deep WBZ (30 to 50 feet bgs). Vadose zone soil COCs consist of VOCs, semivolatile organic compounds, and PCBs – particularly TCE; xylenes; p-isopropyltoluene; 1,2,4-TMB; and 1,3,5-TMB.

Some key observations from the shallow CVOC plume include:

- In 2019, the highest concentration of TCE (310 micrograms per liter [µg/L]) was present at MW-101S on the northern side of the Plant 5 Building. High concentrations of TCE also have been detected in the deep WBZ in this area.
- Diffusion or advection of TCE-impacted groundwater from the deep WBZ, into the shallow silty clay and then into the shallow WBZ may be serving as a source for the shallow WBZ plume near MW-101S. While vadose zone soil in the southern North Parking Lot sump area contains TCE, the presence of a low-permeability asphalt cap here serves to limit vertical leaching of TCE into shallow groundwater.
- Offsite TCE concentrations at MW-104S on the Hope's Windows property north of the site are anomalously high (130 µg/L in 2017, 100 µg/L in 2018, and 80 µg/L in 2019) compared to nearby sample results. Vadose zone soil sampling has not identified a source area near this well.
- Concentrations at downgradient wells outside the direct influence of the shallow extraction system have declined. At MW-18, TCE concentrations have declined from 840 µg/L (as reported in the 1994 ROD) to 38 µg/L in 2019. At MW-25S, the TCE concentration was 290 µg/L in October 2008 and declined to 81 µg/L in October 2017.
- Geochemical conditions have indicated a generally aerobic environment (dissolved oxygen values generally greater than 1 milligram per liter) and positive oxidation-reduction potential values. Microbial population data from MW-108S (directly adjacent to H&H Metal) indicate minimal bacteria capable of reductive dechlorination or aerobic cometabolism of TCE; cis-1,2-DCE; and vinyl chloride (CH2M 2018b).
- Magnetic susceptibility data indicate magnetite is present in aquifer materials at concentrations sufficient to result in abiotic degradation of TCE at first-order degradation rates of 0.03 to 2 per year (CH2M 2018b).
- Natural attenuation of this plume likely is dominated by dilution, diffusion, and abiotic degradation (CH2M 2018b).
- The saturated thickness varies considerably throughout the plume, with a maximum of nearly 20 feet at DPT-11 to less than 5 feet near the active extraction wells in the North Parking Lot sump area.

This VI investigation mainly focuses on the offsite plume for TCE; cis-1,2-DCE; and vinyl chloride, which are found in shallow groundwater (which fluctuates seasonally between 8 and 12 feet bgs) north and east-northeast of the site along Hopkins Avenue. The soil vapor sampling and sewer sampling included in this current investigation also helps evaluate potential vadose zone and utility transport pathways.

Figure 2 shows the most recent groundwater COC concentrations from the 2017 (CH2M 2018c), 2018 (Jacobs 2019c), and 2019 (report in progress) sampling events. Table 1 presents the nearby monitoring well concentrations and a comparison to EPA commercial groundwater VISLs at a target cancer risk (TCR) of 10^{-6} and a target hazard quotient (THQ) for noncarcinogens of 1 (EPA 2020). These VISLs are calculated based on conservative default attenuation factors that are based on residential, not commercial buildings.

1.6.3 Vadose Zone Soil Vapor

Volatilization from onsite vadose zone soil sources and/or shallow groundwater VOC plumes result in the presence of VOCs in soil vapor onsite and offsite. Indoor air also could be affected through advective or diffusive transport, which is the reasoning behind this offsite investigation. There is limited offsite soil vapor data for the site area. One objective of this investigation was to collect more data to get a better understanding of the offsite vadose zone soil vapor conditions.

1.6.4 Potential Preferential Pathways (Underground Utility Lines)

Sanitary and stormwater sewers were identified (Figure 4) as potential preferential pathways for transport of CVOCs from the groundwater plume or vadose zone soil to offsite buildings. The main sewer line passes above the groundwater plume and runs west to east beneath Hopkins Avenue. Lateral lines of interest that connect to the main line run beneath Bigelow Street and beneath the western side of JMF.

1.7 Inclusion Zone and Sampling Rationale

Sampling was conducted to evaluate the potential for VI in the offsite properties located near the CVOC groundwater plume. In the absence of a New York State groundwater screening level, the VISL of 7 µg/L was calculated using the EPA VISL calculator, Version 3.5.1 (TCR = 10^{-6} , THQ = 1, which is based on the most recent regional screening levels at the time of work plan submittal [EPA 2017]) for a commercial/industrial setting (EPA 2018). The standard 100-foot buffer zone beyond the plume was used to define the buildings that required further investigation (Figure 2). At least three industrial businesses that had not already been evaluated for VI were identified within the inclusion zone: JMF, Rollform, and H&H Metal. The Rollform business owner denied access for the investigation; therefore, planned sampling in that business was not included in the field investigation.

In addition to the three businesses located near the TCE groundwater plume, the offsite residence at 159 Hopkins Avenue also is near and previously has been investigated and mitigated (CH2M 2017). This residence is unoccupied and is being monitored for re-occupancy. Power sources have been suspended at this residence, and the VI mitigation system is not running. A separate VI evaluation also has been performed at the Essex-Hope site, and the findings are documented in the *Vapor Intrusion Investigation Report* (CH2M 2016a).

1.8 Offsite Historical and Current Operations

1.8.1 H&H Metal Specialty Inc.

H&H Metal located at 153 Hopkins Avenue was established in 1953 and provided metal fabrication and prototype development services (CH2M 2016b). This building is unoccupied with no current operations and is being used to store miscellaneous items such as vehicles, furniture, etc. The condition of the building has been severely compromised because of roof leaks and mold since the building became unoccupied. A Freedom of Information Act request was submitted on August 29, 2019 to NYSDEC to obtain any environmental records and former site operations information. No records were obtained from this inquiry.

1.8.2 Johnson Machine & Fibre Products

JMF formerly was Plant 7 of Hope's Windows, which was founded in 1912 as International Casement Company, Inc. (Hope's Windows 2020), and through a merger became Hope's Windows in 1931. The company continued to manufacture and sell steel window products. In 1941, during World War II, Hope's Windows stopped normal business operations for 4 years to manufacture marine equipment in steel, aluminum, and bronze to aid with the war. In 1969, Hope's Windows became Roblin Hope's Industries, Inc., which became Roblin Industries in 1975. Hope's Architectural Products purchased the Hope's Windows division in 1982 but changed its name back to Hope's Windows in 1998 (Hope's Windows 2020). Currently, Johnson Machine provides custom manufacturing services, including parts finishing and cleaning and custom machining (Johnson Machine 2020).

A Freedom of Information Act request was submitted on August 29, 2019 to NYSDEC to obtain any environmental records and former and current site operations information. Hazardous waste compliance inspection forms from 1990 and 2011 were obtained, and both stated the site was in compliance with hazardous waste regulations but did not specify the hazardous waste substances onsite. Additionally, a NYSDEC Spill Report Form was obtained from August 1, 1996, documenting that 40 gallons of cutting oil spilled (Spill Number 9606157), and there was significant staining to soil under machines and under the

rolloff used to put trimmings in. The soil was removed and sampled, and neither PCE nor TCE were detected based on the laboratory report.

1.8.3 Rollform

For more than 60 years, Precision Rollform Technologies has been fabricating metal parts through a process called roll forming. Rollform was established in 1951 when it began developing custom metal shapes using roll forming technology. The company manufactured products for the industries such as metal office furniture, heating and air conditioning, radio frequency and sound shielding construction, windows and doors, exit hardware, and others (Precision Rollform Technologies 2020).

In 1964, Precision Rollform Technologies was acquired by AVM Corporation and in 1990 was spun off to become a larger standalone private company. In the 1990s and thereafter, Precision Rollform Technologies developed computerized methods of increasing production speed and efficiency. Roll forming is a high-speed method of bending coiled metal into a custom designed metal shape by passing a metal strip through a series of roll dies. As the metal profile passes through each set of dies, it is incrementally bent, with the amount of the bend engineered to preserve the integrity of the profile (Precision Rollform Technologies 2020).

Rollform declined access for sampling during both offsite VI investigations.

1.9 Constituents of Interest

Results from the conceptual site model (CH2M 2016b) indicate TCE; cis-1,2-DCE; and vinyl chloride are the primary constituents of interest. However, several other chlorinated solvents were included for VOC fingerprinting to serve as additional lines of evidence in this offsite VI investigation.

Target Compound List:
Trichloroethene
Tetrachloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,1-Dichloroethene
Vinyl chloride

2. Field Activities

VI investigations occurred from November 2018 through November 2019. Activities associated with the 2018 field event were detailed in the *Interim Offsite Vapor Intrusion Investigation Report* provided to NYSDEC on March 23, 2019 (Jacobs 2019b). Field activities detailed below were conducted from November 18 through November 22, 2019. Procedures and methodology detailed in the work plans (CH2M 2018a; Jacobs 2019a) were followed. The fieldwork consisted of the following activities:

- Updating the building survey at JMF
- Sampling previously installed exterior soil vapor probes (7 feet bgs)
- Sampling previously installed subslab vapor probes within JMF
- Performing a preferential pathway assessment (sewer gas sampling at select utilities)

The following table summarizes the daily field activities during the November 2019 investigation:

Date	Activities Performed
November 18, 2019	<ul style="list-style-type: none"> • Deployed preferential pathway samplers • Performed building walkthrough at H&H Metal to assess building condition
November 19, 2019	<ul style="list-style-type: none"> • Sampled all four subslab probes in JMF • Updated JMF building survey • Began sampling exterior soil vapor probes
November 20, 2019	<ul style="list-style-type: none"> • Continued sampling exterior soil vapor probes
November 21, 2019	<ul style="list-style-type: none"> • Completed sampling of 16 exterior soil vapor probes • Laboratory courier onsite to retrieve sample canisters
November 22, 2019	<ul style="list-style-type: none"> • Retrieved preferential pathway samples and shipped to laboratory

The following subsections describe the VI investigation field activities.

2.1 Deviations from the Workplan

Deviations from the work plan included:

- Indoor air samples and an additional round of subslab soil gas samples were not collected at the H&H Metal building.
- An additional round of soil vapor sampling at location SV-13 was not collected.

Since last sampling within the H&H Metal building, significant deterioration of the building has occurred. On November 17, 2019, the building owner notified the Jacobs' team that conditions inside the building may not be safe for sampling because of a significant amount of mold on the walls, ceilings, and items within the building. On November 18, 2019, Jacobs conducted a walkthrough of the building with the building owner and documented the building's conditions and took photographs (Appendix A).

Upon entering the building, there was a significant mildew, moldy odor and change in humidity. Items within the building also were covered in mold (couches, vehicles, chairs, etc.). The ceiling was noticeably leaking in multiple areas, leaving puddles of water on the ground. Black mold was observed on the ceiling in multiple offices and the hallway. Jacobs decided that conditions were not safe for team members to be inside the building for prolonged periods of time, and no sampling was conducted within this building. In addition, Jacobs coordinated with H&H Metal to have routine heating, ventilation, and air conditioning (HVAC) operations within the building, during and a few days before sampling, to obtain accurate and representative conditions. However, because the building is unoccupied and the mold issue, the building owner was hesitant to turn on any HVAC systems in fear of spreading mold spores.

At location SV-13, a sample was not collected because the road box was damaged. The ground near the probe was indented with tire tracks that slanted the road box (Appendix A), and the inner plastic lining of the road box was broken. Purging of the probe line was attempted multiple times, but no soil vapor was pulled during the purge. The aboveground tubing was inspected and appeared to be in good condition; however, it is possible that the underground tubing was damaged. A sample was not collected at this location.

2.2 Initial Site Walk/Building Surveys

On April 27, 2018, building surveys at H&H Metal and JMF were conducted to characterize the building, understand the HVAC conditions, evaluate floor plans and facility usage, visually identify potential background CVOC sources, and determine the optimal subslab sampling locations. Documentation was conducted using the questions listed in NYSDOH's building questionnaire (NYSDOH 2006). The JMF building survey was updated on November 19, 2019 (Appendix B). As discussed above, the H&H Metal building conditions were not safe for the field team to proceed with a detailed building survey.

2.3 Preferential Pathway Assessment

A preferential pathway assessment was performed from November 18 through November 22, 2019 in six different access points of sanitary and storm sewers (three in each) that pass through the CVOC groundwater plume area beneath Hopkins Avenue, Bigelow Street, and between the site and JMF and Rollform businesses (Figure 4).

The depth to water/wastewater in the sewer was measured with a laser distance finder in each manhole. The sanitary sewer manholes along Hopkins Avenue were approximately 7 feet deep with small, steady flowing streams of water passing through on the bottom (Photograph 16 in Appendix A). Location WMS-SE-06 was approximately 4 feet deep with no water observed during sample deployment and pickup. Storm sewer depths ranged from approximately 4.5 to 5.5 feet bgs. Samples were collected using Waterloo Membrane Sampler (WMS-SE) passive samplers provided by Eurofins Air Toxics that were suspended via string approximately 2 feet above the water/wastewater surface measured before deployment. The samplers were recovered from the sanitary sewers and storm sewers after 5 days to account for temporal variability. All six locations had little to no water at the bottom of the manhole when observed during the deployment and pickup of the samplers. Weather varied throughout the sampling period from heavy rain to overcast to sunny.

The samples were shipped via FedEx to Eurofins Air Toxics (NYSDOH Environmental Laboratory Approval Program, New York Laboratory Identification Number 11291) to perform the TO-17 analysis. Preferential pathway samples were analyzed in accordance with *Compendium Method TO-17: Determination of VOCs in Ambient Air Using Active Sampling onto Sorbent Tubes (Gas Chromatography/Mass Spectrometry [GC/MS])* (EPA 1999a).

2.4 Subslab Vapor Survey

Subslab probes previously installed and sampled at JMF during the 2018 investigation were sampled again on November 19, 2019. Subslab probe locations are shown on Figure 3. The probes were checked for leaks using helium during purging so ambient air was not introduced along with the subslab vapor sample. Vapor samples were collected using 1-liter SUMMA canisters over an approximate 5-minute period at 200 milliliters per minute. Table 2 summarizes the sampling details. Following subslab vapor sample collection, the vapor pins were left in place and covered with a flush-mount cap.

Samples were shipped via FedEx to Alpha Analytical (NYSDOH Environmental Laboratory Approval Program, New York Laboratory Identification Number 11627) to perform the TO-15 analysis. Alpha Analytical supplied batch-certified clean, evacuated, stainless-steel SUMMA canisters with individual tracking numbers and calibrated flow regulators. Subslab vapor samples were analyzed in accordance with *Compendium Method TO-15: Determination of VOCs in Air Collected in Specially Prepared Canisters*

and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS) (EPA 1999b). A 14-day turnaround time was requested for sample analysis.

2.5 Shallow Soil Vapor Survey

Soil vapor probes that were previously installed and sampled during the initial investigation in 2018 were sampled again from November 19 through November 21, 2019. The locations originally were selected to provide spatial coverage above the groundwater inclusion zone and on readily accessible areas north and east of the site (Figure 3). One soil vapor probe, SV-13, was unable to be sampled because the road box was damaged (see Section 2.1).

Weather varied throughout the sampling process. Temperatures ranged from -2 degrees Celsius to 6 degrees Celsius. A coating of snow was on the ground upon arrival at the site, but no additional snowfall occurred during the sampling event. Scattered rains occurred throughout the week of sampling, with a total accumulation of approximately 0.12 inch over the 5-day period.

The probes were checked for leaks using a helium-filled shroud at the surface and a dielectric MGM-2002 field helium detector during purging so ambient air was not introduced along with the soil vapor sample. Vapor samples were collected using 1-liter SUMMA canisters over an approximate 5-minute period. Table 3 presents the sample details.

Samples were picked up by an Alpha courier and hand delivered to Alpha Analytical (NYSDOH Environmental Laboratory Approval Program, New York Laboratory Identification Number 11627) to perform the TO-15 analysis. Alpha Analytical supplied batch-certified clean, evacuated, stainless-steel SUMMA canisters with individual tracking numbers and calibrated flow regulators. Soil vapor samples were analyzed in accordance with *Compendium Method TO-15: Determination of VOCs in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* (EPA 1999b). A 14-day turnaround time was requested for sample analysis.

2.6 Quality Assurance/Quality Control

Quality assurance/quality control (QC) samples included duplicate samples collected at a 10% frequency (two soil vapor and one subslab vapor sample). For canister samples, the tubing from the field duplicate (FD) was connected to the parent canister using a "T" fixture, so the samples collected the same air from the probe once the valves were opened simultaneously. One trip blank sample and one duplicate sample were analyzed for the preferential pathway samples. Samples were placed in appropriate shipping containers and shipped via overnight courier under standard chain-of-custody to the laboratory for analysis and/or picked up by a courier.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness as described in the Quality Assurance Project Plan (CH2M 2018d). The samples were reported in two sample delivery groups identified as 1911538 and L1956089. The sample delivery groups were assessed by reviewing the following:

- Chain-of-custody documentation
- Holding-time compliance
- Calibration
- Method blanks/field blanks
- Laboratory control spiking sample/laboratory control spiking sample duplicate recoveries and precision
- Internal standard recoveries
- Surrogate spike recoveries
- FD precision

- Required method QC samples at the specified frequencies

During review, a discrepancy was noticed between the parent sample and FD in JMF-01 (Figure 5), even though the canisters were linked together through a sample tee with a single flow controller. The relative percent difference for TCE exceeded criteria, and the sample pair JMF-01-20191119/JMF-01-20191119-FD and the TCE results for the pair were qualified as estimated. The relative percent difference goal for air is 20%, and this pair had a relative percent difference of 59%.

The data quality review indicates all data were considered valid. No severe QC issues were encountered, and no analytical data were rejected during the review process. Detailed summaries of the data quality review findings are in Appendix C. The analytical results, including those qualified during the data quality review, may be used to support project decisions. Laboratory analytical reports are in Appendix D.

3. Results

This section provides the November 2019 investigation sampling results.

3.1 Initial Site Walk/Building Surveys

On April 27, 2018, building surveys at H&H Metal and JMF were conducted before the first offsite VI investigation to characterize the building and identify possible soil vapor entry points or background indoor sources of VOCs that could potentially affect sampling results in relation to VI. Before the second offsite investigation, the building survey at JMF was updated on November 19, 2019 (Appendix B).

3.1.1 H&H Metal Specialty Inc.

The H&H Metal building survey was not updated during the November 2019 investigation because of safety hazards in the building. The field team conducted a walkthrough of the building with the building owner to assess and document the current condition. Updates to the condition of the building or contents within the building are discussed below. No sampling was performed within the building. The unoccupied building is rapidly deteriorating. Substantial renovations will likely be necessary before re-occupancy. The following summary generally remains unchanged from the 2018 building survey:

An onsite interview was conducted with H&H Metal engineer Brian Ceci. H&H Metal was a metal fabrication facility that included welding, brazing, and stamping. Operations in this building have ceased, and the building is unoccupied. The one-story slab-on-grade building was constructed over different phases from 1920 through 1999 and consists of five separately poured slabs. Indoor air in the building was recirculated by an HVAC system and blower in the manufacturing, welding, and press room. This HVAC system was not operating during the November 2019 investigation. There is potential substantial outdoor air infiltration from windows and doorways in the non-insulated areas. The roof leaks water during episodes of rain in the welding room, and the former chimney is capped. Several potential soil vapor entry points were identified during the survey. In addition, several cracks were identified in the floor in the welding and press rooms, utility trenches in the press room, floor drains in the bathrooms and manufacturing area, and a trench pit for a press that was filled with gravel, which is approximately 5 feet deep and 4 feet long by 5 feet wide.

Chlorinated solvents may have been used during past operations; however, no products containing target compounds were identified during the building survey. Most of the equipment and products used during past operations were no longer in the building in November 2019, although some materials such as automobile parts, vehicles, and several couches were present.

3.1.2 Johnson Machine & Fibre Products

JMF business owner Michael Marshall was interviewed during the building survey at JMF in 2018, a metal fabrication facility that is in operation. The building is a single-story slab-on-grade construction and approximately 30 years in age. Indoor air is recirculated by an HVAC system and blower in the manufacturing area, and there is potential outdoor air infiltration from doors and windows. Several cracks were identified in the slab of the manufacturing area, and floor drains were identified in the bathroom and manufacturing area. No significant changes in building condition, floor slab integrity, or building ventilation were observed between the 2018 and 2019 building surveys. The ambient air total VOC reading with a photoionization detector was slightly higher in 2019 than in 2018 (1.5 ppm in 2019 and 0.5 ppm in 2018).

During the 2019 building survey, solvent and lubricant odors were identified in the building, and solvent use in the building was visible. One Super Cool 735B product, which contains a chlorinated semisynthetic coolant with a photoionization detector reading of 49 parts per million, was in the building. Although limited information was found on this brand, a similarly named product used in machining has been described as, "Semi-synthetic coolants are metalworking fluid concentrates that contain a small amount of oil (usually less than 30%) as well as synthetic lubricants and other additives. When mixed with water, they form a translucent fluid. Semi-synthetics combine the physical lubricity of soluble oils with the

chemical lubricity, cooling and cleanliness of synthetic coolants” (Ashburn Chemical Technologies 2020). No other solvents mentioned chlorinated compounds as ingredients.

3.2 Preferential Pathway Assessment

A preferential pathway assessment was performed at six access points to the sanitary and storm sewers (Figure 4) that pass through an area of the site within the extent of the CVOC groundwater plume beneath Hopkins Avenue, Bigelow Street, and between the site and the JMF and Rollform businesses. There are no established screening levels for preferential pathway samples, but results were compared to EPA VISLs for soil vapor to provide an idea of a rough order of magnitude (as suggested by McHugh and Beckley 2018). There was one slight exceedance for TCE at location WMS-SE-02, which is a sanitary sewer in the middle of Hopkins Avenue, directly adjacent to JMF. Results from this event are listed in Table 4 and discussed below.

- The three storm drains had low detections of PCE ranging from 0.33 to 0.54 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). All other target compounds were below their respective detection limits.
- At WMS-SE-02, cis-1,2-DCE was detected at $35 \mu\text{g}/\text{m}^3$, TCE at $150 \mu\text{g}/\text{m}^3$, and PCE at $0.80 \mu\text{g}/\text{m}^3$. All other target compounds were below their respective detection limits. This location is a sanitary sewer in the middle of Hopkins Avenue directly across from JMF. These observed concentrations were higher than those observed in the nearest soil gas points on the southern side of Hopkins Avenue (SV-08 and SV-11) and thus could indicate transport through the sewer line.
- At WMS-SE-04, cis-1,2-DCE was detected at $8.7 \mu\text{g}/\text{m}^3$, TCE at $34 \mu\text{g}/\text{m}^3$, and PCE at $0.46 \mu\text{g}/\text{m}^3$. All other target compounds were not detected. This location is a sanitary sewer in the middle of Hopkins Avenue and at the intersection of Minsker Street.
- At WMS-SE-06, TCE was detected at $1.6 \mu\text{g}/\text{m}^3$ and PCE at $1.3 \mu\text{g}/\text{m}^3$. All other target compounds were not detected. This location is a sanitary sewer in the middle of Bigelow Street.

3.3 Subslab Vapor Survey

Four subslab locations were sampled within the JMF offsite property. No new subslab samples were collected from H&H Metal as discussed above. Detected VOC concentrations in subslab soil vapor were evaluated against the following criteria:

- EPA commercial subslab VISLs at a TCR of 10^{-6} and THQ of 1 (EPA 2020)
- NYSDOH subslab vapor concentrations criteria per *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH 2006)

Dow sent notification letters to the owner of H&H Metal and JMF, discussing the results of the subslab vapor survey within their respective buildings (Dow 2019a, 2019b). A copy of the JMF notification letter is in Appendix E.

Four subslab locations were sampled during this event within the JMF facility (Figure 5), with the respective results listed in Table 5. At the time of sampling, the facility was occupied and in operation. Only TCE was detected at concentrations greater than the most conservative NYSDOH soil vapor screening category ($6 \mu\text{g}/\text{m}^3$) in all four samples collected within the facility at concentrations ranging from 15.8 to $49.4 \mu\text{g}/\text{m}^3$. It is Jacobs understanding that the categories on the New York State matrix do not distinguish between residential and commercial buildings. The other target compounds (vinyl chloride; 1,1-DCE; trans-1,2-DCE; cis-1,2-DCE; and PCE) were not detected or detected at concentrations lower than the screening levels. No subslab soil vapor sample results exceeded EPA VISLs in this building.

3.4 Shallow Soil Vapor Survey

Fifteen soil vapor probes were sampled at locations within the groundwater inclusion zone and on readily accessible areas north and east of the site, with respective results presented on Figure 6 and listed in

Table 6. These probe sampling locations included locations bordering H&H Metal, JMF, and Rollform (not within the Rollform property boundaries).

Detected VOC concentrations in soil vapor were evaluated against the following criteria:

- EPA commercial VISLs at a TCR of 10^{-6} and THQ of 1 (EPA 2020)

Two shallow vapor samples exceeded the EPA soil vapor screening criteria for TCE ($100 \mu\text{g}/\text{m}^3$): SV-01 at $399 \mu\text{g}/\text{m}^3$ and SV-16 at $169 \mu\text{g}/\text{m}^3$.

4. Data Evaluation

An evaluation and comparison of multiple lines of evidence including subslab soil vapor, soil vapor, preferential pathway, and groundwater data from multiple investigations (December and November 2018 and November 2019) were conducted and summarized below. The focus of the evaluation is on specific COCs that exceeded one or more of the screening levels, which include PCE; TCE; cis-1,2-DCE; and vinyl chloride. PCE is not considered a COC from the site groundwater plume; however, PCE was detected at both offsite properties in soil vapor and therefore evaluated and discussed in this section.

4.1 H&H Metal Specialty Inc.

H&H Metal is in the northeastern extent of the groundwater plume, and four shallow monitoring wells surround the perimeter of the building: MW-105S, MW-109S, MW-108S, and MW-106S. Because of exceedances of TCE and vinyl chloride at one or more wells (Figure 2), this property was chosen to be evaluated for the potential for VI. During the first investigation in November 2018, seven subslab vapor probes were installed and sampled at H&H Metal. Additionally, five exterior soil vapor samples were installed adjacent to the property (SV-05, SV-07, SV-11, SV-12, and SV-13) and sampled during the 2018 and 2019 investigations. During the November 2019 investigation, no sampling occurred within the H&H Metal building; therefore, no additional subslab soil vapor data exist for this building. The building is unoccupied and rapidly deteriorating. Substantial restoration likely will need to occur before re-occupancy of the building. The following subsections discuss the observations made, based on data collected from the 2018 and the 2019 investigations.

4.1.1 Trichloroethene

As detailed on Figure 2, TCE historically has been detected in site groundwater at concentrations exceeding the EPA groundwater VISL at two monitoring wells (MW-106S and MW-108S). The depth to water at these two wells is approximately 9.5 to 10 feet bgs. TCE recently exceeded the EPA VISL at MW-108S during the 2017, 2018, and 2019 sampling events.

TCE was detected below the VISL in all four of the nearby soil vapor locations sampled in November 2019 and three of the five locations in December 2018. Three of these locations increased in concentration over the year. SV-13 was not sampled in November 2019 because the road box was damaged, but TCE was below the detection limit in December 2018.

In November 2018, concentrations of TCE in subslab vapor exceeded the NYSDOH soil screening criteria (SSC) in all locations sampled at H&H Metal, and two locations (HH-06 and HH-07) also exceeded the EPA VISL. A confirmation sampling round was unable to be collected in November 2019; however, the building is unoccupied and in an uninhabitable condition.

In summary, concentrations of TCE in external soil vapor at H&H Metal generally were lower than concentrations in subslab vapor beneath the building during the 2018 investigation. An increase in TCE concentrations was observed in most of the nearby soil vapor probes sampled during the November 2019 investigation; however, the increase is within the range of temporal variability typically observed in soil vapor. No additional data were obtained to assess whether this had an effect on TCE concentrations in subslab vapor beneath H&H Metal. As stated in the previous report (Jacobs 2019b), elevated concentrations in subslab vapor could potentially reflect a capping effect of the building on vapors moving up from groundwater or a release of TCE specific to H&H Metal processes. In December 2018, sampling of the soil vapor probes occurred after a week of heavy rain and intermittent snow storms. The ground was frozen and snow covered for the 2018 sampling event. In November 2019, there was light rain and warmer temperatures with little snow on the ground. It is possible that because of these weather conditions and potentially saturated soil, soil vapor results were biased low and/or there may be additional subsurface sources near the building.

4.1.2 cis-1,2-Dichloroethene

As detailed on Figure 2, cis-1,2-DCE historically has been detected at adjacent monitoring wells (MW-106S and MW-108S); however, there are no EPA groundwater VISLs for cis-1,2-DCE. In 2018 and 2019, cis-1,2-DCE was detected above laboratory detection limits at two of five nearby soil vapor locations; however, there are no soil vapor NYSDOH SSC for external soil vapor or EPA VISLs for cis-1,2-DCE. The cis-1,2-DCE concentrations within soil vapor near the building remained relatively consistent between sampling investigations.

In November 2018, five of seven subslab vapor samples at H&H Metal had concentrations of cis-1,2-DCE that exceeded the NYSDOH SSC. No confirmation samples were obtained during the November 2019 event because of unsafe building conditions.

In summary, cis-1,2-DCE concentrations in soil vapor generally were lower than concentrations in subslab vapor beneath the buildings. It is possible because of weather conditions that soil vapor results were biased low, and/or there may be additional subsurface sources near the building. Concentrations within soil vapor were comparable between December 2018 and November 2019.

4.1.3 Vinyl Chloride

Vinyl chloride was detected at nearby shallow monitoring well MW-106S at a concentration exceeding the EPA groundwater VISL and subsequently was detected at the immediately adjacent soil vapor probe (SV-07) but at a concentration well below the applicable EPA soil vapor VISL. However, no other nearby monitoring wells or soil vapor probes had detections of vinyl chloride, and vinyl chloride was not detected in subslab vapor beneath H&H Metal in November 2018; therefore, it is not a VI concern. Typically, vinyl chloride rapidly degrades under aerobic conditions in the vadose zone.

4.1.4 Tetrachloroethene

As detailed on Figure 2, PCE was detected at MW-108S at low concentrations, below EPA VISLs, and at least two orders of magnitude lower than concentrations of TCE in shallow groundwater. PCE was detected at only one of four nearby soil vapor samples in November 2019 and two of the five exterior soil vapor samples in 2018. Detected concentrations of PCE were below the EPA soil vapor VISL during both investigations in the nearby soil vapor samples.

In November 2018, PCE was detected in subslab vapor beneath H&H Metal in all but one location (HH-03). One location (HH-04) exceeded the NYSDOH SSC for PCE but not the EPA VISL. No confirmation samples were collected within H&H Metal during the November 2019 investigation because of unsafe building conditions.

PCE is not a COC from the Essex-Hope site groundwater plume. The presence of PCE (not a COC at the site) and difference in the ratio of TCE to PCE in soil vapor and subslab vapor suggests the potential for other offsite sources of PCE.

4.2 Johnson Machine & Fibre Products

JMF is above the southern edge of the groundwater plume, and four shallow monitoring wells are on two sides of the perimeter of the building: MW-25S, MW-18S, VP-6S, and MW-27S. Because of TCE exceedances at one or more wells (Figure 2), this property was chosen to be evaluated for the potential for VI. In November 2018, four subslab vapor probes were installed at JMF, and four exterior soil vapor samples were installed adjacent to the property (SV-08, SV-09, SV-10, and SV-11). Two rounds of sampling have been conducted at the four subslab vapor probes and the four nearby exterior soil vapor probes. Based on data collected from the 2018 and 2019 investigations, the following subsections discuss the findings.

4.2.1 Trichloroethene

As detailed on Figure 2, TCE has been detected in groundwater during sampling in 2017 at concentrations exceeding the EPA groundwater VISL at two nearby monitoring wells (MW-18S and MW-25S). During the 2018 and 2019 investigations, TCE was detected in all four nearby soil vapor locations but at concentrations below the EPA soil vapor VISL. Minor increases in TCE concentration were observed from 2018 to 2019 in three of the four locations.

In November 2018 and November 2019, TCE was detected in subslab vapor exceeding the NYSDOH SSC in all locations sampled at JMF; however, TCE was below the EPA subslab VISL at all four locations. Between sampling events, minor increases in TCE concentrations were observed at JMF-01 and JMF-02, both locations closest to the edge of the plume; decreasing concentrations were observed in JMF-03 and JMF-04, locations further from the plume.

During both investigations, concentrations of TCE in subslab vapor were greater than TCE concentrations in the nearby soil vapor probes, which also was the case at H&H Metal as stated above for November 2018. This may reflect a capping effect of the building on vapors arising from groundwater, temporal variability in external soil vapor because of weather conditions and potentially saturated soil, and/or additional subsurface sources may be near the building.

TCE concentrations in the range observed at JMF in subslab soil gas, external soil gas, and sewer gas are not expected to be sufficient to cause an exceedance in indoor air in a commercial building. A recent study of a database of U.S. Department of Defense commercial buildings concluded, "TCE concentrations in excess of 2,000 $\mu\text{g}/\text{m}^3$ were needed in sub-slab soil gas before indoor concentrations exceeded the industrial/commercial indoor VISL of 3.0 $\mu\text{g}/\text{m}^3$ " (Naval Facilities Engineering Command 2015).

4.2.2 cis-1,2-Dichloroethene

As detailed on Figures 2 and 6, cis-1,2-DCE has been detected in groundwater at two monitoring wells (MW-18S and MW-25S) and one nearby soil vapor probe (SV-10) during the 2018 and 2019 investigations; however, there are no groundwater or external soil vapor NYSDOH SSC or EPA VISLs for cis-1,2-DCE. In November 2018, cis-1,2-DCE was detected in subslab vapor at all locations sampled at JMF and exceeded the NYSDOH SSC at three of those locations. In November 2019, cis-1,2-DCE was detected below the NYSDOH SSC at all four locations.

Concentrations of cis-1,2-DCE in soil vapor generally were lower than concentrations in subslab vapor beneath the building. It is possible that because of weather conditions, soil vapor results were biased low and/or additional subsurface sources may be near the two buildings. There was a reduction in cis-1,2-DCE concentrations in all subslab locations within JMF.

4.2.3 Vinyl Chloride

Vinyl chloride was detected at nearby shallow monitoring well MW-18S at a concentration below the EPA groundwater VISL. Vinyl chloride also was detected in nearby soil vapor sample SV-10 (near the southwestern corner of the building) at a concentration below the EPA soil vapor VISL. No other nearby monitoring wells or soil vapor probes had detections of vinyl chloride, and vinyl chloride was not detected in subslab vapor beneath JMF; therefore, vinyl chloride is not a VI concern. Vinyl chloride is known to degrade readily in aerobic vadose zone soil.

4.2.4 Tetrachloroethene

As detailed in Section 4.1.4, PCE is not a COC at the site and has not been detected in any of the four shallow monitoring wells surrounding JMF; however, it was detected in two nearby soil vapor samples in 2018 and one nearby soil vapor sample in 2019. PCE was detected at three of four locations in 2018 and all four subslab vapor locations in 2019. Because these results were below the applicable NYSDOH SSC

or EPA VISL, PCE is not a VI concern at JMF. These soil vapor results indicate additional subsurface sources of PCE may be near or beneath the building.

4.3 Precision Rollform Technologies

Rollform also is located above the southern edge of the groundwater plume, directly east of JMF, and four shallow monitoring wells are near the building: MW-25S, MW-107S, MW-27S, and MW-28S. This property was chosen to be evaluated for a potential VI concern because is located within 100 feet from the groundwater plume. No subslab soil vapor sampling occurred at the building because the building owner denied access for sampling. Four exterior soil vapor probes are located either adjacent from the building or slightly east of the building (SV-11, SV-13, SV-14, and SV-15). No soil vapor probes were installed on the Rollform property. Based on data collected from the 2018 and 2019 investigations at surrounding monitoring wells and soil vapor probes, the following has been observed:

- As detailed on Figure 2, TCE has been detected in groundwater during sampling in 2017 at concentrations exceeding the EPA groundwater VISL at nearby monitoring well MW-25S. In addition, cis-1,2-DCE, which does not have an EPA groundwater VISL, was detected in MW-25S. Vinyl chloride and PCE were below detection limits. COC concentrations in the additional three wells bordering Rollform did not exceed the EPA groundwater VISL.
- TCE was detected in two of the four nearby soil vapor locations in 2018 and 2019 but below the EPA soil vapor VISL. During the November 2018 investigation, cis-1,2-DCE was detected in two locations but was not detected in any of the four locations in November 2019 (SV-13 was not sampled in November 2019). All other constituents were below the detection limits.
- There is no subslab vapor data.

Based on groundwater and soil vapor data collected around the Rollform building and the subslab vapor concentrations that were below EPA VISLs beneath JMF (which is closer to the groundwater plume), it is likely that subslab vapor concentrations beneath Rollform are similar to or less than that of JMF, and there is not a VI concern at Rollform.

4.4 Additional Observations

As shown on Figure 2 and detailed above, a shallow CVOC plume extends from the site to the north and east, roughly parallel to Hopkins Avenue. The other exterior soil vapor samples (not discussed above) were evaluated to understand the impacts that this plume has on soil vapor and the nature and extent of those impacts. Of the other exterior soil vapor samples evaluated that were not immediately adjacent to H&H Metal and JMF, two of six locations exceeded the EPA VISL. This was consistent during both sampling investigations in 2018 and 2019 and included SV-01 (262 $\mu\text{g}/\text{m}^3$ of TCE in 2018 and 399 $\mu\text{g}/\text{m}^3$ of TCE in 2019), which is near the center of the groundwater plume and is more than 100 feet from any offsite buildings, and SV-16 (111 $\mu\text{g}/\text{m}^3$ of TCE in 2018 and 169 $\mu\text{g}/\text{m}^3$ of TCE in 2019). SV-16 is outside the 100-foot groundwater inclusion zone, and lower concentrations of TCE were observed in soil vapor samples collected closer to the groundwater plume (SV-13, SV-14, and SV-15). It is possible that another potential subsurface source of TCE is near SV-16 or that SV-16 is affected by sewer line migration.

In addition to the elevated PCE concentrations detected in soil vapor west of H&H Metal and JMF, PCE also was detected in SV-01 and SV-16. As stated above, PCE is not a COC from the site groundwater plume and is not detected in the closest upgradient groundwater wells MW-15S near SV-01 and MW-107S near SV-16. Both SV-01 and SV-16 samples had unusually high concentrations of TCE, which adds additional evidence for other potential offsite sources of CVOCs.

Concentrations of target compounds in the sewer gas samples were relatively low. Only the TCE concentration in sanitary sewer location WMS-SE-02 (150 $\mu\text{g}/\text{m}^3$) during the 2019 investigation exceeded the EPA soil vapor VISL (100 $\mu\text{g}/\text{m}^3$). Although soil vapor VISLs do not directly apply to sewer gas, they can be used as an indicator of relative strength. It is unlikely that these low concentrations would cause exceedances of applicable screening levels in commercial building indoor air because of dilution from potential points of entry into indoor air.

5. Conclusions and Recommendations

Multiple lines of evidence were assessed over two sampling investigations spaced a year apart. Based on data collection over the two events, there is the potential for a complete VI pathway from the WBZ plume for site-related COCs, TCE, and cis-1,2-DCE. However, because of the presence of PCE in subsurface samples and the relatively low concentrations of TCE and cis-1,2-DCE in soil vapor, it is possible that additional sources of VOCs are in the subsurface at adjacent sites. The following recommendations are being made for the three offsite buildings:

5.1 H&H Metal Specialty Inc.

In 2018, concentrations of TCE in subslab soil vapor exceeded the NYSDOH SSC in all locations sampled at H&H Metal, and two locations (HH-06 and HH-07) also exceeded the EPA VISL. A confirmation round of subslab vapor sampling was not conducted in 2019 because of unsafe building conditions. This property is unoccupied, and there are no receptors. Based on the condition of the building, it is likely that significant repairs will need to be made before re-occupancy. It is recommended that this building be routinely monitored for change in occupancy and documented in annual submittals. In the meantime, no further sampling is recommended until there is a change in ownership or the building becomes occupied again.

5.2 Johnson Machine & Fibre Products

Concentrations of TCE and cis-1,2-DCE in subslab soil vapor exceeded the NYSDOH SSC at JMF during the 2018 event; however, no locations exceeded the EPA subslab VISLs for any constituent. Concentrations in the range observed have not been shown to cause indoor air exceedances in commercial buildings (Naval Facilities Engineering Command 2015). The results between the 2019 event confirm the 2018 results, and no further VI sampling is recommended at this building unless use of the building changes to residential or educational.

5.3 Precision Rollform Technologies

Rollform originally was selected for this VI investigation because of its location within 100 feet of the groundwater plume. The business owner denied access to Rollform for sampling; therefore, no sampling occurred at this property during both offsite investigations. However, since JMF is located between the site and Rollform, and it was concluded that VI was not a concern at JMF (which is closer to the groundwater plume), it is likely that there is similar or less potential for VI to be a concern at Rollform. It is recommended that the use of the building be monitored to verify it remains commercial.

6. References

- Ashburn Chemical Technologies. 2002. *Semi-Synthetic Coolants & Cutting Fluid*. Accessed online at <https://www.ashburnchemical.com/semi-synthetic-coolants.html>.
- CH2M HILL Engineers, Inc. (CH2M). 2016a. *Vapor Intrusion Investigation Report, Essex-Hope Site in Jamestown, New York, Site Number 907015*. June.
- CH2M HILL Engineers, Inc. (CH2M). 2016b. *Conceptual Site Model for Essex-Hope Site in Jamestown, New York*. January.
- CH2M HILL Engineers, Inc. (CH2M). 2017. *159 Hopkins Avenue Mitigation System at the Essex-Hope Site, Jamestown, New York*. June.
- CH2M HILL Engineers, Inc. (CH2M). 2018a. *Offsite Vapor Intrusion Investigation Work Plan, Essex-Hope Site in Jamestown, New York*. August.
- CH2M HILL Engineers, Inc. (CH2M). 2018b. *2017 Data Gap Investigation Report for the Essex-Hope Site, Jamestown, New York*. March.
- CH2M HILL Engineers, Inc. (CH2M). 2018c. *2017 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*. March.
- CH2M HILL Engineers, Inc. (CH2M). 2018d. *Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York*. Quality Assurance Project Plan Addendum. August.
- Dow Chemical Company, The (Dow). 1992. *Letter to Whiteman, Osterman & Hanna Re: Essex Specialty Products, Inc. V. Hope's Architectural Products, Inc. 90-CIV-1115A*. December 16.
- Dow Chemical Company, The (Dow). 2019a. *Letter to H&H Metal Specialty Inc. Re: Results of the Soil Vapor Intrusion Evaluation Conducted at 153 Hopkins Avenue*. January 18.
- Dow Chemical Company, The (Dow). 2019b. *Letter to Johnson Machine & Fibre Products Re: Results of the Soil Vapor Intrusion Sampling Conducted at 142 Hopkins Avenue*. January 18.
- Hope's Windows. 2020. Company website. Accessed online at <https://hopeswindows.com/>.
- Jacobs Engineering Group Inc. (Jacobs). 2019a. *Offsite Vapor Intrusion Investigation: Work Plan Addendum to Include Indoor and Outdoor Air Sampling at H&H Metal Specialty Inc., Essex Hope Site, Jamestown, New York*. July 8.
- Jacobs Engineering Group Inc. (Jacobs). 2019b. *Interim Offsite Vapor Intrusion Investigation Report, Essex Hope Site, Jamestown, New York*. March.
- Jacobs Engineering Group Inc. (Jacobs). 2019c. *2018 Annual Periodic Review Report, Essex-Hope Site, Jamestown, New York*. March.
- Johnson Machine. 2020. Company website. Accessed online at <http://johnsonmachine.net/>.
- McFarlene, Douglas. 1991. *Hope's Windows Questionnaire, Essex-Hope Site*. April 25.
- McHugh, T. and L. Beckley. 2018. *ESTCP Final Report Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compound Migration into Buildings: Risk Factors and Investigation Protocol ESTCP Project ER-201505*. November.

New York State Department of Environmental Conservation (NYSDEC). 1994. *Record of Decision, Essex-Hope Site, City of Jamestown, Chautauqua County, ID Number 9-07-015*. March.

New York State Department of Environmental Conservation (NYSDEC). 2010. *DER-10/Technical Guidance for Site Investigation and Remediation*. NYSDEC Program Policy. May 3.

New York State Department of Health (NYSDOH). 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. Final. October.

New York State Department of Health (NYSDOH). 2017a. *Updates to Soil Vapor/Indoor Air Decision Matrices*. May.

New York State Department of Health (NYSDOH). 2017b. *Vapor Intrusion Investigation Comments Letter*. September 8.

O'Brien & Gere Engineers, Inc. 1992. *Remedial Investigation Report; Former Essex Specialty Products, Inc.*, Jamestown, New York. October.

Precision Rollform Technologies. 2020. Company website. Accessed online at <http://www.rollform.com/default.asp>.

URS Corporation (URS). 2012. *Performance Monitoring Report, In-Situ Chemical Oxidation, 6-Months Post-Treatment*. December.

URS Corporation (URS). 2015. *Soil Vapor Data Summary Report, 2013/2014 Heating Season for the Essex-Hope Site*. May.

U.S. Environmental Protection Agency (EPA). 1999a. *Compendium Method TO-17: Determination of VOCs in Ambient Air Using Active Sampling onto Sorbent Tubes (GC/MS)* from the *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition*. January.

U.S. Environmental Protection Agency (EPA). 1999b. *Compendium Method TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* from the *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition*. January.

U.S. Environmental Protection Agency (EPA). 2015. *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*. OSWER Publication 9200.2-154. June.

U.S. Environmental Protection Agency (EPA). 2017. *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites*. November.

U.S. Environmental Protection Agency (EPA). 2018. Vapor Intrusion Screening Level Calculator. Accessed online at <https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator>.

Naval Facilities Engineering Command. 2015. *A Quantitative Decision Framework for Assessing Navy Vapor Intrusion Sites*. NAVFAC Technical Report TR-NAVFAC-EXWC-EV-1603. NESDI #476. Authors Patricia Venable and Tanwir Chaudhry (NAVFAC EXWC), Donna Caldwell (NAVFAC Atlantic), Ignacio Rivera-Duarte (SSC-Pacific), and Christopher Lutes, Loren Lund, Keri Hallberg (CH2M HILL). Accessed online at <https://clu-in.org/download/issues/vi/TR-NAVFAC-EXWC-EV-1603.pdf>. June.

VeruTEK Technologies. 2010. *S-ISCO and ISCO Laboratory Treatability & Dosage Study Report*. May 26.

Tables

Table 1. EPA Groundwater Vapor Intrusion Screening Level Exceedances in Nearby Wells

Offsite Vapor Intrusion Investigation Report

Essex-Hope Site, Jamestown, New York

CAS #	Parameter Name	EPA Groundwater VISL (µg/L)	RW-1S		RW-2S		RW-3S		MW-101S			MW-102S	MW-103S	MW-104S			MW-106S
			2018	2017	2018	2017	2018	2017	2019	2018	2017	2017	2017	2019	2018	2017	2017
75-01-4	Vinyl chloride	2.5	14	6	0.84 J	2	2.9	1.6	1.2J	0.2 J	2.3 J	0.16 J	0.17 J	ND	ND	1.0 UJ	6.4
156-59-2	cis-1,2-Dichloroethene	NA	360	91	24	31	5.4	37	180	26	240	44	70	ND	ND	1.0 J	11
79-01-6	Trichloroethene	7.4	260	26	35	14	8.1	56	310	75	510	30	180	80	100	130	13
127-18-4	Tetrachloroethene	65	ND	ND	ND	ND	ND	ND	ND	0.27 J	ND	ND	ND	0.32J	0.26 J	ND	ND

CAS #	Parameter Name	EPA Groundwater VISL (µg/L)	MW-108S			MW-12	MW-13			MW-14S	MW-18		MW-25S	GP-1S	HW-6	DPT-011
			2019	2018	2017	2017	2019	2018	2017	2017	2019	2017	2017	2017	2017	2017
75-01-4	Vinyl chloride	2.5	ND	ND	ND	1.0 UJ	ND	ND	1.3	ND	ND	0.34 J	ND	0.33 J	250	ND
156-59-2	cis-1,2-Dichloroethene	NA	9.5	5.8	4.6	37	ND	ND	5.5	2.4 J	18	65	21	16	180	11
79-01-6	Trichloroethene	7.4	23	28	22	18	ND	ND	22	14	38	190	82	18	ND	21 J
127-18-4	Tetrachloroethene	65	0.4J	0.31 J	0.48 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Exceedance of EPA Groundwater VISL

µg/L = micrograms per liter

EPA = U.S. Environmental Protection Agency

VISL = vapor intrusion screening level

CAS = Chemical Abstract Service

Table 2. Subslab Soil Vapor Sampling Log - Johnson Machine & Fibre Products
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

Field ID	Purge and Sample Start Date	Purge Start Time	Purge Rate (mL/min)	Purge End Time	Helium Leak Check ^a (pass/fail)	Total VOCs in Purged Gas (ppm)	MultiRae from Purged Gas (%v)			Canister ID	Flow Controller ID	Flow Controller Rate	Sample Start Time	Initial Canister Pressure ("Hg)		Sample End Date	Sample End Time	Final Pressure ("Hg)		Lab Receipt Pressure ("Hg)
							Oxygen	Carbon Monoxide	H2S					On Can	Digital Gauge			On Can	Digital Gauge	
JMF-01_20191119	11/19/2019	12:27	200	12:32	Pass	2.1	19.1	0	0	669	01319	5 min	12:37	-27.06	-28.46	11/19/19	12:47	-2.05	-2.27	-2.80
JMF-01_20191119-FD										823					-28.5				-2.21	-2.80
JMF-02_20191119	11/19/2019	13:41	200	13:46	Pass	2.2	20.9	0	0	2415	1329	5 min	13:48	-28.01	-28.59	11/19/19	13:53	-2.25	-2.42	-3.30
JMF-03_20191119	11/19/2019	13:13	200	13:18	Pass	2.2	17.8	0	0	718	1571	5 min	13:20	-27.85	-28.46	11/19/19	13:25	-2.24	-2.27	-2.80
JMF-04_20191119	11/19/2019	14:07	200	14:12	Pass	2.3	20.9	0	0	571	0518	5 min	14:15	-28.15	-28.22	11/19/19	14:19	-1.94	-1.95	-2.80

Notes:
ID = identification
mL/min = milliliters per minute
%v = percent by volume
"Hg = inches of mercury
hr = hour
^a The subslab soil gas probes are Cox-Colvin brand Vapor Pins and are leak tested with helium.

Table 3. Exterior Soil Vapor Sampling Log
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

Field ID	Purge and Sample Start Date	Purge Start Time	Purge Rate (mL/min)	Purge End Time	Helium Leak Check ^a (pass/fail)	Total VOCs in Purged Gas (ppm)	MultiRae from Purged Gas (%v)			Canister ID	Flow Controller ID	Flow Controller Rate	Sample Start Time	Initial Canister Pressure ("Hg)		Sample End Date	Sample End Time	Final Pressure ("Hg)		Lab Receipt Pressure ("Hg)
							Oxygen	Monoxide Dioxide	H2S					On Can	Digital Gauge			On Can	Digital Gauge	
SV-01_20191119	11/19/2019	16:47	200	16:52	Pass	0.2	19.7	0	0	2418	0685	5 min	16:55	-27.98	-28.60	11/19/19	17:00	-2.17	-2.96	-2.50
SV-02_20191119	11/19/2019	17:15	200	17:20	Pass	0.1	19.6	0	0	875	01572	5 min	17:22	-28.31	-28.62	11/19/19	17:27	-2.71	-2.50	-2.20
SV-03_20191120	11/20/2019	11:04	200	11:09	Pass	0.1	18.5	0	0	660	0581	5 min	11:12	-28.42	-28.76	11/19/19	11:17	-2.73	-2.81	-1.80
SV-04_20191121	11/21/2019	13:19	200	13:24	Pass	0.0	20.3	0	0	799	0683	5 min	13:26	-27.72	-29.4	11/21/19	13:31	-2.41	-2.57	-2.00
SV-05_20191120	11/20/2019	12:26	200	12:31	Pass	0.1	19.9	0	0	908	01573	5 min	12:33	-28.60	-28.83	11/20/19	12:38	-2.74	-2.66	-2.00
SV-06_20191120	11/20/2019	12:50	200	12:55	Pass	0.0	20.9	0	0	1694	0885	5 min	12:57	-29.02	-28.85	11/20/19	13:02	-2.55	-2.58	-1.50
SV-07_20191121	11/21/2019	8:41	200	8:46	Pass	0.1	20.4	0	0	717	01328	5 min	8:50	-28.43	-29.24	11/21/19	8:59	-2.29	-2.53	-1.50
SV-07_20191121-FD										698		5 min			-29.24				-2.36	-1.60
SV-08_20191120	11/20/2019	13:57	200	14:02	Pass	0.0	21.0	0	0	1959	0193	5 min	14:07	-28.16	-28.55	11/20/19	14:12	-2.56	-2.83	-1.90
SV-09_20191120	11/20/2019	13:19	200	13:24	Pass	2.2	20.9	0	0	2468	01123	5 min	13:27	-28.74	-29.02	11/20/19	13:33	-2.62	-2.61	-1.70
SV-10_20191120	11/20/2019	16:47	200	16:52	Pass	0.0	17.3	0	0	2173	0538	5 min	16:56	-27.84	-28.81	11/20/19	17:05	-2.11	-1.93	-1.50
SV-10_20191120-FD										735					-28.73				-2.14	-1.50
SV-11_20191120	11/20/2019	14:26	200	14:31	Pass	0	20.9	0	0	680	0839	5 min	14:35	-28.58	-28.9	11/20/19	14:40	-2.31	-2.42	-1.50
SV-12_20191120	11/20/2019	17:16	200	17:21	Pass	0	20.9	0	0	2495	0611	5 min	17:24	-28.42	-28.96	11/20/19	17:29	-2.31	-2.16	-1.60
SV-13_2019XX	Unable to sample - road box is damaged, looks like it was ran over with a vehicle. Unable to purge probe, attempted twice.																			
SV-14_20191121	11/21/2019	10:03	200	10:08	Pass	0	20.9	0	0	1915	0520	5 min	10:13	-28.31	-29.30	11/21/19	10:18	-2.42	-2.77	-2.00
SV-15_20191121 ^b	11/21/2019	10:43	200	10:48	Pass	0	20.9	0	0	1496	0601	5 min	10:54	-26.20	-29.29	11/21/19	10:59	-2.46	-2.98	-2.30
SV-16_20191121	11/21/2019	11:15	200	11:20	Pass	0	20.1	0	0	715	01194	5 min	11:21	-28.82	-29.27	11/21/19	11:26	-2.40	-2.54	-1.60

Notes:
ID = identification
mL/min = milliliters per minute
%v = percent by volume
"Hg = inches of mercury
hr = hour
^a The subslab soil gas probes are Cox-Colvin brand Vapor Pins and are leak tested in accordance with the Cox-Colvin helium leak check test method.
^b Both ends of tubing were stuck in the soil. Lightly pulled on both, unclear as to which end of the tubing was the sample end and probe end. One end came out easily which was thought to be the sample end, but was the probe end. This was pulled out ~2 feet. This end was pushed back into soil and the sample end had to be yanked out. Probe was loose. It is possible that this sample is unrepresentative.

Table 4. Preferential Pathway Analytical Data
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

	Location		WMS-SE-01				WMS-SE-02				WMS-SE-03				WMS-SE-04				WMS-SE-05				WMS-SE-06					
	Location Description		Storm sewer along Hopkins Ave, outside of Jamestown Machine				Sewer manhole in middle of Hopkins Ave, across from Jamestown Machine				Storm sewer on the corner of Hopkins Ave and Minsker Street				Sewer manhole in the middle of Hopkins Ave, intersection of Minsker Street				Storm sewer on Bigelow Street				Sewer manhole in middle of Bigelow Street					
	Sampler ID		1820-AN-R-085		1903-AN-R-124		1820-AN-R-084		1903-AN-R-121		1820-AN-R-081		1903-AN-R-127		1820-AN-R-086		1903-AN-R-123		1820-AN-R-082		1903-AN-R-125		1820-AN-R-087		1903-AN-R-122		1903-AN-R-120	
	Sample Deployment Date		11/12/2018		11/18/2019		11/12/2018		11/18/2019		11/12/2018		11/18/2019		11/12/2018		11/18/2019		11/12/2018		11/18/2019		11/12/2018		11/18/2019		11/18/2019	
	Sample Retrieval Date		11/16/2018		11/22/2019		11/16/2018		11/22/2019		11/16/2018		11/22/2019		11/16/2018		11/22/2019		11/16/2018		11/22/2019		11/16/2018		11/22/2019		11/22/2019	
			Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
CAS #	Parameter Name	Units																										
75-01-4	Vinyl Chloride	µg/m ³	30	U	32	U	30	U	32	U	31	U	32	U	31	U	32	U	31	U	32	U	31	U	32	U	32	U
75-35-4	1,1-Dichloroethene	µg/m ³	26	U	27	U	26	U	27	U	26	U	27	U	26	U	27	U	26	U	27	U	26	U	27	U	27	U
156-60-5	trans-1,2,-Dichloroethene	µg/m ³	11	U	12	U	11	U	12	U	11	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U
156-59-2	cis-1,2-Dichloroethene	µg/m ³	4.8	U	5.0	U	140		35		4.8	U	5.0	U	25		8.7		4.9	U	5	U	4.9	U	5	U	5	U
79-01-6	Trichloroethene	µg/m ³	3.5	U	3.6	U	94		150		3.5	U	3.7	U	26		34		3.6	U	3.6	U	3.6	U	1.6	J	1.8	J
127-18-4	Tetrachloroethene	µg/m ³	2.3	U	0.54	J	0.94	J	0.80	J	2.4	U	0.33	J	2.4	U	0.46	J	2.4	U	0.41	J	2.4	U	1.3	J	2.4	U

Notes:
µg/m³ = micrograms per cubic meter
Qual = Laboratory data qualifier
J = estimated value
U = not detected at the reporting limit
Bold results indicate detection of chemical above the detection limit.
CAS = Chemical Abstract Service

Table 5. Subslab Soil Vapor Analytical Results—H&H Metal Specialty, Inc.
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

				Location		HH-01		HH-02		HH-03		HH-04				HH-05		HH-06		HH-07	
				Field Sample ID		HH-01-20181115		HH-02-20181115		HH-03-20181115		HH-04-20181115		HH-04-20181115-FD		HH-05-20181115		HH-06-20181115		HH-07-20181115	
				Sample Date		11/15/2018		11/15/2018		11/15/2018		11/15/2018				11/15/2018		11/15/2018		11/15/2018	
				Units		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
		Subslab Soil Vapor Screening Levels																			
CAS #	Parameter Name	NY-SSC-A	NY-SSC-B	NY-SSC-C	EPA VISL																
75-01-4	Vinyl chloride			6	0.93	1.14	U	1.12	U	1.1	U	1.24	U	1.23	U	1.15	U	2.28	U	1.08	U
75-35-4	1,1-Dichloroethene	6			29,000	1.77	U	1.73	U	1.71	U	1.93	U	1.9	U	1.78	U	3.53	U	1.68	U
156-60-5	trans-1,2-Dichloroethene				NA	1.77	U	1.73	U	1.71	U	1.93	U	1.9	U	1.78	U	3.53	U	1.68	U
156-59-2	cis-1,2-Dichloroethene	6			NA	11.8		6.9		7.33		4.96		4.64		2.2		26		6.98	
79-01-6	Trichloroethene	6			100	33		16.7		23.1		14.5		14		17		1320		473	
127-18-4	Tetrachloroethene		100		1,600	24.4		43.5		2.93	U	102		101		31.3		9.9		4.58	

Notes:
NY-SSC-A: N Shaded and bold indicates the value is greater than or equal to either the USEPA VISL or the NEW York DOH Sub-slab Vapor Concentrations Criteria
NY-SSC-B: New York DOH Matrix B Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
NY-SSC-C: New York DOH Matrix C Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
EPA VISL: EPA Commercial Sub-slab Vapor Intrusion Screening Level, November, 2018

Exceeds NY-SSC, but indoor air data is required to determine if any further action is needed per the matrix.

Exceeds EPA Sub-slab Vapor Intrusion Screening Level

µg/m³ = micrograms per cubic meter

CAS = Chemical Abstract Service

Table 6. Subslab Soil Vapor Analytical Results - Johnson Machine & Fibre Products
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

				Location		JMF-01								JMF-02				JMF-03				JMF-04			
				Field Sample ID		JMF-01_20181114		JMF-01_20181114-FD		JMF-01_20191119		JMF-01_20191119-FD		JMF-02_20181114		JMF-02_20191119		JMF-03_20181114		JMF-03_20191119		JMF-04_20181114		JMF-04_20191119	
				Sample Date		11/15/2018				11/19/2019				11/15/2018		11/19/2019		11/15/2018		11/19/2019		11/15/2018		11/19/2019	
				Units		µg/m³				µg/m³				µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
				Subslab Soil Vapor Screening Levels																					
CAS #	Parameter Name	NY-SSC-A	NY-SSC-B	NY-SSC-C	EPA VISL																				
75-01-4	Vinyl chloride			6	93	1.27	U	1.26	U	ND		ND		1.1	U	ND		1.17	U	ND		1.16	U	ND	
75-35-4	1,1-Dichloroethene	6			29,000	1.97	U	1.95	U	ND		ND		1.71	U	ND		1.82	U	ND		1.8	U	ND	
156-60-5	trans-1,2-Dichloroethene				NA	1.97	U	1.95	U	ND		ND		1.71	U	ND		1.82	U	ND		1.8	U	ND	
156-59-2	cis-1,2-Dichloroethene	6			NA	6.78		6.22		3.50		3.19		4.4		3.58		11.2		4.36		8.45		5	
79-01-6	Trichloroethene	6			100	17.8		17.5		49.4	J	27	J	13		17.1		23.1		20.9		21.5		15.8	
127-18-4	Tetrachloroethene		100		1,600	10.4		9.9		4.76		5.02		2.93	U	10.2		8.68		6.24		14.9		6.85	

Notes:
NY-SSC-A: New York DOH Matrix A Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
NY-SSC-B: New York DOH Matrix B Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
NY-SSC-C: New York DOH Matrix C Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
EPA VISL: EPA Commercial Subslab Vapor Intrusion Screening Level, November, 2018

Exceeds NY-SSC, but indoor air data is required to determine if any further action is needed per the matrix.

Exceeds EPA Subslab Vapor Intrusion Screening Level

Bold results indicate detection of chemical above the detection limit.

µg/m³ = micrograms per cubic meter

CAS = Chemical Abstract Service

Table 7. Exterior Soil Vapor Probe Analytical Data
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

		Location	SV-01				SV-02				SV-03				SV-04				SV-05				SV-06			
		Field Sample ID	SV-01_20181211		SV-01_20191119		SV-02_20181211		SV-02_20191119		SV-03_20181211		SV-03_20191120		SV-04_20181212		SV-04_20191121		SV-05_20181212		SV-05_20191120		SV-06_20181212		SV-06_20191120	
		Sample Date	12/11/2018		11/19/2019		12/11/2018		11/19/2019		12/11/2018		11/20/2019		12/12/2018		11/21/2019		12/12/2018		11/20/2019		12/12/2018		11/20/2019	
		Units	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
CAS #	Parameter Name	EPA Soil Vapor VISL																								
75-01-4	Vinyl chloride	93	1.16	U	1.03	U	1.12	U	1.04	U	1.16	U	1.04	U	1.13	U	1.04	U	1.08	U	1.07	U	1.11	U	1.04	U
75-35-4	1,1-Dichloroethene	29,000	1.8	U	1.6	U	1.74	U	1.61	U	1.8	U	1.61	U	1.76	U	1.61	U	1.67	U	1.66	U	2.53	U	1.62	U
156-60-5	trans-1,2-Dichloroethene	NA	1.8	U	1.6	U	1.74	U	1.61	U	1.8	U	1.61	U	1.76	U	1.61	U	1.67	U	1.66	U	1.72	U	1.62	U
156-59-2	cis-1,2-Dichloroethene	NA	1.8	U	1.6	U	1.74	U	1.61	U	1.8	U	4.6		1.76	U	1.61	U	1.67	U	2.11		1.72	U	1.62	U
79-01-6	Trichloroethene	100	262		399		2.35	U	3.0		2.45	U	12.4		3.27		5.12		2.26	U	6.4		44.1		9.57	
127-18-4	Tetrachloroethene	1,600	16.2		18.3		15.7		16.5		390		391		3.01	U	2.76	U	16.3		11.2		7.05		6.41	

Notes:
262 = Exceeds EPA Vapor Intrusion Screening Level (for soil vapor)
EPA Soil Vapor VISL: EPA Vapor Intrusion Screening Level, November 2018
Bold results indicate detection of chemical above the detection limit.
µg/m³ = micrograms per cubic meter
ND = not detected
NS = not sampled
EPA = U.S. Environmental Protection Agency
CAS = Chemical Abstract Service

Table 7. Exterior Soil Vapor Probe Analytical Data
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

CAS #		Parameter Name		Location		SV-07						SV-08				SV-09				SV-10									
						Field Sample ID		SV-07_20181212		SV-07_20181212-FD		SV-07_20191121		SV-07_20191121-FD		SV-08_20181212		SV-08_20191120		SV-09_20181212		SV-09_20191120		SV-10_20181213		SV-10_20181213-FD		SV-10_20191120	
				Sample Date		12/12/2018				11/21/2019				12/12/2018		11/20/2019		12/12/2018		11/20/2019		12/13/2018				11/20/2019			
				Units		µg/m³				µg/m³				µg/m³		µg/m³		µg/m³		µg/m³		µg/m³				µg/m³			
EPA Soil Vapor VISL																													
75-01-4	Vinyl chloride	93	2.24	J	1.16	UJ	1.61		1.09	U	1.12	U	1.04	U	1.1	U	1.14	U	3.02	J	6.03	J	2.06		1.77				
75-35-4	1,1-Dichloroethene	29,000	1.79	U	1.8	U	1.85	U	1.7	U	1.73	U	1.61	U	1.71	U	1.77	U	1.8	U	1.8	U	1.83	U	1.76	U			
156-60-5	trans-1,2-Dichloroethene	NA	1.79	U	1.8	U	1.85	U	1.7	U	1.73	U	1.61	U	1.71	U	1.77	U	1.8	U	1.8	U	1.83	U	1.76	U			
156-59-2	cis-1,2-Dichloroethene	NA	5.71	J	3.68	J	2.63		2		1.73	U	1.61	U	1.71	U	1.77	U	4.76	J	8.76	J	4.44		3.54				
79-01-6	Trichloroethene	100	18.3	J	7.79	J	8.6		7.26		2.71		9.67		8.81		5.07		5.75	J	10.5	J	13.1		11				
127-18-4	Tetrachloroethene	1,600	3.07	UJ	8.88	J	3.16	U	2.9	U	2.96	U	2.76	U	3.57		4.47		3.08	UJ	35.3	J	3.13	U	3.01	U			

Notes:
262 = Exceeds EPA Vapor Intrusion Screening Level (for soil vapor)
EPA Soil Vapor VISL: EPA Vapor Intrusion Screening Level, November 2018
Bold results indicate detection of chemical above the detection limit.
µg/m³ = micrograms per cubic meter
ND = not detected
NS = not sampled
EPA = U.S. Environmental Protection Agency
CAS = Chemical Abstract Service

Table 7. Exterior Soil Vapor Probe Analytical Data
Offsite Vapor Intrusion Investigation Report
Essex-Hope Site, Jamestown, New York

		Location	SV-11				SV-12				SV-13				SV-14				SV-15				SV-16			
		Field Sample ID	SV-11_20181212		SV-11_20191120		SV-12_20181212		SV-12_20191120		SV-13_20181212		SV-13_2019XX		SV-14_20181213		SV-14_20191121		SV-15_20181213		SV-15_20191121		SV-16_20181213		SV-16_20191121	
		Sample Date	12/12/2018		11/20/2019		12/12/2018		11/20/2019		12/12/2018				12/13/2018		11/21/2019		12/13/2018		11/21/2019		12/13/2018		11/21/2019	
		Units	µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³	
CAS #	Parameter Name	EPA Soil Vapor VISL																								
75-01-4	Vinyl chloride	93	1.1	U	1.13	U	1.1	U	1.14	U	1.12	U	NS		1.1	U	1.15	U	1.13	U	1.17	U	1.13	U	1.14	U
75-35-4	1,1-Dichloroethene	29,000	1.7	U	1.76	U	1.71	U	1.76	U	1.74	U	NS		1.7	U	1.78	U	1.76	U	1.82	U	1.76	U	1.76	U
156-60-5	trans-1,2-Dichloroethene	NA	1.7	U	1.76	U	1.71	U	1.76	U	1.74	U	NS		1.7	U	1.78	U	1.76	U	1.82	U	1.76	U	1.76	U
156-59-2	cis-1,2-Dichloroethene	NA	1.7	U	1.76	U	1.72		1.76	U	1.74	U	NS		2.27		1.78	U	2.20		1.82	U	2.67		1.76	U
79-01-6	Trichloroethene	100	4.77		8.87		6.45		22		2.35	U	NS		4.74		3.61		2.39	U	2.47	U	111		169	
127-18-4	Tetrachloroethene	1,600	2.92	U	3.01	U	2.93	U	3.02	U	2.97	U	NS		2.91	U	3.04	U	3.01	U	3.11	U	6.63		7.73	

Notes:
262 = Exceeds EPA Vapor Intrusion Screening Level (for soil vapor)
EPA Soil Vapor VISL: EPA Vapor Intrusion Screening Level, November 2018
Bold results indicate detection of chemical above the detection limit.
µg/m³ = micrograms per cubic meter
ND = not detected
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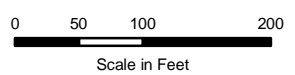
Figures



- Site Boundary
- Parcels
- Chadakoin River

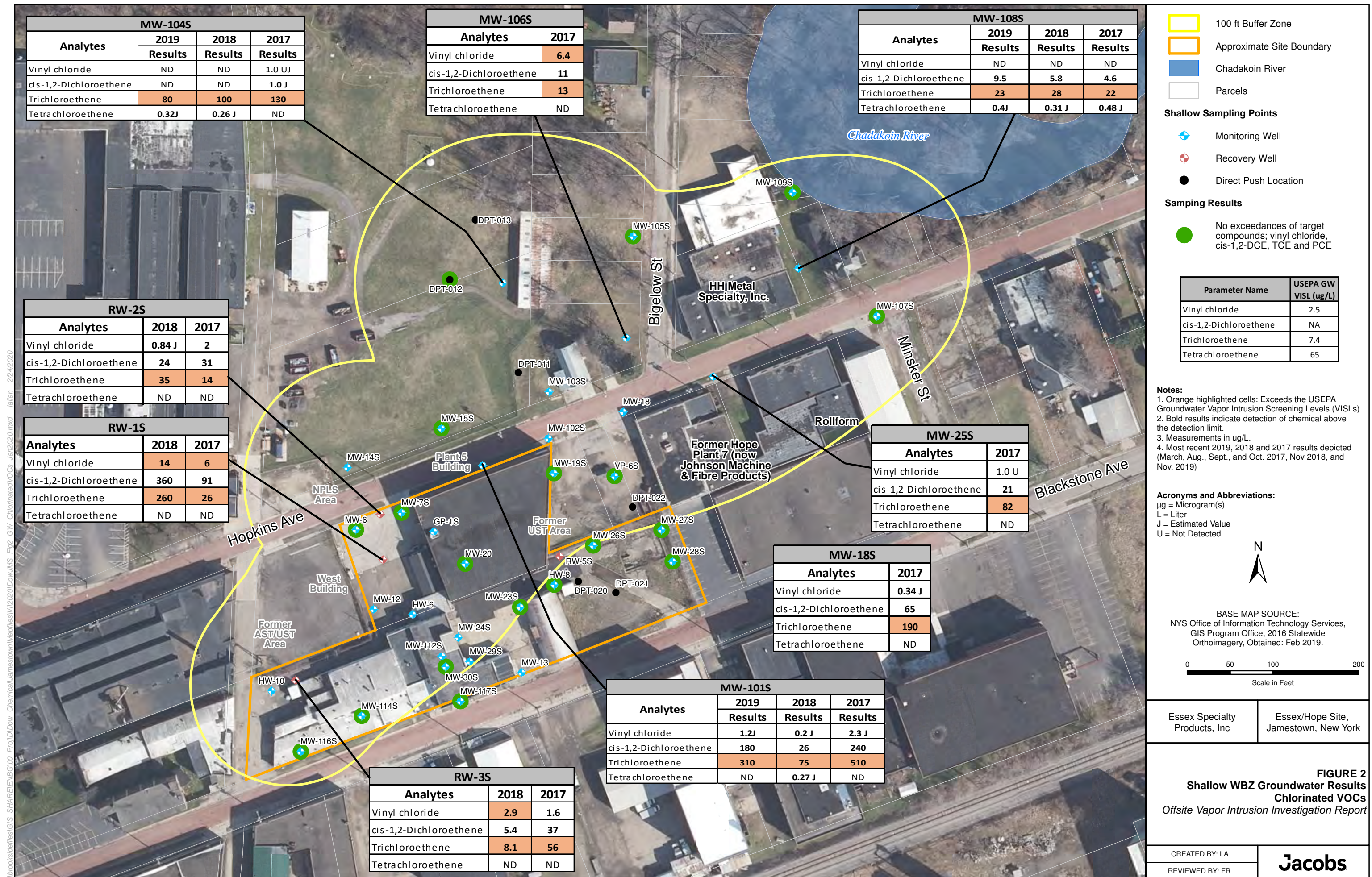


BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, 2016 Statewide
Orthoimagery, Obtained: Feb 2019.



Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
-------------------------------	--------------------------------------

FIGURE 1
Site Location and Layout Map
Offsite Vapor Intrusion Investigation Report





Soil Vapor Sample Location

Subslab Vapor Sample Location

Sanitary/Storm Sewer

Approximate Site Boundary

Parcels

Access to Rollform was Denied and therefore sampling has not been proposed at this time

Chadakoin River

Notes:

1. Sanitary/storm sewer lines are inferred based on the position of manholes and cleanouts.

N

BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, 2016 Statewide
Orthoimagery, Obtained: Feb 2019.

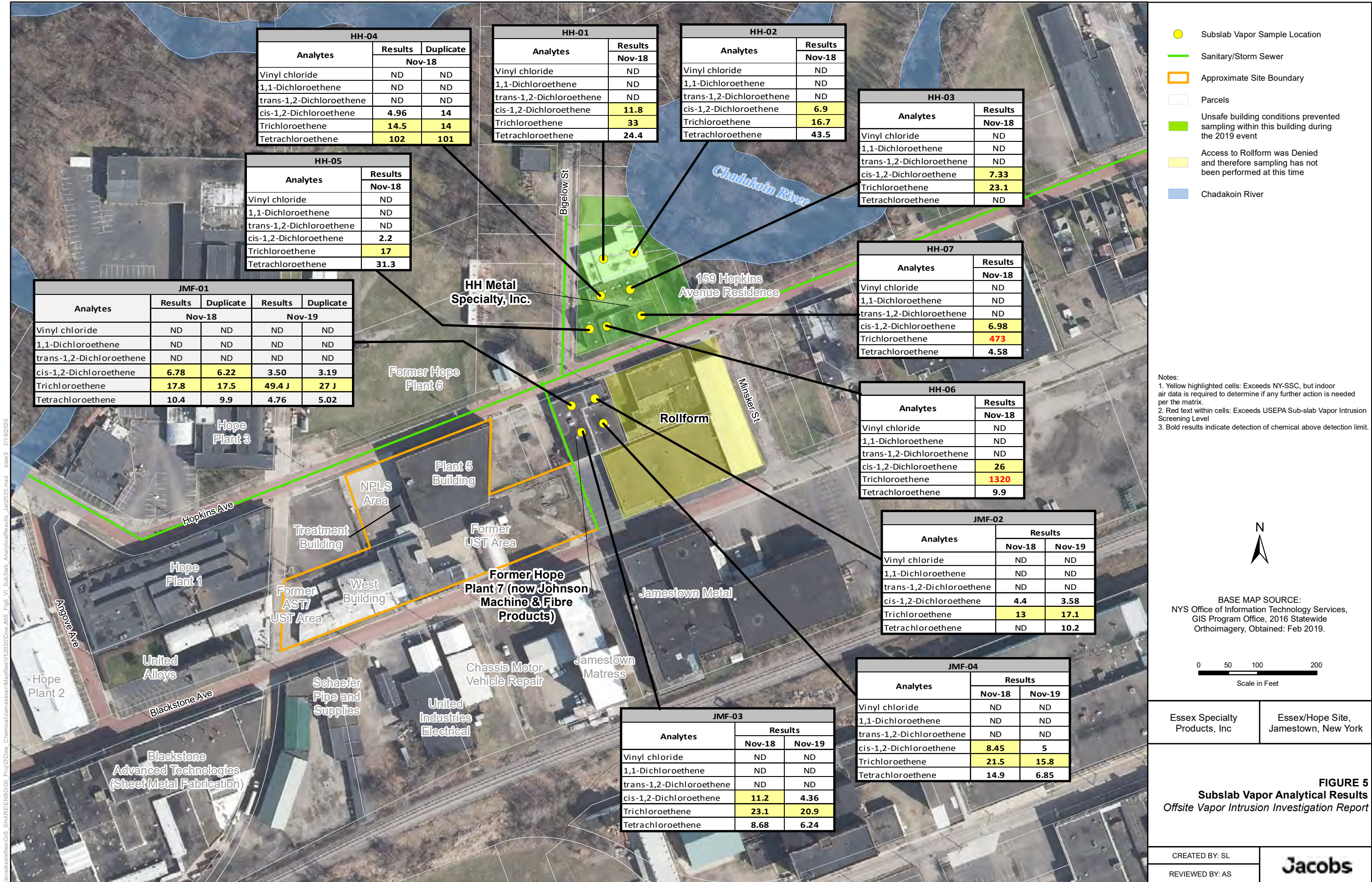
0 50 100 200
Scale in Feet

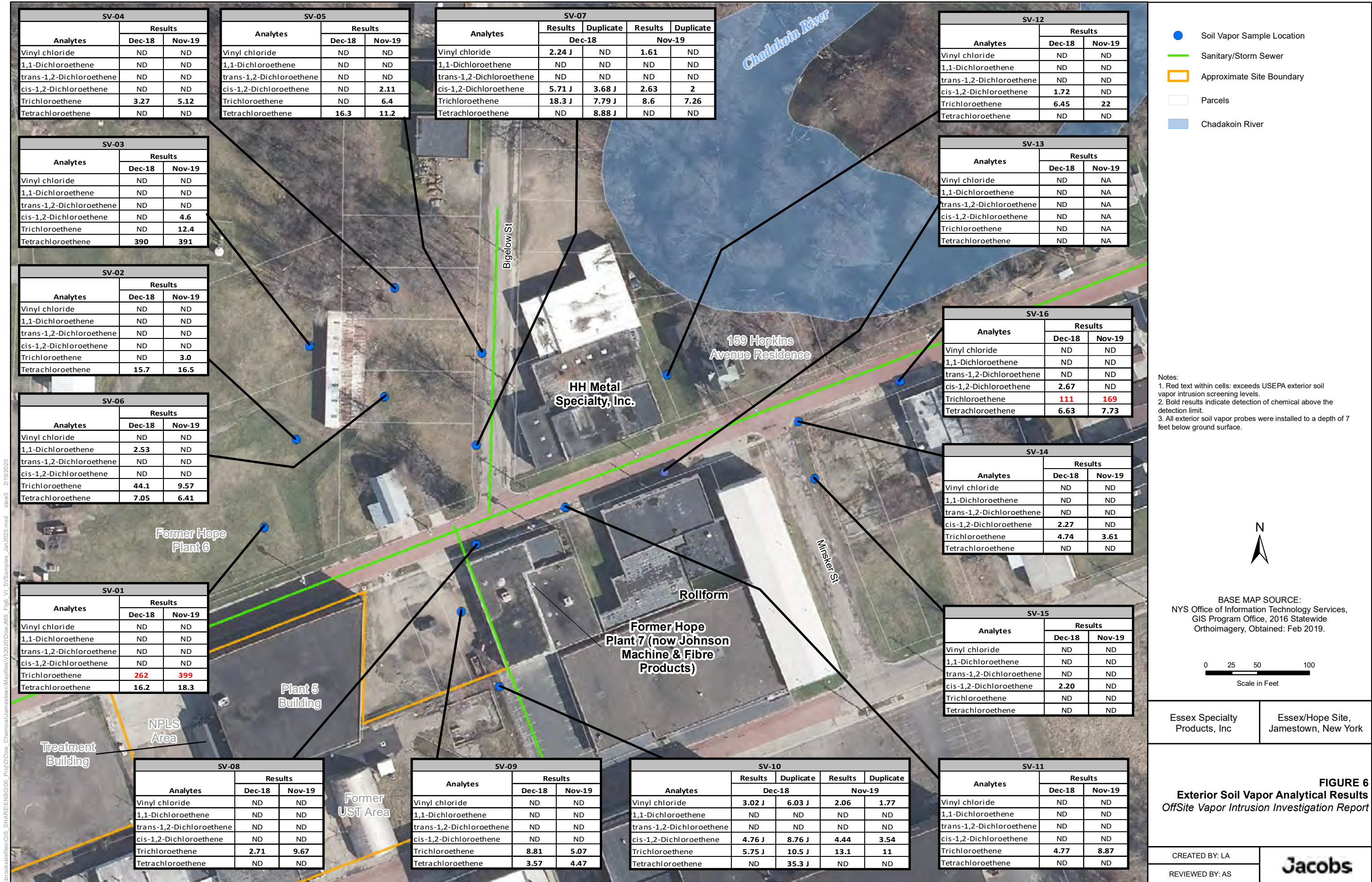
Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
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FIGURE 3
Soil Vapor and Subslab Vapor Sampling Locations
Offsite Vapor Intrusion Investigation Report

CREATED BY: LA	Jacobs
REVIEWED BY: AS	







Appendix A

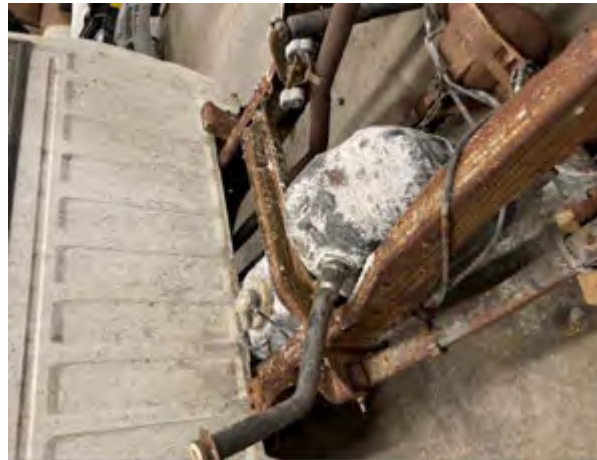
Photograph Log

Project Title	Offsite Vapor Intrusion Investigation Report
Location	Essex Hope Site, 126 Hopkins Avenue, Jamestown, New York
Date	March 2020



Photograph 1: Couch stored in H&H Metal

Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 2: Auto parts stored in H&H Metal

Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 3: Car covered in mold

Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 4: Evidence of water damage

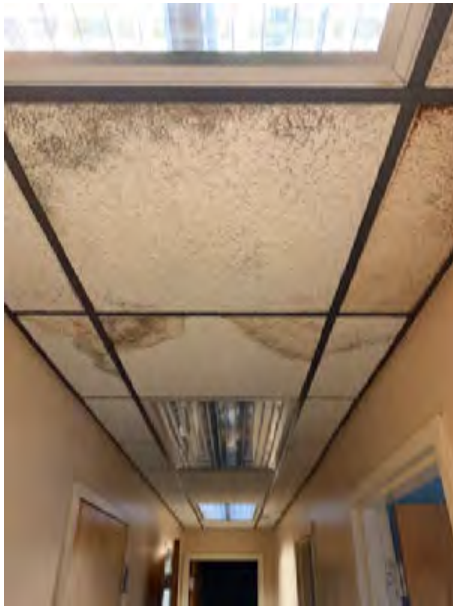
Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 5: Water damage and mold on ceiling
Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 6: Leak from ceiling
Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 7: Hallway to offices – ceiling
Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 8: Office ceiling
Taken by: A. Stapleton Date taken: 11/18/2019



Photograph 9: Another office ceiling

Taken by: A. Stapleton

Date taken: 11/18/2019



Photograph 10: Mold on office wall

Taken by: M. Vidal

Date taken: 11/18/2019



Photograph 11: Super Coolant in JMF

Taken by: M. Vidal

Date taken: 11/19/2019



Photograph 12: Cutting compound stored in JMF

Taken by: M. Vidal

Date taken: 11/19/2019



Photograph 13: Trim OM cutting and grinding fluid, located in JMF

Taken by: M. Vidal

Date taken: 11/19/2019



Photograph 14: Way Lube 68 stored in JMF

Taken by: M. Vidal

Date taken: 11/19/2019



Photograph 15: Hydraulic oil stored in JMF

Taken by: M. Vidal

Date taken: 11/19/2019



Photograph 16: Damaged location SV-13

Taken by: A. Stapleton

Date taken: 11/21/2019



Photograph 17: SV-13

Taken by: A. Stapleton

Date taken: 11/21/2019



**Photograph 18: Broken inner plastic casing:
SV-13**

Taken by: A. Stapleton

Date taken: 11/21/2019



Photograph 19: SV-15 – Sample line stuck

Taken by: A. Stapleton

Date taken: 11/21/2019



Photograph 20: SV-15 – Sample line buried

Taken by: A. Stapleton

Date taken: 11/21/2019



Photograph 16: Sampling subslab vapor probe in Johnson Machine (JMF-02)

Taken by: A. Stapleton Date taken: 11/19/2019



Photograph 17: Passive sampler deployment in sanitary sewer

Taken by: A. Stapleton Date taken: 11/18/2019

Appendix B

Updated Building Survey

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name M. VIDAL + A. STAPLETON Date/Time Prepared 11/19/19/13:30

Preparer's Affiliation JACOBS ENGINEERING GROUP Phone No. 978 427 1801

Purpose of Investigation 2019 SUPPLEMENTAL OFF-SITE VI INVESTIGATION

1. OCCUPANT: JOHNSON MACHINE + FIBRE PRODUCTS

Interviewed: ☒ Y ☐ N

Last Name: MARSHALL First Name: MICHAEL

Address: 142 HOPKINS AVENUE, JAMESTOWN NY 14701

County: CHAUTAUGUA

Home Phone: N/A Office Phone: 716-665-2003 x 205

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ☒)

Interviewed: ☒ Y ☐ N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential
☒ Industrial

School
Church

Commercial/Multi-use
Other: _____

If the property is residential, type? (Circle appropriate response) N/A

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: _____

If multiple units, how many? N/A

If the property is commercial, type?

Business Type(s) METAL FABRICATION

Does it include residences (i.e., multi-use)? Y (N) If yes, how many? N/A

Other characteristics:

Number of floors 1 Building age ~30 YRS

Is the building insulated? (Y) N How air tight? Tight (Average) Not Tight
OFFICE SPACE ONLY

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

N/A - ONE FLOOR ONLY

Airflow near source

NO SOURCE IDENTIFIED; INDOOR AIR IS RECIRCULATED BY HVAC SYSTEM AND BLOWER IN MANUFACTURING AREA

Outdoor air infiltration

POTENTIAL OUTDOOR AIR INFILTRATION FROM WINDOWS/DOORWAYS

Infiltration into air ducts

EXPOSED AIRDUCTS APPEAR TO BE AIR-TIGHT

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply) 6"-12" SLAB

- a. Above grade construction: wood frame concrete stone brick
- b. Basement type: N/A full crawlspace slab other _____
- c. Basement floor: N/A concrete dirt stone other _____
- d. Basement floor: N/A uncovered covered covered with _____
- e. Concrete floor: unsealed sealed sealed with _____
- f. Foundation walls: poured block stone other _____
- g. Foundation walls: unsealed sealed sealed with _____
- h. ~~The basement~~ ^{FIRST FLOOR} is: wet damp dry moldy
- i. The basement is: N/A finished unfinished partially finished
- j. Sump present? Y N
- k. Water in sump? Y / N not applicable

Basement/Lowest level depth below grade: 1 (feet) - WHERE SLAB IS THICKEST

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

- SHALLOW (<0.25") SURFACE CRACKS IN MANUFACTURING AREA (~2'-5' LONG)
- 1 FLOOR DRAIN IN MANUFACTURING AREA WITH STANDING WATER
- FLOOR DRAINS IN BATHROOMS

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply - note primary)

Hot air circulation	<u>Heat pump</u>	Hot water baseboard
Space Heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler Other _____

The primary type of fuel used is:

<u>Natural Gas</u>	Fuel Oil	Kerosene
<u>Electric</u>	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: ELECTRIC

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? ☒ Y ☐ N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

- NOT VISIBLE IN OFFICE, BREAKROOM OR BATHROOMS
 - HVAC DUCTS, BLOWER AND UNIT HEATERS IN MANUFACTURING AREA
 APPEAR AIR-TIGHT AND IN GOOD, WORKING CONDITION

7. OCCUPANCY

Is basement/lowest level occupied? ☒ Full-time ☐ Occasionally ☐ Seldom ☐ Almost Never

Level General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)

Basement	N/A
1 st Floor	OFFICE + WORKSHOP
2 nd Floor	N/A
3 rd Floor	N/A
4 th Floor	N/A

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- | | |
|--|--|
| a. Is there an attached garage? | Y <input checked="" type="radio"/> N |
| b. Does the garage have a separate heating unit? | Y / N <input checked="" type="radio"/> NA |
| c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) | <input checked="" type="radio"/> Y <input type="radio"/> N / NA
Please specify <u>VEHICLES</u> |
| d. Has the building ever had a fire? | Y <input checked="" type="radio"/> When? _____ |
| e. Is a kerosene or unvented gas space heater present? | Y <input checked="" type="radio"/> Where? _____ |
| f. Is there a workshop or hobby/craft area? | <input checked="" type="radio"/> Y / N Where & Type? <u>MAJORITY OF BUILDING METAL FABRICATION</u> |
| g. Is there smoking in the building? | Y <input checked="" type="radio"/> How frequently? <u>AT LEAST WEEKLY</u> |
| h. Have cleaning products been used recently? | <input checked="" type="radio"/> Y / N When & Type? <u>HOUSEHOLD + METAL CLEANING AGENTS</u> |
| i. Have cosmetic products been used recently? | Y <input checked="" type="radio"/> When & Type? _____ |

- j. Has painting/staining been done in the last 6 months? Y ☒ N Where & When? _____
- k. Is there new carpet, drapes or other textiles? Y ☒ N Where & When? _____
- l. Have air fresheners been used recently? Y ☒ N When & Type? _____
- m. Is there a kitchen exhaust fan? Y ☒ N If yes, where vented? _____
- n. Is there a bathroom exhaust fan? Y ☒ N If yes, where vented? _____
- o. Is there a clothes dryer? Y ☒ N If yes, is it vented outside? Y / N
- p. Has there been a pesticide application? Y ☒ N When & Type? _____

Are there odors in the building?

If yes, please describe: STRONG SOLVENT + LUBRICANT ODORS ☒ Y / N

Do any of the building occupants use solvents at work? ☒ Y / N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? CRYSTAL CLEAN MINERAL SPIRITS, OILANTS

If yes, are their clothes washed at work? Y ☒ N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

☒ No

Unknown

Is there a radon mitigation system for the building/structure? Y ☒ N Date of Installation: _____

Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: ☒ Public Water ☐ Drilled Well ☐ Driven Well ☐ Dug Well ☐ Other: _____

Sewage Disposal: ☒ Public Sewer ☐ Septic Tank ☐ Leach Field ☐ Dry Well ☐ Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency) N/A

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home ☐ relocate to friends/family ☐ relocate to hotel/motel ☐

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

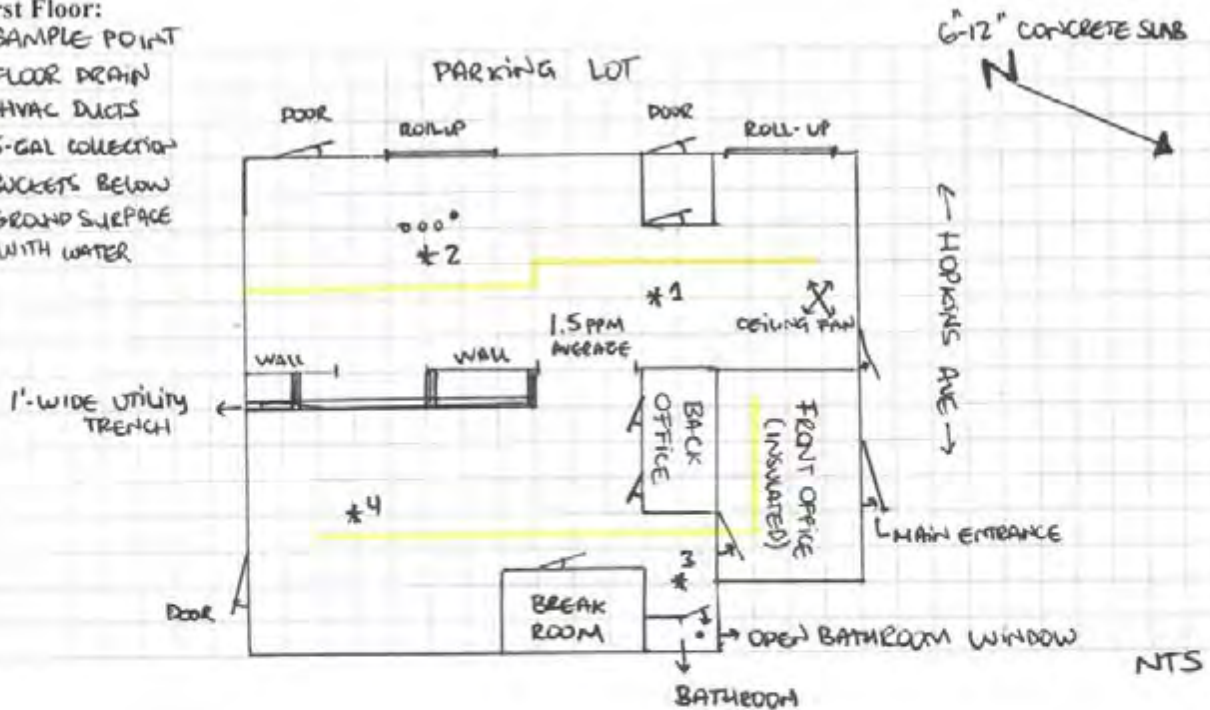
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement: N/A

First Floor:

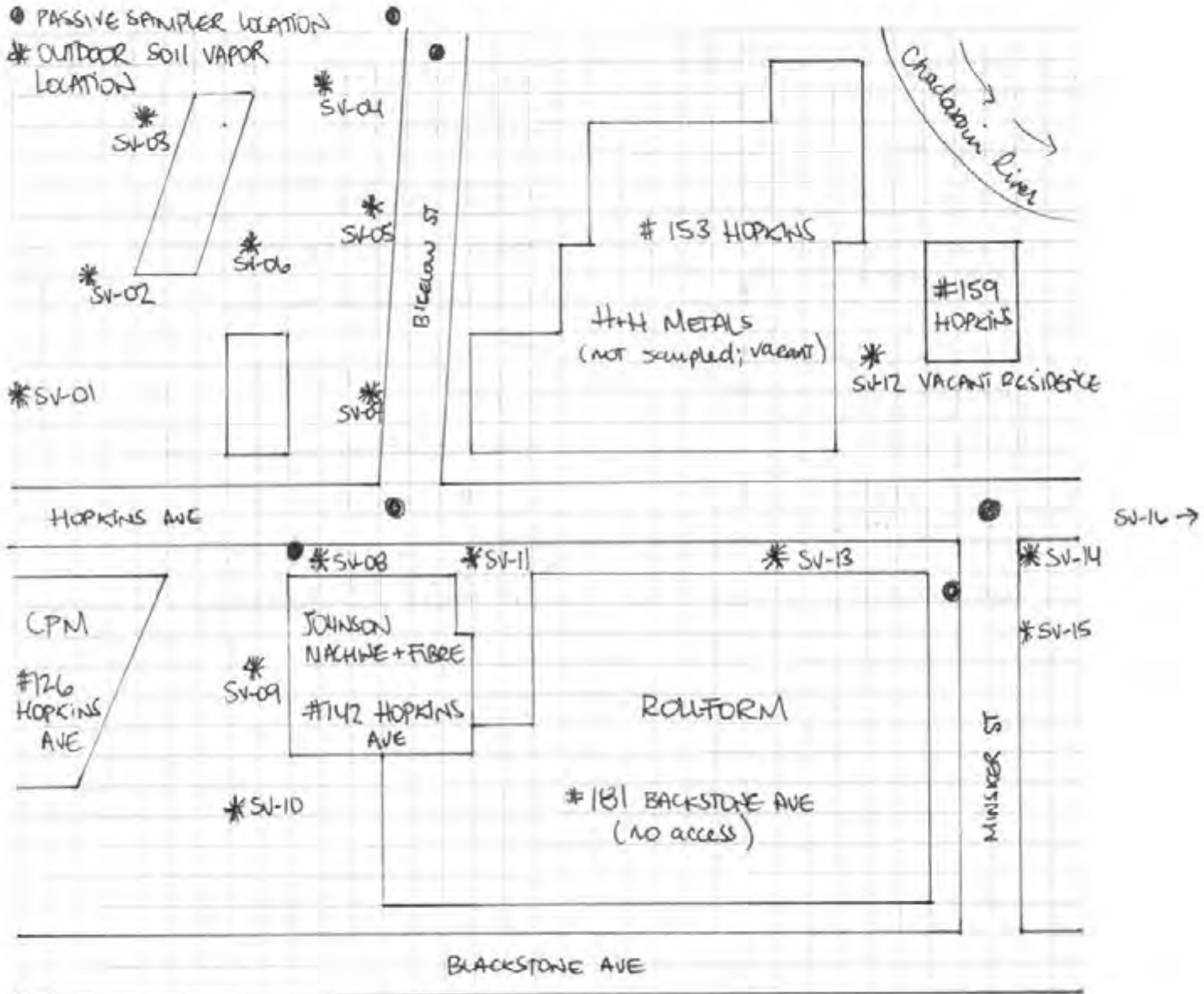
- * SAMPLE POINT
- FLOOR DRAIN
- HVAC DUCTS
- 5-GAL COLLECTION BUCKETS BELOW GROUND SURFACE WITH WATER



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



11/19/2019

NTS

WEATHER: Cloudy ~40°F.

WIND: 4 mph WEST.

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: MINI-EAE 3000+ PHOTOIONIZATION DETECTOR (PID)

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units) Gallons	Condition*	Chemical Ingredients	Field Instrument Reading (units) PPM	Photo** Y/N
MANUFACTURING AREA	HOCUT WS 8800	(2) SS	U	METAL COOLANT: METHANOL, GLYCOLS, GLUCEROL	0.5	N
	PROUT 82	(2) SS	U	OIL BASED METAL CUTTING FLUID	0.3	N
	CRYSTAL CLEAN 106	(8) SS	U	STANDARD SOLVENT	0.3	N
	UNMARKED LUBRICANTS	(5) S	U	BASE OIL + ADDITIVES	0.5	N
	UNMARKED HYDRAULIC OIL	(3) SS	U	OIL, BUTANOL, ESTERS, ADIPATES	0.1	N
	WOCOWAY 2 (15008)	(1) SS	U	LUBRICANT OIL	0.2	N
	SUPERCOOLANT 735B	(1) SS	U	CHLORINATED SEMISYNTHETIC COOLANT	49	Y
	TRIM OM 24A	(1) SS	U	CUTTING / GRINDING FLUID	2.1	Y
	SUPER C 241 MDCF	(1) SS	U	CUTTING COMPOUND	1.8	Y
	NAVI-GUARD PREMIUM AW 32	(1) SS	U	HYDRAULIC OIL, SOLVENTS, ESTER	2.5	Y
	WAY LUBE 68	(1) SS	U	PETROLEUM DISTILLATES, HYDRO-TREATED HEAVY PARAFFINIC	1.6	Y

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Appendix C

Data Quality Evaluation

1999 Bryan Street, Suite 1200
Dallas, Texas 75201
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www.jacobs.com

Subject Data Quality Evaluation for the 2019 Offsite Vapor Intrusion Investigation
Project Name Essex-Hope Site, Jamestown, New York
Attention The Dow Chemical Company
From Jacobs Engineering Group Inc.
Date March 2020

1. Introduction

This data quality evaluation report assesses the data quality of analytical results for sewer gas, soil vapor, and subslab soil gas samples collected from the Essex-Hope State Superfund site located at 125 Blackstone Avenue in Jamestown, New York. Jacobs Engineering Group Inc. (Jacobs) collected samples November 18 through November 21, 2019. Guidance for this report came from the *Quality Assurance Project Plan, Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York* (QAPP; CH2M HILL Engineers, Inc. [CH2M] 2016); QAPP Addendum (CH2M 2018); U.S. Environmental Protection Agency (EPA) *National Functional Guidelines for Superfund Organic Methods Data Review* (January 2017); and individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as described in the QAPP (CH2M 2016, 2018). This report is intended as a general data quality assessment designed to summarize data issues.

2. Analytical Data

Jacobs collected 15 soil vapor samples, 6 sewer gas samples, 4 subslab soil gas samples, 2 soil vapor field duplicate samples (FD), 1 sewer gas FD, and 1 subslab soil gas FD. The samples were reported in two sample delivery groups identified as 1911538 and L1956089. Samples were collected and delivered to Eurofins Air Toxics Laboratory in Folsom, California and Alpha Analytical Laboratory in Mansfield, Massachusetts. The samples were analyzed by one or more of the methods listed in Table 1.

Table 1. Analytical Parameters

2019 Offsite Vapor Intrusion Investigation, Essex-Hope Site, Jamestown, New York

Parameter	Method	Laboratory
Volatile Organic Compounds	TO-15	Alpha
Volatile Organic Compounds	TO-17	Air Toxics

The sample delivery groups were assessed by reviewing the chain-of-custody documentation, holding time compliance, calibration, method blanks, laboratory control spiking sample (LCS)/laboratory control spiking sample duplicate (LCSD) recoveries and precision, internal standard recoveries, surrogate spike recoveries, FD precision, and required method quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the QAPP (CH2M 2016, 2018). Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts. The data flags are those listed in the QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

3. Findings

The following subsections contain the overall summaries of the data validation. Qualified data are presented in Table 2.

3.1 Holding Time and Preservation

All holding time and preservation criteria were met.

3.2 Calibration

Initial and continuing calibration analyses were performed as required by the methods, and acceptance criteria were met.

3.3 Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

3.4 Laboratory Control Samples

LCS/LCSDs were analyzed as required, and accuracy and precision criteria were met.

3.5 Surrogates

Surrogates were added to the samples, and acceptance criteria were met.

3.6 Internal Standards

Internal standards were added to the samples, and acceptance criteria were met.

3.7 Field Duplicates

FDs were collected, analyzed, and precision criteria were met with the following exception:

- The relative percent difference (RPD) for trichloroethene (TCE) exceeded criteria in FD pair JMF-01-20191119/JMF-01-20191119-FD. The data were qualified as estimated results and flagged “J” in the FD pair.

3.8 Canister/Flow Controller Certifications

Jacobs collected the air samples in SUMMA canisters that were batch certified “clean” per project instructions before shipment to the project site.

3.9 Chain-of-Custody

Required procedures were followed, and the chains-of-custody were generally free of errors.

4. Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the above-defined events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include FD and LCS/LCSD RPDs. Precision was generally acceptable; however, TCE was qualified as estimated in two samples because of FD RPD issues. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias that could affect the decision-making process.
- Accuracy of the data was verified by reviewing the calibration, LCS/LCSD, surrogate, and internal standard recoveries, as well as the evaluation of method/field blank data. Accuracy was acceptable.
- Representativeness of the data was verified through the sample’s collection, storage, and preservation procedures and the verification of holding time compliance. No issues were reported for sample collection and storage procedures. The data were reported from analyses within the EPA-recommended holding time.
- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid.

The data can be used for project decisions taking into consideration the validation flags applied to the samples.

Table 2. Data Qualification Summary

2019 Offsite Vapor Intrusion Investigation, Essex-Hope Site, Jamestown, New York

Field ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
JMF-01-20191119	TO-15	Trichloroethene	µg/m ³	49.4	J	FD>RPD
JMF-01-20191119-FD	TO-15	Trichloroethene	µg/m ³	27	J	FD>RPD

Validation Reasons:

FD>RPD

The relative percent difference exceeded criteria in the FD pair

µg/m³ = micrograms per cubic meter

5. References

CH2M HILL Engineers, Inc. (CH2M). 2016. *Quality Assurance Project Plan for the Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York*. Prepared for Union Carbide Corporation. June.

CH2M HILL Engineers, Inc. (CH2M). 2018. *Quality Assurance Project Plan Addendum for the Site Characterization Investigation Activities, Essex-Hope Site, Jamestown, New York*. Prepared for Essex Specialty Products, Inc. August.

U.S. Environmental Protection Agency. 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. OLEM 9355.0-136. EPA-540-R-2017-002. January.

Appendix D

Laboratory Reports

12/4/2019
Ms. Shane Lowe
CH2M Hill
300 Hunter Ave
Suite 305
St. Louis MO 63124

Project Name: Essex-Hope Site
Project #: DWJMS003 A.CS.EV.01.04
Workorder #: 1911538

Dear Ms. Shane Lowe

The following report includes the data for the above referenced project for sample(s) received on 11/25/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Passive S.E. WMS are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker
Project Manager

WORK ORDER #: 1911538

Work Order Summary

CLIENT: Ms. Shane Lowe
CH2M Hill
300 Hunter Ave
Suite 305
St. Louis, MO 63124

BILL TO: Ms. Shane Lowe
CH2M Hill
300 Hunter Ave
Suite 305
St. Louis, MO 63124

PHONE: (314)-421-0900

P.O. #

FAX:

PROJECT # DWJMS003 A.CS.EV.01.04 Essex-Hope

DATE RECEIVED: 11/25/2019

CONTACT: Site
Brian Whittaker

DATE COMPLETED: 12/04/2019

FRACTION

NAME

TEST

01A	WMS-SE-01	Passive S.E. WMS
02A	WMS-SE-02	Passive S.E. WMS
03A	WMS-SE-03	Passive S.E. WMS
04A	WMS-SE-04	Passive S.E. WMS
05A	WMS-SE-05	Passive S.E. WMS
06A	WMS-SE-06	Passive S.E. WMS
07A	WMS-SE-06-FD	Passive S.E. WMS
08A	Lab Blank	Passive S.E. WMS
09A	LCS	Passive S.E. WMS
09AA	LCSD	Passive S.E. WMS

CERTIFIED BY:



Technical Director

DATE: 12/04/19

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
WMS Passive SE by Mod EPA TO-17
CH2M Hill
Workorder# 1911538

Seven WMS-SE samples were received on November 25, 2019. The laboratory analyzed the charcoal sorbent bed of the passive sampler following modified method EPA TO-17. The VOCs were chemically extracted using carbon disulfide and an aliquot of the extract was injected into a GC/MS for identification and quantification of volatile organic compounds (VOCs).

The mass of each target compound adsorbed by the sampler was converted to units of concentration using the sample deployment time and the sampling rate for each VOC. If sampling rates were calculated by the lab or the manufacturer, the concentration result has been flagged as an estimated value. Results are not corrected for desorption efficiency.

Please note that 1,1,2,2-Tetrachloroethane (1,1,2,2-PCA) can degrade into Trichloroethene (TCE) during storage on the charcoal-based sorbent used in the WMS device. Samples containing 1,1,2,2-PCA may yield reduced concentrations of 1,1,2,2-PCA and elevated concentrations of TCE.

The reference method used for this procedure is EPA TO-17, which describes the collection of VOCs in ambient air using sorbents and analysis by GC/MS. Because TO-17 describes active sample collection using a pump and thermal desorption as the preparation step, several modifications are required. Modifications to TO-17 are listed in the table below:

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
Sample Collection	Pump pulls measured air volume through sorbent tube	VOCs in air adsorbed onto sorbent bed passively through diffusion
Sample Preparation	Thermal extraction	Solvent extraction
Sorbent tube conditioning	Condition newly packed tubes prior to use	Charcoal-based sorbent is a single use media and conditioning is conducted by vendor.
Instrumentation	Thermal desorption introduction system	Liquid injection introduction system
Internal Standard	Gas-phase internal standard introduced on the tube or focusing trap during analysis	Liquid-phase internal standard introduced on the tube at the time of extraction
Media and sample storage	<4 deg C, 30 days	Media shelf life is determined by vendor; sample hold-time is 6 months for the RAD130 and WMS. Sample preservation requirements are storage in a cool, solvent-free refrigerator and optional use of ice during shipping.
Internal Standard Recovery	+/-40% of daily CCV area	-50% to +100% of daily CCV area

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

To calculate ug/m3 concentrations in the Lab Blank, a sampling duration of 5288 minutes was applied. The assumed temperature used for the uptake rate is listed on the data page. If the field temperatures were provided, the rate was adjusted in the same manner as the field samples.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

C - Estimated concentration due to calculated sampling rate

CN - See case narrative explanation.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds VOC BY PASSIVE SAMPLER - GC/MS

Client Sample ID: WMS-SE-01

Lab ID#: 1911538-01A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Tetrachloroethene	0.050	2.4	0.011 J	0.54 J

Client Sample ID: WMS-SE-02

Lab ID#: 1911538-02A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.050	5.0	0.35	35
Trichloroethene	0.050	3.6	2.1	150
Tetrachloroethene	0.050	2.4	0.016 J	0.80 J

Client Sample ID: WMS-SE-03

Lab ID#: 1911538-03A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Tetrachloroethene	0.050	2.4	0.0067 J	0.33 J

Client Sample ID: WMS-SE-04

Lab ID#: 1911538-04A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.050	5.0	0.087	8.7
Trichloroethene	0.050	3.7	0.46	34
Tetrachloroethene	0.050	2.4	0.0095 J	0.46 J

Client Sample ID: WMS-SE-05

Lab ID#: 1911538-05A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Tetrachloroethene	0.050	2.4	0.0085 J	0.41 J

Client Sample ID: WMS-SE-06

Lab ID#: 1911538-06A

Summary of Detected Compounds VOC BY PASSIVE SAMPLER - GC/MS

Client Sample ID: WMS-SE-06

Lab ID#: 1911538-06A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.050	3.6	0.023 J	1.6 J
Tetrachloroethene	0.050	2.4	0.027 J	1.3 J

Client Sample ID: WMS-SE-06-FD

Lab ID#: 1911538-07A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Trichloroethene	0.050	3.6	0.024 J	1.8 J



Air Toxics

Client Sample ID: WMS-SE-01

Lab ID#: 1911538-01A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120309sim	Date of Collection: 11/22/19 7:50:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 11:33 AM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.6	Not Detected	Not Detected
Tetrachloroethene	0.050	2.4	0.011 J	0.54 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5258 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	79	70-130



Air Toxics

Client Sample ID: WMS-SE-02

Lab ID#: 1911538-02A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120310sim	Date of Collection: 11/22/19 7:45:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 11:59 AM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	0.35	35
Trichloroethene	0.050	3.6	2.1	150
Tetrachloroethene	0.050	2.4	0.016 J	0.80 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5272 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: WMS-SE-03

Lab ID#: 1911538-03A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120311sim	Date of Collection: 11/22/19 8:05:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 12:25 PM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.7	Not Detected	Not Detected
Tetrachloroethene	0.050	2.4	0.0067 J	0.33 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5241 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	79	70-130



Air Toxics

Client Sample ID: WMS-SE-04

Lab ID#: 1911538-04A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120312sim	Date of Collection: 11/22/19 8:00:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 12:51 PM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	0.087	8.7
Trichloroethene	0.050	3.7	0.46	34
Tetrachloroethene	0.050	2.4	0.0095 J	0.46 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5245 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: WMS-SE-05

Lab ID#: 1911538-05A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120313sim	Date of Collection: 11/22/19 7:30:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 01:16 PM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.6	Not Detected	Not Detected
Tetrachloroethene	0.050	2.4	0.0085 J	0.41 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5275 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: WMS-SE-06

Lab ID#: 1911538-06A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120314sim	Date of Collection: 11/22/19 7:28:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 01:42 PM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.6	0.023 J	1.6 J
Tetrachloroethene	0.050	2.4	0.027 J	1.3 J

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5288 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	79	70-130



Air Toxics

Client Sample ID: WMS-SE-06-FD

Lab ID#: 1911538-07A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120315sim	Date of Collection: 11/22/19 7:28:00 AM
Dil. Factor:	1.00	Date of Analysis: 12/3/19 02:08 PM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.6	0.024 J	1.8 J
Tetrachloroethene	0.050	2.4	Not Detected	Not Detected

J = Estimated value.

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5288 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1911538-08A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120307sima	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/3/19 10:42 AM
		Date of Extraction: 12/3/19

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Vinyl Chloride	0.20	32	Not Detected	Not Detected
1,1-Dichloroethene	0.20	27	Not Detected	Not Detected
trans-1,2-Dichloroethene	0.10	12	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.050	5.0	Not Detected	Not Detected
Trichloroethene	0.050	3.6	Not Detected	Not Detected
Tetrachloroethene	0.050	2.4	Not Detected	Not Detected

Results of ND are equal to a "U" qualifier flag and were Not Detected at the RL.

Temperature = 77.0F , duration time = 5288 minutes.

Container Type: WMS-SE

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1911538-09A

VOC BY PASSIVE SAMPLER - GC/MS

File Name:	c120303sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/3/19 08:56 AM
		Date of Extraction: 12/3/19

Compound	%Recovery	Method Limits
Vinyl Chloride	95	50-140
1,1-Dichloroethene	100	70-130
trans-1,2-Dichloroethene	98	70-130
cis-1,2-Dichloroethene	96	70-130
Trichloroethene	100	70-130
Tetrachloroethene	93	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	78	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1911538-09AA

VOC BY PASSIVE SAMPLER - GC/MS

File Name: c120306sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 12/3/19 10:16 AM
Date of Extraction: 12/3/19

Compound	%Recovery	Method Limits
Vinyl Chloride	102	50-140
1,1-Dichloroethene	106	70-130
trans-1,2-Dichloroethene	104	70-130
cis-1,2-Dichloroethene	102	70-130
Trichloroethene	102	70-130
Tetrachloroethene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	79	70-130



ANALYTICAL REPORT

Lab Number:	L1956089
Client:	Jacobs Engineering Group 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS003.C.CS.TPE.01
Report Date:	12/02/19

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Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1956089-01	JMF-01-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 12:47	11/21/19
L1956089-02	JMF-01-20191119-FD	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 12:47	11/21/19
L1956089-03	JMF-02-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 13:53	11/21/19
L1956089-04	JMF-03-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 13:25	11/21/19
L1956089-05	JMF-04-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 14:19	11/21/19
L1956089-06	SV-01-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 17:00	11/21/19
L1956089-07	SV-02-20191119	SOIL_VAPOR	JAMESTOWN, NY	11/19/19 17:27	11/21/19
L1956089-08	SV-03-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 11:17	11/21/19
L1956089-09	SV-05-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 12:38	11/21/19
L1956089-10	SV-06-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 13:02	11/21/19
L1956089-11	SV-08-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 14:12	11/21/19
L1956089-12	SV-09-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 13:33	11/21/19
L1956089-13	SV-10-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 17:05	11/21/19
L1956089-14	SV-10-20191120-FD	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 17:05	11/21/19
L1956089-15	SV-11-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 14:40	11/21/19
L1956089-16	SV-12-20191120	SOIL_VAPOR	JAMESTOWN, NY	11/20/19 17:29	11/21/19
L1956089-17	SV-07-20191121	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 08:59	11/21/19
L1956089-18	SV-07-20191121-FD	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 08:59	11/21/19
L1956089-19	SV-14-20191121	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 10:18	11/21/19
L1956089-20	SV-15-20191121	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 10:59	11/21/19
L1956089-21	SV-16-20191121	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 11:26	11/21/19
L1956089-22	SV-04-20191121	SOIL_VAPOR	JAMESTOWN, NY	11/21/19 13:31	11/21/19
L1956089-23	UNUSED CAN #1931	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-24	UNUSED CAN #2148	SOIL_VAPOR	JAMESTOWN, NY		11/21/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1956089-25	UNUSED CAN #2150	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-26	UNUSED CAN #2413	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-27	UNUSED CAN #2497	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-28	UNUSED CAN #840	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-29	UNUSED CAN #834	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-30	UNUSED CAN #1925	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-31	UNUSED CAN #1506	SOIL_VAPOR	JAMESTOWN, NY		11/21/19
L1956089-32	UNUSED CAN #1816	AIR	JAMESTOWN, NY		11/21/19
L1956089-33	UNUSED CAN #1797	AIR	JAMESTOWN, NY		11/21/19
L1956089-34	UNUSED CAN #2616	AIR	JAMESTOWN, NY		11/21/19
L1956089-35	UNUSED CAN #2905	AIR	JAMESTOWN, NY		11/21/19
L1956089-36	UNUSED CAN #993	AIR	JAMESTOWN, NY		11/21/19
L1956089-37	UNUSED CAN #3121	AIR	JAMESTOWN, NY		11/21/19
L1956089-38	UNUSED CAN #1578	AIR	JAMESTOWN, NY		11/21/19
L1956089-39	UNUSED CAN #1846	AIR	JAMESTOWN, NY		11/21/19
L1956089-40	UNUSED CAN #1976	AIR	JAMESTOWN, NY		11/21/19

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on November 14, 2019. The canister certification results are provided as an addendum.

L1956089-01 through -12: Prior to sample analysis, the canisters were pressurized with UHP Nitrogen due to canister size. The pressurization resulted in a dilution of the samples. The reporting limits have been elevated accordingly.

L1956089-13 through -22: Prior to sample analysis, the canisters were pressurized with UHP Nitrogen due to canister size. The pressurization resulted in a dilution of the sample. The reporting limits have been elevated accordingly.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Christopher J. Anderson

Title: Technical Director/Representative

Date: 12/02/19

AIR

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-01 D
 Client ID: JMF-01-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 12:47
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 17:39
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.408	--	ND	1.04	--		2.042
1,1-Dichloroethene	ND	0.408	--	ND	1.62	--		2.042
trans-1,2-Dichloroethene	ND	0.408	--	ND	1.62	--		2.042
cis-1,2-Dichloroethene	0.882	0.408	--	3.50	1.62	--		2.042
Trichloroethene	9.20	0.408	--	49.4	2.19	--		2.042
Tetrachloroethene	0.702	0.408	--	4.76	2.77	--		2.042

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	95		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-02 D
 Client ID: JMF-01-20191119-FD
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 12:47
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 18:18
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.413	--	ND	1.06	--		2.063
1,1-Dichloroethene	ND	0.413	--	ND	1.64	--		2.063
trans-1,2-Dichloroethene	ND	0.413	--	ND	1.64	--		2.063
cis-1,2-Dichloroethene	0.804	0.413	--	3.19	1.64	--		2.063
Trichloroethene	5.02	0.413	--	27.0	2.22	--		2.063
Tetrachloroethene	0.741	0.413	--	5.02	2.80	--		2.063

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	101		60-140
chlorobenzene-d5	90		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-03 D
 Client ID: JMF-02-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 13:53
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 18:57
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.477	--	ND	1.22	--		2.387
1,1-Dichloroethene	ND	0.477	--	ND	1.89	--		2.387
trans-1,2-Dichloroethene	ND	0.477	--	ND	1.89	--		2.387
cis-1,2-Dichloroethene	0.902	0.477	--	3.58	1.89	--		2.387
Trichloroethene	3.18	0.477	--	17.1	2.56	--		2.387
Tetrachloroethene	1.50	0.477	--	10.2	3.23	--		2.387

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	90		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-04 D
 Client ID: JMF-03-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 13:25
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 19:36
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.493	--	ND	1.26	--		2.467
1,1-Dichloroethene	ND	0.493	--	ND	1.95	--		2.467
trans-1,2-Dichloroethene	ND	0.493	--	ND	1.95	--		2.467
cis-1,2-Dichloroethene	1.10	0.493	--	4.36	1.95	--		2.467
Trichloroethene	3.89	0.493	--	20.9	2.65	--		2.467
Tetrachloroethene	0.920	0.493	--	6.24	3.34	--		2.467

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	101		60-140
chlorobenzene-d5	93		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-05 D
 Client ID: JMF-04-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 14:19
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 20:15
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.468	--	ND	1.20	--		2.341
1,1-Dichloroethene	ND	0.468	--	ND	1.86	--		2.341
trans-1,2-Dichloroethene	ND	0.468	--	ND	1.86	--		2.341
cis-1,2-Dichloroethene	1.26	0.468	--	5.00	1.86	--		2.341
Trichloroethene	2.94	0.468	--	15.8	2.52	--		2.341
Tetrachloroethene	1.01	0.468	--	6.85	3.17	--		2.341

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	92		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-06 D
 Client ID: SV-01-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 17:00
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 20:54
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.404	--	ND	1.03	--		2.021
1,1-Dichloroethene	ND	0.404	--	ND	1.60	--		2.021
trans-1,2-Dichloroethene	ND	0.404	--	ND	1.60	--		2.021
cis-1,2-Dichloroethene	ND	0.404	--	ND	1.60	--		2.021
Trichloroethene	74.2	0.404	--	399	2.17	--		2.021
Tetrachloroethene	2.70	0.404	--	18.3	2.74	--		2.021

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	91		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-07 D
 Client ID: SV-02-20191119
 Sample Location: JAMESTOWN, NY

Date Collected: 11/19/19 17:27
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 21:33
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.406	--	ND	1.04	--		2.028
1,1-Dichloroethene	ND	0.406	--	ND	1.61	--		2.028
trans-1,2-Dichloroethene	ND	0.406	--	ND	1.61	--		2.028
cis-1,2-Dichloroethene	ND	0.406	--	ND	1.61	--		2.028
Trichloroethene	0.558	0.406	--	3.00	2.18	--		2.028
Tetrachloroethene	2.44	0.406	--	16.5	2.75	--		2.028

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	88		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-08 D
 Client ID: SV-03-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 11:17
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 22:13
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.406	--	ND	1.04	--		2.028
1,1-Dichloroethene	ND	0.406	--	ND	1.61	--		2.028
trans-1,2-Dichloroethene	ND	0.406	--	ND	1.61	--		2.028
cis-1,2-Dichloroethene	1.16	0.406	--	4.60	1.61	--		2.028
Trichloroethene	2.30	0.406	--	12.4	2.18	--		2.028
Tetrachloroethene	57.7	0.406	--	391	2.75	--		2.028

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	90		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-09 D
 Client ID: SV-05-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 12:38
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 23:31
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.418	--	ND	1.07	--		2.092
1,1-Dichloroethene	ND	0.418	--	ND	1.66	--		2.092
trans-1,2-Dichloroethene	ND	0.418	--	ND	1.66	--		2.092
cis-1,2-Dichloroethene	0.533	0.418	--	2.11	1.66	--		2.092
Trichloroethene	1.19	0.418	--	6.40	2.25	--		2.092
Tetrachloroethene	1.65	0.418	--	11.2	2.83	--		2.092

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	90		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-10 D
 Client ID: SV-06-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 13:02
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/28/19 00:10
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.408	--	ND	1.04	--		2.041
1,1-Dichloroethene	ND	0.408	--	ND	1.62	--		2.041
trans-1,2-Dichloroethene	ND	0.408	--	ND	1.62	--		2.041
cis-1,2-Dichloroethene	ND	0.408	--	ND	1.62	--		2.041
Trichloroethene	1.78	0.408	--	9.57	2.19	--		2.041
Tetrachloroethene	0.945	0.408	--	6.41	2.77	--		2.041

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	85		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	86		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-11 D
 Client ID: SV-08-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 14:12
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/28/19 00:49
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.407	--	ND	1.04	--		2.035
1,1-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
trans-1,2-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
cis-1,2-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
Trichloroethene	1.80	0.407	--	9.67	2.19	--		2.035
Tetrachloroethene	ND	0.407	--	ND	2.76	--		2.035

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	83		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	90		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-12 D
 Client ID: SV-09-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 13:33
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/28/19 01:28
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.447	--	ND	1.14	--		2.235
1,1-Dichloroethene	ND	0.447	--	ND	1.77	--		2.235
trans-1,2-Dichloroethene	ND	0.447	--	ND	1.77	--		2.235
cis-1,2-Dichloroethene	ND	0.447	--	ND	1.77	--		2.235
Trichloroethene	0.943	0.447	--	5.07	2.40	--		2.235
Tetrachloroethene	0.659	0.447	--	4.47	3.03	--		2.235

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	83		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	85		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-13 D
 Client ID: SV-10-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 17:05
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 17:41
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	0.804	0.462	--	2.06	1.18	--		2.312
1,1-Dichloroethene	ND	0.462	--	ND	1.83	--		2.312
trans-1,2-Dichloroethene	ND	0.462	--	ND	1.83	--		2.312
cis-1,2-Dichloroethene	1.12	0.462	--	4.44	1.83	--		2.312
Trichloroethene	2.43	0.462	--	13.1	2.48	--		2.312
Tetrachloroethene	ND	0.462	--	ND	3.13	--		2.312

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	94		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-14 D
 Client ID: SV-10-20191120-FD
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 17:05
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 18:14
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	0.692	0.444	--	1.77	1.13	--		2.218
1,1-Dichloroethene	ND	0.444	--	ND	1.76	--		2.218
trans-1,2-Dichloroethene	ND	0.444	--	ND	1.76	--		2.218
cis-1,2-Dichloroethene	0.894	0.444	--	3.54	1.76	--		2.218
Trichloroethene	2.05	0.444	--	11.0	2.39	--		2.218
Tetrachloroethene	ND	0.444	--	ND	3.01	--		2.218

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-15 D
 Client ID: SV-11-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 14:40
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 18:46
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.444	--	ND	1.13	--		2.218
1,1-Dichloroethene	ND	0.444	--	ND	1.76	--		2.218
trans-1,2-Dichloroethene	ND	0.444	--	ND	1.76	--		2.218
cis-1,2-Dichloroethene	ND	0.444	--	ND	1.76	--		2.218
Trichloroethene	1.65	0.444	--	8.87	2.39	--		2.218
Tetrachloroethene	ND	0.444	--	ND	3.01	--		2.218

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	93		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-16 D
 Client ID: SV-12-20191120
 Sample Location: JAMESTOWN, NY

Date Collected: 11/20/19 17:29
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 19:19
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.445	--	ND	1.14	--		2.226
1,1-Dichloroethene	ND	0.445	--	ND	1.76	--		2.226
trans-1,2-Dichloroethene	ND	0.445	--	ND	1.76	--		2.226
cis-1,2-Dichloroethene	ND	0.445	--	ND	1.76	--		2.226
Trichloroethene	4.09	0.445	--	22.0	2.39	--		2.226
Tetrachloroethene	ND	0.445	--	ND	3.02	--		2.226

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	89		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-17 D
 Client ID: SV-07-20191121
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 08:59
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 20:23
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	0.628	0.466	--	1.61	1.19	--		2.328
1,1-Dichloroethene	ND	0.466	--	ND	1.85	--		2.328
trans-1,2-Dichloroethene	ND	0.466	--	ND	1.85	--		2.328
cis-1,2-Dichloroethene	0.663	0.466	--	2.63	1.85	--		2.328
Trichloroethene	1.60	0.466	--	8.60	2.50	--		2.328
Tetrachloroethene	ND	0.466	--	ND	3.16	--		2.328

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	89		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-18 D
 Client ID: SV-07-20191121-FD
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 08:59
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 20:56
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.428	--	ND	1.09	--		2.138
1,1-Dichloroethene	ND	0.428	--	ND	1.70	--		2.138
trans-1,2-Dichloroethene	ND	0.428	--	ND	1.70	--		2.138
cis-1,2-Dichloroethene	0.504	0.428	--	2.00	1.70	--		2.138
Trichloroethene	1.35	0.428	--	7.26	2.30	--		2.138
Tetrachloroethene	ND	0.428	--	ND	2.90	--		2.138

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		60-140
Bromochloromethane	90		60-140
chlorobenzene-d5	89		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-19 D
 Client ID: SV-14-20191121
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 10:18
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 21:28
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.449	--	ND	1.15	--		2.244
1,1-Dichloroethene	ND	0.449	--	ND	1.78	--		2.244
trans-1,2-Dichloroethene	ND	0.449	--	ND	1.78	--		2.244
cis-1,2-Dichloroethene	ND	0.449	--	ND	1.78	--		2.244
Trichloroethene	0.671	0.449	--	3.61	2.41	--		2.244
Tetrachloroethene	ND	0.449	--	ND	3.04	--		2.244

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	89		60-140
chlorobenzene-d5	88		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-20 D
 Client ID: SV-15-20191121
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 10:59
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 22:00
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.459	--	ND	1.17	--		2.295
1,1-Dichloroethene	ND	0.459	--	ND	1.82	--		2.295
trans-1,2-Dichloroethene	ND	0.459	--	ND	1.82	--		2.295
cis-1,2-Dichloroethene	ND	0.459	--	ND	1.82	--		2.295
Trichloroethene	ND	0.459	--	ND	2.47	--		2.295
Tetrachloroethene	ND	0.459	--	ND	3.11	--		2.295

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		60-140
Bromochloromethane	91		60-140
chlorobenzene-d5	87		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-21 D
 Client ID: SV-16-20191121
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 11:26
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 22:32
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.445	--	ND	1.14	--		2.227
1,1-Dichloroethene	ND	0.445	--	ND	1.76	--		2.227
trans-1,2-Dichloroethene	ND	0.445	--	ND	1.76	--		2.227
cis-1,2-Dichloroethene	ND	0.445	--	ND	1.76	--		2.227
Trichloroethene	31.4	0.445	--	169	2.39	--		2.227
Tetrachloroethene	1.14	0.445	--	7.73	3.02	--		2.227

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	89		60-140
chlorobenzene-d5	88		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

SAMPLE RESULTS

Lab ID: L1956089-22 D
 Client ID: SV-04-20191121
 Sample Location: JAMESTOWN, NY

Date Collected: 11/21/19 13:31
 Date Received: 11/21/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil_Vapor
 Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 23:05
 Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Vinyl chloride	ND	0.407	--	ND	1.04	--		2.035
1,1-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
trans-1,2-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
cis-1,2-Dichloroethene	ND	0.407	--	ND	1.61	--		2.035
Trichloroethene	0.952	0.407	--	5.12	2.19	--		2.035
Tetrachloroethene	ND	0.407	--	ND	2.76	--		2.035

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	86		60-140
Bromochloromethane	89		60-140
chlorobenzene-d5	88		60-140



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15
 Analytical Date: 11/27/19 14:18

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 13-22 Batch: WG1314811-4								
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 11/27/19 14:31

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01-12 Batch: WG1314813-4								
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Parameter	<i>LCS</i> %Recovery	Qual	<i>LCSD</i> %Recovery	Qual	<i>%Recovery</i> Limits	RPD	Qual	<i>RPD</i> Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 13-22 Batch: WG1314811-3								
Vinyl chloride	104		-		70-130	-		
1,1-Dichloroethene	103		-		70-130	-		
trans-1,2-Dichloroethene	90		-		70-130	-		
cis-1,2-Dichloroethene	93		-		70-130	-		
Trichloroethene	104		-		70-130	-		
Tetrachloroethene	82		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Parameter	<i>LCS</i> %Recovery	Qual	<i>LCSD</i> %Recovery	Qual	<i>%Recovery</i> Limits	RPD	Qual	<i>RPD</i> Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-12 Batch: WG1314813-3								
Vinyl chloride	105		-		70-130	-		
1,1-Dichloroethene	113		-		70-130	-		
trans-1,2-Dichloroethene	100		-		70-130	-		
cis-1,2-Dichloroethene	106		-		70-130	-		
Trichloroethene	102		-		70-130	-		
Tetrachloroethene	76		-		70-130	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 13-22 QC Batch ID: WG1314811-5 QC Sample: L1956089-16 Client ID: SV-12-20191120						
Vinyl chloride	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Trichloroethene	4.09	3.93	ppbV	4		25
Tetrachloroethene	ND	ND	ppbV	NC		25
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1314813-5 QC Sample: L1956089-08 Client ID: SV-03-20191120						
Vinyl chloride	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	1.16	1.13	ppbV	3		25
Trichloroethene	2.30	2.24	ppbV	3		25
Tetrachloroethene	57.7	56.7	ppbV	2		25

Project Name: ESSEX/HOPE

Lab Number: L1956089

Serial_No:12021916:26

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-01	JMF-01-20191119	669	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-2.8	-	-	-	-
L1956089-02	JMF-01-20191119-FD	01319	SV200	11/14/19	306029		-	-	-	Pass	215	188	13
L1956089-02	JMF-01-20191119-FD	823	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-2.8	-	-	-	-
L1956089-03	JMF-02-20191119	01329	SV200	11/14/19	306029		-	-	-	Pass	215	190	12
L1956089-03	JMF-02-20191119	2415	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-3.3	-	-	-	-
L1956089-04	JMF-03-20191119	01571	SV200	11/14/19	306029		-	-	-	Pass	218	192	13
L1956089-04	JMF-03-20191119	718	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-2.8	-	-	-	-
L1956089-05	JMF-04-20191119	0518	SV200	11/14/19	306029		-	-	-	Pass	218	186	16
L1956089-05	JMF-04-20191119	571	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-2.8	-	-	-	-
L1956089-06	SV-01-20191119	0685	SV200	11/14/19	306029		-	-	-	Pass	217	189	14
L1956089-06	SV-01-20191119	2418	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.2	-2.5	-	-	-	-
L1956089-07	SV-02-20191119	01572	SV200	11/14/19	306029		-	-	-	Pass	217	192	12
L1956089-07	SV-02-20191119	875	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.2	-2.2	-	-	-	-
L1956089-08	SV-03-20191120	0581	Flow 1	11/14/19	306029		-	-	-	Pass	200	192	4
L1956089-08	SV-03-20191120	660	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-1.8	-	-	-	-

Project Name: ESSEX/HOPE

Serial_No:12021916:26
Lab Number: L1956089

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-09	SV-05-20191120	01573	SV200	11/14/19	306029		-	-	-	Pass	216	196	10
L1956089-09	SV-05-20191120	908	1.0L Can	11/14/19	306029	L1953775-02	Pass	-29.3	-2.0	-	-	-	-
L1956089-10	SV-06-20191120	0885	SV200	11/14/19	306029		-	-	-	Pass	216	195	10
L1956089-10	SV-06-20191120	1694	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.2	-1.5	-	-	-	-
L1956089-11	SV-08-20191120	0193	Flow 1	11/14/19	306029		-	-	-	Pass	200	198	1
L1956089-11	SV-08-20191120	1959	1.0L Can	11/14/19	306029	L1953775-02	Pass	-29.3	-1.9	-	-	-	-
L1956089-12	SV-09-20191120	01123	Flow 1	11/14/19	306029		-	-	-	Pass	193	164	16
L1956089-12	SV-09-20191120	2468	1.0L Can	11/14/19	306029	L1953775-02	Pass	-29.3	-1.7	-	-	-	-
L1956089-13	SV-10-20191120	2173	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.2	-1.5	-	-	-	-
L1956089-14	SV-10-20191120-FD	0538	SV200	11/14/19	306029		-	-	-	Pass	211	194	8
L1956089-14	SV-10-20191120-FD	735	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-1.5	-	-	-	-
L1956089-15	SV-11-20191120	0839	Flow 1	11/14/19	306029		-	-	-	Pass	200	196	2
L1956089-15	SV-11-20191120	680	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.6	-1.5	-	-	-	-
L1956089-16	SV-12-20191120	0611	SV200	11/14/19	306029		-	-	-	Pass	216	192	12
L1956089-16	SV-12-20191120	2495	1.0L Can	11/14/19	306029	L1953775-02	Pass	-29.3	-1.6	-	-	-	-



Project Name: ESSEX/HOPE

Lab Number: L1956089

Serial_No:12021916:26

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-17	SV-07-20191121	717	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.4	-1.5	-	-	-	-
L1956089-18	SV-07-20191121-FD	01328	SV200	11/14/19	306029		-	-	-	Pass	217	185	16
L1956089-18	SV-07-20191121-FD	698	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.2	-1.6	-	-	-	-
L1956089-19	SV-14-20191121	0520	SV200	11/14/19	306029		-	-	-	Pass	218	186	16
L1956089-19	SV-14-20191121	1915	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.2	-2.0	-	-	-	-
L1956089-20	SV-15-20191121	0601	SV200	11/14/19	306029		-	-	-	Pass	217	188	14
L1956089-20	SV-15-20191121	1496	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-2.3	-	-	-	-
L1956089-21	SV-16-20191121	01194	SV200	11/14/19	306029		-	-	-	Pass	217	193	12
L1956089-21	SV-16-20191121	715	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-1.6	-	-	-	-
L1956089-22	SV-04-20191121	0683	SV200	11/14/19	306029		-	-	-	Pass	213	191	11
L1956089-22	SV-04-20191121	799	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-2.0	-	-	-	-
L1956089-23	UNUSED CAN #1931	01568	SV200	11/14/19	306029		-	-	-	Pass	217	187	15
L1956089-23	UNUSED CAN #1931	1931	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-28.7	-	-	-	-
L1956089-24	UNUSED CAN #2148	01052	SV200	11/14/19	306029		-	-	-	Pass	211	188	12
L1956089-24	UNUSED CAN #2148	2148	1.0L Can	11/14/19	306029	L1953775-06	Pass	-28.3	-27.4	-	-	-	-

Project Name: ESSEX/HOPE

Serial_No:12021916:26
Lab Number: L1956089

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-25	UNUSED CAN #2150	01524	Flow 1	11/14/19	306029		-	-	-	Pass	200	195	3
L1956089-25	UNUSED CAN #2150	2150	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-28.9	-	-	-	-
L1956089-26	UNUSED CAN #2413	0852	SV200	11/14/19	306029		-	-	-	Pass	218	196	11
L1956089-26	UNUSED CAN #2413	2413	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-28.9	-	-	-	-
L1956089-27	UNUSED CAN #2497	0684	SV200	11/14/19	306029		-	-	-	Pass	217	195	11
L1956089-27	UNUSED CAN #2497	2497	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-29.1	-	-	-	-
L1956089-28	UNUSED CAN #840	0710	SV200	11/14/19	306029		-	-	-	Pass	217	194	11
L1956089-28	UNUSED CAN #840	840	1.0L Can	11/14/19	306029	L1953775-06	Pass	-29.3	-28.7	-	-	-	-
L1956089-29	UNUSED CAN #834	01570	SV200	11/14/19	306029		-	-	-	Pass	217	187	15
L1956089-29	UNUSED CAN #834	834	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.2	-29.1	-	-	-	-
L1956089-30	UNUSED CAN #1925	0570	SV200	11/14/19	306029		-	-	-	Pass	210	180	15
L1956089-30	UNUSED CAN #1925	1925	1.0L Can	11/14/19	306029	L1952885-05	Pass	-29.3	-28.0	-	-	-	-
L1956089-31	UNUSED CAN #1506	0318	Flow 1	11/14/19	306029		-	-	-	Pass	200	163	20
L1956089-31	UNUSED CAN #1506	1506	1.0L Can	11/14/19	306029	L1953775-06	Pass	-28.0	-25.3	-	-	-	-
L1956089-32	UNUSED CAN #1816	01552	Flow 3	11/14/19	306029		-	-	-	Pass	10.0	10.0	0

Project Name: ESSEX/HOPE

Serial_No:12021916:26
Lab Number: L1956089

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-32	UNUSED CAN #1816	1816	6.0L Can	11/14/19	306029	L1952039-06	Pass	-29.7	-29.1	-	-	-	-
L1956089-33	UNUSED CAN #1797	01100	Flow 3	11/14/19	306029		-	-	-	Pass	10.0	10.7	7
L1956089-33	UNUSED CAN #1797	1797	6.0L Can	11/14/19	306029	L1952039-08	Pass	-29.7	-28.8	-	-	-	-
L1956089-34	UNUSED CAN #2616	01492	Flow 3	11/14/19	306029		-	-	-	Pass	10.0	10.3	3
L1956089-34	UNUSED CAN #2616	2616	6.0L Can	11/14/19	306029	L1951701-07	Pass	-29.7	-29.1	-	-	-	-
L1956089-35	UNUSED CAN #2905	0909	Flow 4	11/14/19	306029		-	-	-	Pass	10.0	7.2	33
L1956089-35	UNUSED CAN #2905	2905	6.0L Can	11/14/19	306029	L1952252-03	Pass	-29.7	-29.1	-	-	-	-
L1956089-36	UNUSED CAN #993	01444	Flow 4	11/14/19	306029		-	-	-	Pass	9.0	7.6	17
L1956089-36	UNUSED CAN #993	993	6.0L Can	11/14/19	306029	L1952572-03	Pass	-29.7	0.0	-	-	-	-
L1956089-37	UNUSED CAN #3121	0756	Flow 3	11/14/19	306029		-	-	-	Pass	9.6	8.1	17
L1956089-37	UNUSED CAN #3121	3121	6.0L Can	11/14/19	306029	L1946560-04	Pass	-29.7	-28.8	-	-	-	-
L1956089-38	UNUSED CAN #1578	01557	Flow 3	11/14/19	306029		-	-	-	Pass	10.0	9.9	1
L1956089-38	UNUSED CAN #1578	1578	6.0L Can	11/14/19	306029	L1952885-08	Pass	-29.7	0.0	-	-	-	-
L1956089-39	UNUSED CAN #1846	01438	Flow 3	11/14/19	306029		-	-	-	Pass	10.0	10.7	7
L1956089-39	UNUSED CAN #1846	1846	6.0L Can	11/14/19	306029	L1952572-06	Pass	-29.7	-28.8	-	-	-	-

Project Name: ESSEX/HOPE

Serial_No:12021916:26
Lab Number: L1956089

Project Number: DWJMS003.C.CS.TPE.01

Report Date: 12/02/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1956089-40	UNUSED CAN #1976	0918	Flow 4	11/14/19	306029		-	-	-	Pass	10.0	10.6	6
L1956089-40	UNUSED CAN #1976	1976	6.0L Can	11/14/19	306029	L1952885-07	Pass	-29.7	-28.8	-	-	-	-

Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Matrix: Air

Analytical Method: 48,TO-15

Analytical Date: 10/17/19 19:59

Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, Total	ND	0.200	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: INDIV. CANISTER CERTIFICATION
Project Number: CANISTER QC INDIV

Lab Number: L1946560

Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1946560-04
Client ID: CAN 3121
Sample Location:

Date Collected: 10/04/19 16:00
Date Received: 10/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	78		60-140
Bromochloromethane	78		60-140
chlorobenzene-d5	79		60-140



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Matrix: Air

Analytical Method: 48,TO-15-SIM

Analytical Date: 10/17/19 19:59

Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.500	--	ND	0.500	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	2.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	0.983	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.500	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1



Project Name: INDIV. CANISTER CERTIFICATION**Lab Number:** L1946560**Project Number:** CANISTER QC INDIV**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1946560-04

Client ID: CAN 3121

Sample Location:

Date Collected: 10/04/19 16:00

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
n-Butylbenzene	ND	0.500	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	76		60-140
bromochloromethane	81		60-140
chlorobenzene-d5	79		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/04/19 16:51
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1951701**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1951701-07

Date Collected: 11/01/19 08:00

Client ID: CAN 2616 SHELF 57

Date Received: 11/01/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/04/19 16:51
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1951701
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1951701-07
Client ID: CAN 2616 SHELF 57
Sample Location:

Date Collected: 11/01/19 08:00
Date Received: 11/01/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1951701**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1951701-07

Date Collected: 11/01/19 08:00

Client ID: CAN 2616 SHELF 57

Date Received: 11/01/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	96		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-06
Client ID: CAN 1816 SHELF 36
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/04/19 19:30
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-06
Client ID: CAN 1816 SHELF 36
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952039**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952039-06

Date Collected: 11/04/19 09:00

Client ID: CAN 1816 SHELF 36

Date Received: 11/04/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952039**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952039-06

Date Collected: 11/04/19 09:00

Client ID: CAN 1816 SHELF 36

Date Received: 11/04/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952039**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952039-06

Date Collected: 11/04/19 09:00

Client ID: CAN 1816 SHELF 36

Date Received: 11/04/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-06
Client ID: CAN 1816 SHELF 36
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/04/19 19:30
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-06
Client ID: CAN 1816 SHELF 36
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-06
Client ID: CAN 1816 SHELF 36
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/04/19 20:50
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952039**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952039-08

Date Collected: 11/04/19 09:00

Client ID: CAN 1797 SHELF 38

Date Received: 11/04/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/04/19 20:50
Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
Client ID: CAN 1797 SHELF 38
Sample Location:

Date Collected: 11/04/19 09:00
Date Received: 11/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952039
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952039-08
 Client ID: CAN 1797 SHELF 38
 Sample Location:

Date Collected: 11/04/19 09:00
 Date Received: 11/04/19
 Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	92		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952252
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952252-03
Client ID: CAN 2905 SHELF 54
Sample Location:

Date Collected: 11/04/19 16:00
Date Received: 11/05/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/05/19 19:59
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952252
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952252-03
Client ID: CAN 2905 SHELF 54
Sample Location:

Date Collected: 11/04/19 16:00
Date Received: 11/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952252**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952252-03

Date Collected: 11/04/19 16:00

Client ID: CAN 2905 SHELF 54

Date Received: 11/05/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952252
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952252-03
Client ID: CAN 2905 SHELF 54
Sample Location:

Date Collected: 11/04/19 16:00
Date Received: 11/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952252**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952252-03

Date Collected: 11/04/19 16:00

Client ID: CAN 2905 SHELF 54

Date Received: 11/05/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952252
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952252-03
Client ID: CAN 2905 SHELF 54
Sample Location:

Date Collected: 11/04/19 16:00
Date Received: 11/05/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/05/19 19:59
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952252**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952252-03

Date Collected: 11/04/19 16:00

Client ID: CAN 2905 SHELF 54

Date Received: 11/05/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952252**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952252-03

Date Collected: 11/04/19 16:00

Client ID: CAN 2905 SHELF 54

Date Received: 11/05/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	91		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-03
Client ID: CAN 993 SHELF 58
Sample Location:

Date Collected: 11/05/19 16:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/06/19 18:33
Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-03
Client ID: CAN 993 SHELF 58
Sample Location:

Date Collected: 11/05/19 16:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-03

Date Collected: 11/05/19 16:00

Client ID: CAN 993 SHELF 58

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-03
Client ID: CAN 993 SHELF 58
Sample Location:

Date Collected: 11/05/19 16:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-03

Date Collected: 11/05/19 16:00

Client ID: CAN 993 SHELF 58

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-03
Client ID: CAN 993 SHELF 58
Sample Location:

Date Collected: 11/05/19 16:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/06/19 18:33
Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-03

Date Collected: 11/05/19 16:00

Client ID: CAN 993 SHELF 58

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-03

Date Collected: 11/05/19 16:00

Client ID: CAN 993 SHELF 58

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	91		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-06
Client ID: CAN 1846 SHELF 48
Sample Location:

Date Collected: 11/06/19 09:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/06/19 20:10
Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-06
Client ID: CAN 1846 SHELF 48
Sample Location:

Date Collected: 11/06/19 09:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-06
Client ID: CAN 1846 SHELF 48
Sample Location:

Date Collected: 11/06/19 09:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-06

Date Collected: 11/06/19 09:00

Client ID: CAN 1846 SHELF 48

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-06

Date Collected: 11/06/19 09:00

Client ID: CAN 1846 SHELF 48

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	92		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-06
Client ID: CAN 1846 SHELF 48
Sample Location:

Date Collected: 11/06/19 09:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/06/19 20:10
Analyst: EW

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952572
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952572-06
Client ID: CAN 1846 SHELF 48
Sample Location:

Date Collected: 11/06/19 09:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952572**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952572-06

Date Collected: 11/06/19 09:00

Client ID: CAN 1846 SHELF 48

Date Received: 11/06/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-05
Client ID: CAN 2141 SHELF 15
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/07/19 19:37
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-05
Client ID: CAN 2141 SHELF 15
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-05

Date Collected: 11/07/19 09:00

Client ID: CAN 2141 SHELF 15

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-05

Date Collected: 11/07/19 09:00

Client ID: CAN 2141 SHELF 15

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-05

Date Collected: 11/07/19 09:00

Client ID: CAN 2141 SHELF 15

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	66		60-140
Bromochloromethane	80		60-140
chlorobenzene-d5	79		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-05
Client ID: CAN 2141 SHELF 15
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/07/19 19:37
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-05
Client ID: CAN 2141 SHELF 15
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-05

Date Collected: 11/07/19 09:00

Client ID: CAN 2141 SHELF 15

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	67		60-140
bromochloromethane	80		60-140
chlorobenzene-d5	77		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-07
Client ID: CAN 1976 SHELF 33
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/07/19 20:55
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-07
Client ID: CAN 1976 SHELF 33
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-07

Date Collected: 11/07/19 09:00

Client ID: CAN 1976 SHELF 33

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-07

Date Collected: 11/07/19 09:00

Client ID: CAN 1976 SHELF 33

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-07

Date Collected: 11/07/19 09:00

Client ID: CAN 1976 SHELF 33

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	63		60-140
Bromochloromethane	79		60-140
chlorobenzene-d5	76		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-07
Client ID: CAN 1976 SHELF 33
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/07/19 20:55
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-07
Client ID: CAN 1976 SHELF 33
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-07

Date Collected: 11/07/19 09:00

Client ID: CAN 1976 SHELF 33

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	64		60-140
bromochloromethane	79		60-140
chlorobenzene-d5	75		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/07/19 21:35
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-08

Date Collected: 11/07/19 09:00

Client ID: CAN 1578 SHELF 34

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	60		60-140
Bromochloromethane	78		60-140
chlorobenzene-d5	74		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/07/19 21:35
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1952885
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1952885-08
Client ID: CAN 1578 SHELF 34
Sample Location:

Date Collected: 11/07/19 09:00
Date Received: 11/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1952885**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1952885-08

Date Collected: 11/07/19 09:00

Client ID: CAN 1578 SHELF 34

Date Received: 11/07/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	62		60-140
bromochloromethane	77		60-140
chlorobenzene-d5	73		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-02
Client ID: CAN 2174 SHELF 7
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/12/19 17:55
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-02
Client ID: CAN 2174 SHELF 7
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-02

Date Collected: 11/11/19 16:00

Client ID: CAN 2174 SHELF 7

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-02

Date Collected: 11/11/19 16:00

Client ID: CAN 2174 SHELF 7

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-02

Date Collected: 11/11/19 16:00

Client ID: CAN 2174 SHELF 7

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	84		60-140
Bromochloromethane	91		60-140
chlorobenzene-d5	83		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-02
Client ID: CAN 2174 SHELF 7
Sample Location:

Date Collected: 11/11/19 16:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/12/19 17:55
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-02

Date Collected: 11/11/19 16:00

Client ID: CAN 2174 SHELF 7

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-02

Date Collected: 11/11/19 16:00

Client ID: CAN 2174 SHELF 7

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	83		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	85		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-06
Client ID: CAN 2088 SHELF 13
Sample Location:

Date Collected: 11/12/19 09:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 11/12/19 20:31
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-06
Client ID: CAN 2088 SHELF 13
Sample Location:

Date Collected: 11/12/19 09:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-06

Date Collected: 11/12/19 09:00

Client ID: CAN 2088 SHELF 13

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-06
Client ID: CAN 2088 SHELF 13
Sample Location:

Date Collected: 11/12/19 09:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-06

Date Collected: 11/12/19 09:00

Client ID: CAN 2088 SHELF 13

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	81		60-140
Bromochloromethane	83		60-140
chlorobenzene-d5	82		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-06
Client ID: CAN 2088 SHELF 13
Sample Location:

Date Collected: 11/12/19 09:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 11/12/19 20:31
Analyst: TS

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1953775
Report Date: 12/02/19

Air Canister Certification Results

Lab ID: L1953775-06
Client ID: CAN 2088 SHELF 13
Sample Location:

Date Collected: 11/12/19 09:00
Date Received: 11/12/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1953775**Project Number:** CANISTER QC BAT**Report Date:** 12/02/19**Air Canister Certification Results**

Lab ID: L1953775-06

Date Collected: 11/12/19 09:00

Client ID: CAN 2088 SHELF 13

Date Received: 11/12/19

Sample Location:

Field Prep: Not Specified

Sample Depth:

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	79		60-140
bromochloromethane	81		60-140
chlorobenzene-d5	83		60-140



Project Name: ESSEX/HOPE**Lab Number:** L1956089**Project Number:** DWJMS003.C.CS.TPE.01**Report Date:** 12/02/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
N/A	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1956089-01A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-02A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-03A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-04A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-05A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-06A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-07A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-08A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-09A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-10A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-11A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-12A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-13A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-14A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-15A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-16A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-17A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-18A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-19A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-20A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-21A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-22A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		TO15-LL(30)
L1956089-23A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()

Project Name: ESSEX/HOPE**Lab Number:** L1956089**Project Number:** DWJMS003.C.CS.TPE.01**Report Date:** 12/02/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1956089-24A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-25A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-26A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-27A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-28A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-29A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-30A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-31A	Canister - 1 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-32A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-33A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-34A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-35A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-36A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-37A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-38A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-39A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()
L1956089-40A	Canister - 6 Liter	N/A	NA			Y	Present/Intact		CLEAN-FEE()

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenzo(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.

Report Format: Data Usability Report



Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.
S - Analytical results are from modified screening analysis.

Project Name: ESSEX/HOPE
Project Number: DWJMS003.C.CS.TPE.01

Lab Number: L1956089
Report Date: 12/02/19

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 15

Department: **Quality Assurance**

Published Date: 8/15/2019 9:53:42 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



AIR ANALYSIS

CHAIN OF CUSTODY

PAGE 1 OF 3

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: JACOBS ENGINEERING GROUP

Address: 120 ST JAMES AVE
BOSTON MA 02116

Phone: 617 963 3129

Fax:

Email: KYLE.BLOCK@JACOBS.COM

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☒

Project Information

Project Name: ESSEX/HOPE SITE

Project Location: JAMESTOWN, NY

Project #: DWJMS003.A.CS.EV.01.04

Project Manager: KYLE BLOCK

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (rate confirmed if pre-approved)

Date Due:

Time:

Date Rec'd in Lab:

11/22/19

Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☒ EMAIL (standard pdf report)☐ Additional Deliverables:

Report to: (if different than Project Manager)

ALPHA Job #:

L1456089

Billing Information

☒ Same as Client Info

PO # 148010502

Regulatory Requirements/Report Limits

State/Fed

Program

Res / Comm

NY5DEC

ANALYSIS

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION					Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-15	TO-15 SIM	APH	Fixed Gas	Sulfides & Mercaptans	Sample Comments (i.e. PID)
		End Date	Start Time	End Time	Initial Vacuum	Final Vacuum											
36089-01	JMF-01-20191119	11/19/19	1237	1247	-28.46	-2.27	SV	AS/MV	1L	669	01319	X					
-02	JMF-01-20191119-FD		1237	1247	-28.50	-2.21				823	↓	X					
-03	JMF-02-20191119		1348	1353	-28.59	-2.42				2415	01329	X					
-04	JMF-03-20191119		1320	1325	-28.46	-2.27				718	01571	X					
-05	JMF-04-20191119		1415	1419	-28.22	-1.95	↓	↓	↓	571	0518	X					
-06	SV-01-20191119	11/19/19	1655	1700	-28.60	-2.94	SV	AS/MV	1L	2418	0086	X					
-07	SV-02-20191119	11/19/19	1722	1727	-28.62	-2.50				875	01572	X					
-08	SV-03-20191120	11/20/19	1112	1117	-28.76	-2.81				660	0581	X					
-09	SV-05-20191120	11/20/19	1233	1238	-28.83	-2.66				908	01573	X					
-10	SV-06-20191120	11/20/19	1257	1302	-28.85	-2.58	↓	↓	↓	1694	0885	X					

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Relinquished By:

Date/Time

Received By:

Date/Time:

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.



AIR ANALYSIS

PAGE 2 OF 3

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: JACOBS ENGINEERING GROUP

Address: 120 ST JAMES AVE
BOSTON MA 02116

Phone: 617-963-3129

Fax:

Email: KYLE.BUCK@JACOBS.COM

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

Project Information

Project Name: ESSEX HOPE SITE

Project Location: JAMESTOWN NY

Project #: NJIMS003.A.CS.EV.01.04

Project Manager: KYIE BUCK

ALPHA Quote #:

Turn-Around Time

☒ Standard☐ RUSH (only confirmed if pre-approved)

Date Due:

Time:

Date Rec'd in Lab:

11/20/19

Report Information - Data Deliverables

☐ FAX☒ ADEX

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☒ EMAIL (standard pdf report)☐ Additional Deliverables:

Report to: (if different than Project Manager)

ALPHA Job #:

L1956089

Billing Information

☒ Same as Client Info

PO #: 148010502

Regulatory Requirements/Report Limits

State/Fed

Program

Res / Comm

NYSDEC

ANALYSIS

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-15	TO-15 SIM	APH	Fixed Gases	Sulfides & Mercaptans	Sample Comments (i.e. PID)
		End Date	Start Time	End Time	Initial Vacuum	Final Vacuum												
36089-11	SV-08-20191120	11/20/19	1407	1412	-28.55	-2.83	SV	MV/AS	1L	1959	0193	X						
-12	SV-09-20191120		1327	1333	-29.02	-2.61				2468	01123	X						
-13	SV-10-20191120		1656	1705	-28.81	-1.93				2173	0538	X						
-14	SV-10-20191120-FD		1656	1705	-28.73	-2.14				735	0538	X						
-15	SV-11-20191120		1425	1440	-28.90	-2.42				0839	0839	X						
-16	SV-12-20191120		1724	1729	-28.96	-2.16				2495	0611	X						
-17	SV-07-20191121	11/21/19	0850	0859	-29.24	-2.53				717	01328	X						
-18	SV-07-20191121-FD		0850	0859	-29.24	-2.34				698	01328	X						
-19	SV-14-20191121		1013	1018	-29.30	-2.77				1915	0520	X						
-20	SV-15-20191121		1054	1059	-29.29	-2.90				1496	0601	X						

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Relinquished By:

Date/Time

Received By:

Date/Time:

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Appendix E
Johnson Machine Notification Letter



Dow Chemical Canada ULC
Bag 16, Highway 15
Fort Saskatchewan, Alberta
T8L 2P4, Canada

December 19, 2019

Mr. Michael Marshall
Johnson Machine & Fibre Products
142 Hopkins Avenue
Jamestown, New York 14701

Re: Results of the Soil Vapor Intrusion Sampling Conducted at 142 Hopkins Avenue

Dear Mr. Marshall:

This letter has been prepared to provide the results of the additional soil vapor intrusion (SVI) evaluation performed on November 19, 2019 at 142 Hopkins Avenue. This work was completed as a follow-up sampling event from November 2018. Soil vapor samples necessary to perform a SVI pathway assessment were also collected between November 19 and 21, 2019 along the adjacent streets. The work was performed in association with ongoing investigations related to the Essex-Hope Superfund Site (Site ID No. 907015). This evaluation was performed with cooperation from the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH).

The sub-slab vapor sampling data were reviewed for accuracy, and validation of these results was completed on December 13, 2019. The results from samples collected from 142 Hopkins Avenue are included in Table 1 and the locations of the samples collected are provided on Figure 1. The results were screened against NYSDOH sub-slab vapor decision matrix concentrations (which do not account for the differences between residences and commercial buildings) to determine if further action is needed. Results were also compared against calculated U.S. Environmental Protection Agency (EPA) commercial sub-slab vapor intrusion screening levels (VISLs).

Certain chemicals were detected in sub-slab soil vapor at the property. This letter is being provided in accordance with NYSDEC Law Article 27-2405 to provide timely notification. These results are being further evaluated to determine if additional actions are necessary.

Results and Evaluation

Sub-slab soil vapor samples were collected within the Johnson Machine & Fibre Products facility in November 2019. The building survey that was completed in April 2018 was updated prior to sampling. The survey attempted to inventory chemicals present in the sampling areas that have the potential to affect air sample results. A summary of volatile organic compounds (VOCs) detected in the November 2018 and November 2019 sub-slab soil vapor samples are presented in Table 1; the sampling locations are identified on Figure 1.

Detected VOC concentrations in sub-slab vapor soil are evaluated against the following screening levels (see Table 1):



1. Calculated EPA commercial VISLs (EPA, 2019).
2. NYSDOH sub-slab vapor concentrations per Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). A copy of the NYSDOH soil vapor/indoor air decision matrices is included in Attachment 1. Note that indoor air data are required to determine if any further action is needed as per the NYSDOH decision matrices.

Comparison to EPA VISLs and NYSDOH Air Guideline Values

For the most recent round of sampling (November 2019), four sub-slab locations were sampled within the Johnson Machine & Fibre Products facility as shown on Figure 1, with the respective results listed in Table 1. At the time of sampling, the facility was occupied and in operation. Trichloroethene (TCE) was detected at concentrations greater than the most conservative NYSDOH soil vapor screening level in all four samples collected directly beneath your facility. All other measured chemicals were not detected or were detected in concentrations under the applicable screening levels, as is the case for cis-1,2-dichloroethene (cis-1,2-DCE) and tetrachloroethene (PCE). There were no sub-slab soil vapor sample results in exceedance of the calculated EPA VISLs. Additional information on the chemicals of concern detected at the property is presented in Attachment 1.

Summary and Conclusions

Investigation activities conducted in November 2019 identified TCE in sub-slab soil vapor at concentrations greater than NYSDOH soil vapor screening concentrations. A comprehensive SVI pathway assessment is currently being performed, using both the November 2018 and November 2019 data, and will be presented to NYSDEC and NYSDOH. We will inform you of any potential additional sampling efforts required to complete the SVI study at your facility.

We appreciate your cooperation for the duration of this project. If you would like to discuss these results, please contact me at 780.998.5767.

Sincerely,

Audrey Sidebottom, P. Eng.
Remediation Leader, Authorized Representative of Dow Chemical

Enclosures

Table 1 – Detected Concentrations of Volatile Organic Compounds in Sub-slab Soil Vapor (November 2018 and November 2019)
Figure 1 – November 2019 Soil Vapor Intrusion Investigation Locations
Attachment 1 – NYSDOH Fact Sheets and Information



References

- New York State Department of Health (NYSDOH). 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. October. Updated May 2017.
- U.S. Environmental Protection Agency (EPA). 2013. *Office of Solid Waste and Emergency Response (OSWER) Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air*. External Review Draft. April 11.
- U.S. Environmental Protection Agency (EPA). 2019. *VISLs Calculator for Commercial Sub-slab Vapor Intrusion Screening Level*. November. <https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator>.

TABLE 1
Detected Concentrations of Volatile Organic Compounds in Sub-slab Soil Vapor
142 Hopkins Avenue

LOCATION						JMF-01								JMF-02				JMF-03				JMF-04			
SAMPLE ID						JMF-01-20181114		JMF-01-20181114-FD		JMF-01-20191119		JMF-01-20191119-FD		JMF-02-20181114		JMF-02-20191119		JMF-03-20181114		JMF-03-20191119		JMF-04-20181114		JMF-04-20191119	
SAMPLING DATE						11/14/2018				11/19/2019				11/14/2018		11/19/2019		11/14/2018		11/19/2019		11/14/2018		11/19/2019	
SCREENING CRITERIA	NY-SSC-A	NY-SSC-B	NY-SSC-C	USEPA VISL	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Volatile Organic Compounds (VOCs)																									
Vinyl chloride	--	--	6	93	µg/m³	1.27	U	1.26	U	ND		ND		1.1	U	ND		1.17	U	ND		1.16	U	ND	
1,1-Dichloroethene	6	--	--	29,000	µg/m³	1.97	U	1.95	U	ND		ND		1.71	U	ND		1.82	U	ND		1.8	U	ND	
trans-1,2-Dichloroethene	--	--	--	--	µg/m³	1.97	U	1.95	U	ND		ND		1.71	U	ND		1.82	U	ND		1.8	U	ND	
cis-1,2-Dichloroethene	6	--	--	--	µg/m³	6.78		6.22		3.50		3.19		4.4		3.58		11.2		4.36		8.45		5	
Trichloroethene	6	--	--	100	µg/m³	17.8		17.5		49.4 J		27 J		13		17.1		23.1		20.9		21.5		15.8	
Tetrachloroethene	--	100	--	1,600	µg/m³	10.4		9.9		4.76		5.02		2.93	U	10.2		8.68		6.24		14.9		6.85	

Notes:
µg/m³ = micrograms per cubic meter
FD = Field Duplicate Sample
Qual = Laboratory data qualifier
U = Not detected at the reported detection limit for the sample.
NY-SSC-A: NYSDOH Matrix A Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, updated May 2017.
NY-SSC-B: NYSDOH Matrix B Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, updated May 2017.
NY-SSC-C: NYSDOH Matrix C Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, updated May 2017.
EPA VISL: Calculated EPA Commercial Sub-slab Vapor Intrusion Screening Level, November, 2019 (TCR = 1x10-6 ; Q=1) available at <https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator>
Bold results indicate detection of chemical above the detection limit.
Exceeds NY-SSC

IMPORTANT INFORMATION ON TRICHLOROETHENE (TCE) IN INDOOR AND OUTDOOR AIR¹

Trichloroethene (TCE)

Trichloroethene (also known as trichloroethylene or TCE) is a human-made chemical. It is volatile, meaning it readily evaporates at room temperature into the air, where you can sometimes smell it. It is used as a solvent to remove grease from metal, a paint stripper, an adhesive solvent, an ingredient in paints and varnishes, and in the manufacture of other chemicals and products (for example, furniture and electric/electronic equipment).

Exposure to TCE

People may be exposed to TCE in air, water, and food, or when TCE or material containing TCE (for example, soil) gets on the skin. For most people, almost all TCE exposure is from indoor air.

Sources of TCE in Air

TCE may get into indoor air when TCE-containing products (for example, glues, adhesives, paint removers, spot removers, and metal cleaners) are used. Another source could be evaporation from contaminated well water that is used for household purposes. TCE may enter homes through soil vapor intrusion, which occurs when TCE evaporates from contaminated groundwater, enters soil vapor (air spaces between soil particles), and migrates through cracks or other openings in the foundation and into the building. TCE gets into outdoor air when it is released from industrial facilities and when it evaporates from areas where chemical wastes are stored or disposed.

Levels Typically Found in Air

The background indoor air levels of TCE in homes and office buildings not near known environmental sources of TCE are almost always 1 microgram per cubic meter of air (1 mcg/m³) or less. Background outdoor air levels also are almost always 1 mcg/m³ or less.

Health Risks Associated with Exposure to TCE

Most people, if exposed to TCE, are exposed to air levels much lower than those known to cause health effects in humans (for example, workplace air levels 90,000 to 800,000 mcg/m³). TCE exposure can cause effects on the central nervous system, liver, kidneys, and immune system of humans. TCE exposure is

¹ For a more technical discussion of this information, see the fact sheet “Trichloroethene (TCE) In Indoor and Outdoor Air” available at <http://www.health.ny.gov/environmental/chemicals/trichloroethene/>.

associated with reproductive effects in men and women, and may affect fetal development during pregnancy. However, the studies suggest, but do not prove, that the reproductive and developmental effects were caused by TCE, and not by some other factor. The United States Environmental Protection Agency (USEPA) classifies TCE as a chemical that causes cancer in humans by all routes of exposure. Whether a person experiences a health effect depends on how much of the chemical he or she is exposed to, how often the exposure occurs, and how long the exposures last. Individual characteristics such as age, health, lifestyle, and genetics also play a role.

The New York State Department of Health (NYSDOH) Guideline for TCE in Air

NYSDOH recommends that TCE levels in air not exceed 2 mcg/m³. This replaces the previous guideline of 5 mcg/m³. The guideline was set at an air level that is lower than levels known to cause, or suspected of causing, health effects in humans, including sensitive populations (for example, children, pregnant women) and animals. The guideline is based on the assumption that people are continuously exposed to TCE in air all day, every day for months or as long as a lifetime. Continuous exposure is rarely true for most people, who, if exposed, are more likely to be exposed for a part of the day, part of a week, or part of their lifetime.

The guideline is used to help guide decisions regarding the urgency of efforts to reduce TCE exposure. At TCE air levels above the guideline, the higher the level, the greater the urgency to take action to reduce exposure. But as with any chemical in indoor air, the NYSDOH always recommends taking action to reduce exposure when the air concentration of a chemical is above background, even if it is below the guideline.

Indoor air concentrations substantially above the guideline clearly indicate a significant TCE source and the need for action to reduce exposure. In particular, NYSDOH has concerns about exposure during pregnancy, particularly during the first trimester, to air concentrations higher than 20 mcg/m³ because the major steps of heart development occur during this period and TCE may be a risk factor for fetal heart defects in humans. Thus, NYSDOH recommends taking immediate and effective action to reduce exposure when an air concentration is equal to, or above 20 mcg/m³. In all cases, the specific recommended action depends on a case-by-case evaluation of the situation.

Concerns about Exposure to TCE

Most people, if exposed to TCE, are exposed to air levels much lower than those known to cause health effects in humans. However, if you are concerned that you, your children, or others have been exposed to TCE, discuss your symptoms/signs with your health care provider. There are special tests to measure TCE and related chemicals in your blood, breath, or urine, and your health care provider can compare the results to those of people without known exposure to TCE or to workers with high exposure to TCE.

Questions

If you have any questions about the information in this fact sheet, would like to know more about TCE, or are concerned that you may be exposed to elevated levels of TCE, please call the New York State Department of Health at 1-518-402-7800 or 1-800-458-1158, send an e-mail to btsa@health.ny.gov, or write to the following address.

New York State Department of Health
Bureau of Toxic Substance Assessment
Corning Tower, Room 1743
Empire State Plaza,
Albany, NY 12237

New York State Department of Health

Tenant Notification Fact Sheet for 1,2-Dichloroethene (1,2-DCE)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

1,2-Dichloroethene (1,2-DCE)

1,2-Dichloroethene (also known as 1,2-dichloroethylene or 1,2-DCE) is a man-made volatile organic chemical. Its primary uses are as an industrial solvent and as an intermediate to make other chemicals. 1,2-Dichloroethene is also a breakdown product of trichloroethene in the environment. 1,2-Dichloroethene has two forms called *cis*-1,2-dichloroethene and *trans*-1,2-dichloroethene.

Sources of 1,2-DCE in Indoor Air

No household products are known to contain 1,2-DCE. One possible source of 1,2-DCE in indoor air is evaporation from contaminated well water that is used for household purposes. 1,2-DCE may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. 1,2-DCE has also been found at low concentrations in outdoor air, which can also be a source of the chemical in indoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of 1,2-DCE in indoor and outdoor air. Levels of 1,2-DCE in the indoor air of homes and office settings and in outdoor air are expected to be less than 1 microgram per cubic meter (mcg/m³).

Health Risks Associated with Exposure

There is limited information on the health effects of long term exposure to high levels of 1,2-DCE in humans. Some humans exposed to large amounts of this chemical over short periods of time have had nervous system effects including weakness, drowsiness, nausea, dizziness and loss of consciousness. Exposure to high concentrations of 1,2-DCE causes adverse effects on the liver, blood and immune system of laboratory animals. Taken together, the human and animal data suggest that long term human exposure to 1,2-DCE may increase the risk for changes in the blood, and for liver, immune system and nervous system toxicity.

Studies that evaluate whether exposure to 1,2-DCE can cause cancer in humans or laboratory animals are not available.

NYS DOH Air Guideline

The NYS DOH has not established a chemical-specific guideline for 1,2-DCE in air. However, NYS DOH guidance for 1,2-DCE and other air contaminants is that reasonable and practical actions should be taken to reduce 1,2-DCE exposure when indoor air levels are above those typically found in indoor air. The urgency to take actions increases as indoor air levels increase. The 1,2-DCE exposure

levels that cause health effects in animals or humans are many times higher than levels typically found in indoor air.

Ways to Limit Exposure to 1,2-DCE in Indoor Air

In all cases, the specific actions to limit exposure to 1,2-DCE in indoor air depend on a case-by-case evaluation of the situation. Maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of 1,2-DCE entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring 1,2-DCE in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m³.

Additional Information

Additional information on 1,2-DCE, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at

www.health.state.ny.us/environmental/indoors/air/contaminants/.

If you have further questions about 1,2-DCE and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to ceheduc@health.state.ny.us, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237

New York State Department of Health
January, 2014

Soil Vapor/Indoor Air Matrix A

May 2017

Analytes Assigned:

Trichloroethene (TCE), *cis*-1,2-Dichloroethene (c12-DCE), 1,1-Dichloroethene (11-DCE), Carbon Tetrachloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 0.2	0.2 to < 1	1 and above
< 6	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	4. No further action	5. MONITOR	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX A

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

- [1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).
- [2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.
- [3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.
- [4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.
- [5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.
- [6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

Soil Vapor/Indoor Air Matrix B

May 2017

Analytes Assigned:

Tetrachloroethene (PCE), 1,1,1-Trichloroethane (111-TCA), Methylene Chloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 3	3 to < 10	10 and above
< 100	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
100 to < 1,000	4. No further action	5. MONITOR	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX B

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

- [1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).
- [2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.
- [3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 1 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.
- [4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.
- [5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.
- [6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

Soil Vapor/Indoor Air Matrix C

May 2017

Analytes Assigned:

Vinyl Chloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)	
	< 0.2	0.2 and above
< 6	1. No further action	2. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	3. MONITOR	4. MITIGATE
60 and above	5. MITIGATE	6. MITIGATE

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

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Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

ADDITIONAL NOTES FOR MATRIX C

This matrix summarizes actions recommended to address current and potential exposures related to soil vapor intrusion. To use the matrix appropriately as a tool in the decision-making process, the following should be noted:

- [1] The matrix is generic. As such, it may be appropriate to modify a recommended action to accommodate analyte-specific, building-specific conditions (e.g., dirt floor in basement, crawl spaces, thick slabs, current occupancy, etc.), and/or factors provided in Section 3.2 of the guidance (e.g., current land use, environmental conditions, etc.). For example, collection of additional samples may be recommended when the matrix indicates "no further action" for a particular building, but the results of adjacent buildings (especially sub-slab vapor results) indicate a need to take actions to address exposures related to soil vapor intrusion. Mitigation might be recommended when the results of multiple contaminants indicate monitoring is recommended. Proactive actions may be proposed at any time. For example, the party implementing the actions may decide to install sub-slab depressurization systems on buildings where the matrix indicates "no further action" or "monitoring." Such an action might be undertaken for reasons other than public health (e.g., seeking community acceptance, reducing costs, etc.). However, actions implemented *in lieu* of sampling will typically be expected to be captured in the final engineering report and site management plan, and might not rule out the need for post-implementation sampling (e.g., to document effectiveness or to support terminating the action).
- [2] Actions provided in the matrix are specific to addressing human exposures. Implementation of these actions does not preclude investigating possible sources of soil vapor contamination, nor does it preclude remediating contaminated soil vapor or the source of soil vapor contamination.
- [3] Appropriate care should be taken during all aspects of sample collection to ensure that high quality data are obtained. Since the data are being used in the decision-making process, the laboratory analyzing the environmental samples must have current Environmental Laboratory Approval Program (ELAP) certification for the appropriate analyte and environmental matrix combinations. Furthermore, samples should be analyzed by methods that can achieve a minimum reporting limit of 0.20 microgram per cubic meter for indoor and outdoor air samples. For sub-slab vapor samples and dirt floor soil vapor samples, a minimum reporting limit of 1 microgram per cubic meter is recommended.
- [4] Sub-slab vapor and indoor air samples are typically collected when the likelihood of soil vapor intrusion is considered to be the greatest (i.e., worst-case conditions). If samples are collected at other times (typically, samples collected outside of the heating season), then resampling during worst-case conditions might be appropriate to verify that actions taken to address exposures related to soil vapor intrusion are protective of human health.
- [5] When current exposures are attributed to sources other than soil vapor intrusion, the agencies should be given documentation (e.g., applicable environmental data, completed indoor air sampling questionnaire, digital photographs, etc.) to support a proposed action other than that provided in the matrix box and to support agency assessment and follow-up.
- [6] The party responsible for implementing the recommended actions will differ depending upon several factors, including but not limited to the following: the identified source of the volatile chemicals, the environmental remediation program, and analyte-specific, site-specific and building-specific factors.

Appendix D

Mann-Kendall Trend Analyses

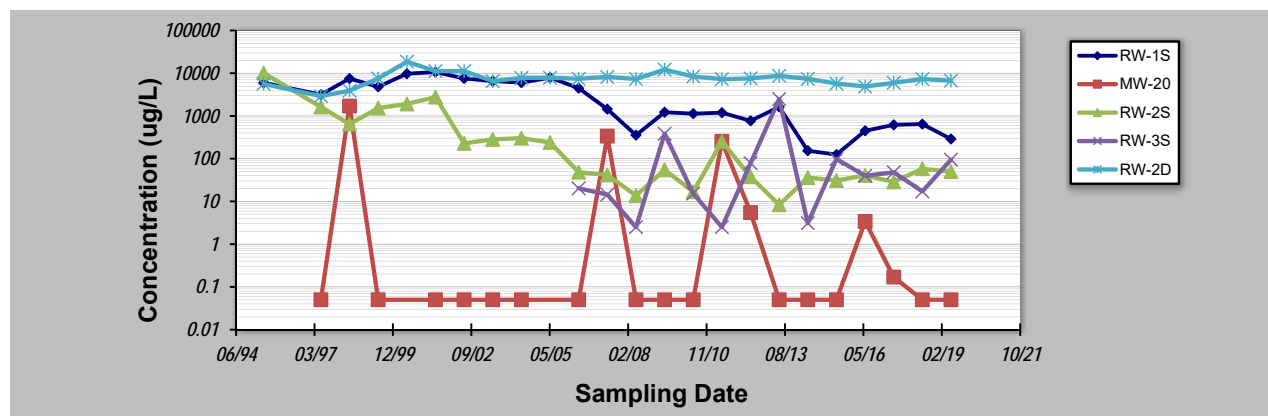
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID: **Total CVOC-Average Annual (long records)**
 Constituent: **Total CVOCs**
 Concentration Units: **ug/L**

Sampling Point ID:		RW-1S	MW-20	RW-2S	RW-3S	RW-2D		
Sampling Event	Sampling Date	TOTAL CVOCs CONCENTRATION (ug/L)						
1	1-Jun-95	5,973		10,100		5,632		
2	1-Jun-97	3,152	0.05	1,620		2,901		
3	1-Jun-98	7,516	1,700	644		3,911		
4	1-Jun-99	4,792	0.05	1,531		7,530		
5	1-Jun-00	9,718		1,907		18,587		
6	1-Jun-01	10,650	0.05	2,759		11,212		
7	1-Jun-02	7,551	0.05	228		11,212		
8	1-Jun-03	6,538	0.05	283		6,523		
9	1-Jun-04	6,008	0.05	302		7,805		
10	1-Jun-05	7,903		240		7,800		
11	1-Jun-06	4,468	0.05	48.2	20.3	7,407		
12	1-Jun-07	1,447	337	41.7	14.5	8,196		
13	1-Jun-08	356	0.05	13.8	2.50	7,317		
14	1-Jun-09	1,221	0.05	54.9	385	12,148		
15	1-Jun-10	1,134	0.05	16.8	15.4	8,392		
16	1-Jun-11	1,194	255	252	2.50	7,270		
17	1-Jun-12	769	5.50	37.7	78.8	7,543		
18	1-Jun-13	1,626	0.05	8.35	2,502	8,693		
19	1-Jun-14	153	0.05	36.1	3.10	7,365		
20	1-Jun-15	125	0.05	30.9	98.4	5,731		
21	1-Jun-16	450	3.40	40.5	39.8	4,869		
22	1-Jun-17	620	0.17	28.7	48.1	5,957		
23	1-Jun-18	644	0.05	58.1	17.2	7,307		
24	1-Jun-19	290	0.05	49.9	95.1	6,702		
25								
Coefficient of Variation:		0.97	2.89	2.60	2.78	0.40		
Mann-Kendall Statistic (S):		-166	11	-65	18	-29		
Confidence Factor:		>99.9%	64.6%	98.8%	82.1%	75.4%		
Concentration Trend:		Decreasing	No Trend	Decreasing	No Trend	Stable		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
 - Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
 - Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
 - Due to large number of data, concentrations were averaged on an annual basis
 - Values shown in red are non-detect. All ND results were re-censored to the same value below the lowest detected concentrations
- DISCLAIMER:** The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc. disclaims any responsibility or obligation to update the information contained herein.

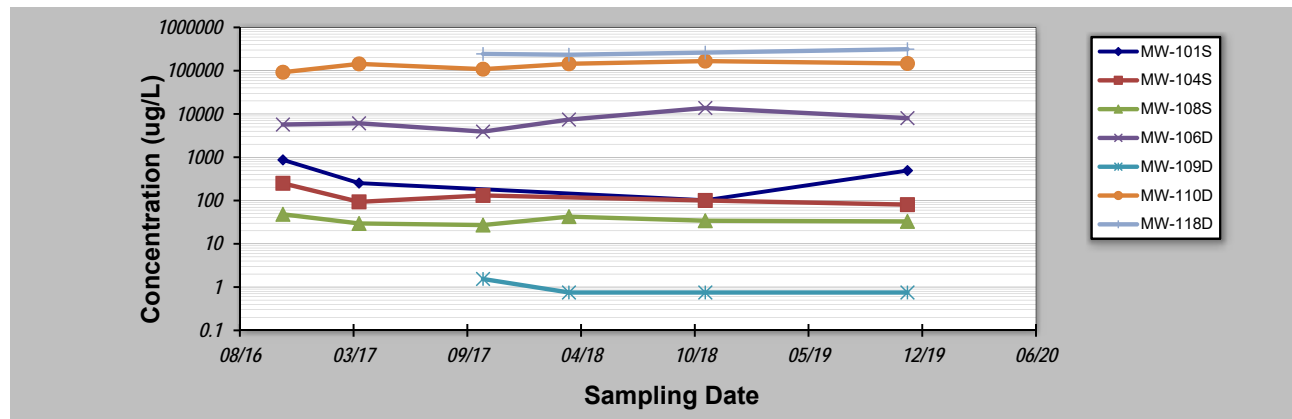
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID: **CVOC-recent**
 Constituent: **Total CVOCs**
 Concentration Units: **ug/L**

Sampling Point ID:		MW-101S	MW-104S	MW-108S	MW-106D	MW-109D	MW-110D	MW-118D
Sampling Event	Sampling Date	TOTAL CVOCs CONCENTRATION (ug/L)						
1	1-Nov-16	870	250	48.0	5,700		92,000	
2	15-Mar-17	253	93.0	29.5	6,084		143,430	
3	19-Oct-17		131	27.1	3,908	1.54	108,500	243,832
4	19-Mar-18			42.5	7,418	0.75	144,350	233,200
5	14-Nov-18	101	100	34.1	13,746	0.75	166,610	261,210
6	5-Nov-19	492	80.3	32.9	7,998	0.75	146,390	313,420
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.78	0.53	0.22	0.45	0.42	0.21	0.14
Mann-Kendall Statistic (S):		-2	-6	-3	9	-3	11	4
Confidence Factor:		62.5%	88.3%	64.0%	93.2%	72.9%	97.2%	83.3%
Concentration Trend:		Stable	Stable	Stable	Prob. Increasing	Stable	Increasing	No Trend



Notes:

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

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

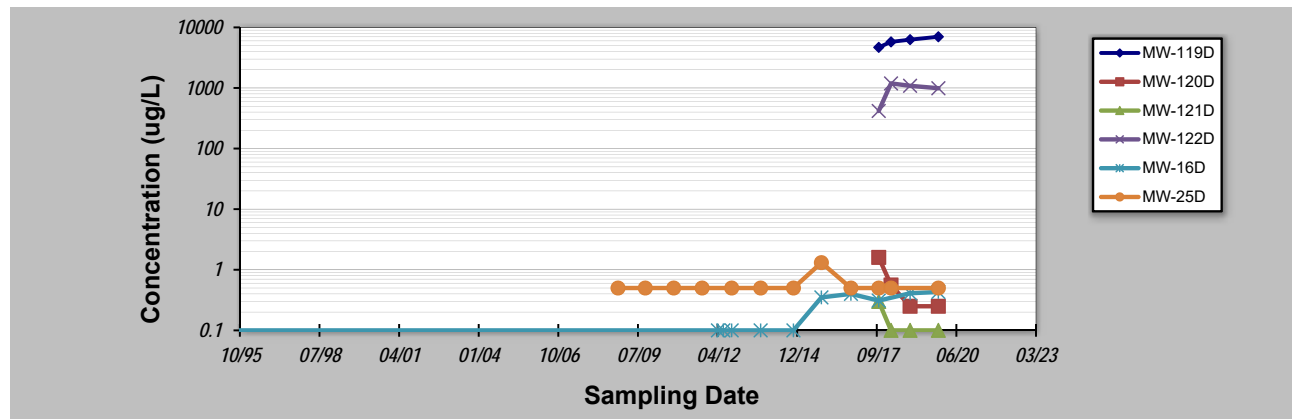
GSI Environmental Inc., www.gsi-net.com

GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **27-Feb-19** Job ID: **Additional Wells**
 Facility Name: **Hope-Essex** Constituent: **Total CVOCs**
 Conducted By: **David Mitchell** Concentration Units: **ug/L**

Sampling Point ID:		MW-119D	MW-120D	MW-121D	MW-122D	MW-16D	MW-25D	
Sampling Event	Sampling Date	TOTAL CVOCS CONCENTRATION (ug/L)						
1	1-Aug-95					0.10		
2	29-Oct-08						0.50	
3	6-Oct-09						0.50	
4	28-Sep-10						0.50	
5	20-Sep-11						0.50	
6	5-Apr-12					0.10		
7	12-Jun-12					0.10		
8	25-Sep-12					0.10	0.50	
9	24-Sep-13					0.10	0.50	
10	10-Nov-14					0.10	0.50	
11	27-Oct-15					0.35	1.31	
12	1-Nov-16					0.40	0.50	
13	16-Oct-17	4,685	1.60	0.30	418	0.31	0.50	
14	20-Mar-18	5,767	0.56	0.10	1,191		0.50	
15	14-Nov-18	6,280	0.25	0.10	1,087	0.41		
16	5-Nov-19	7,007	0.25	0.10	991	0.43	0.50	
17								
18								
19								
20								
Coefficient of Variation:		0.16	0.96	0.67	0.37	0.66	0.41	
Mann-Kendall Statistic (S):		6	-5	-3	0	36	3	
Confidence Factor:		95.8%	89.6%	72.9%	37.5%	99.8%	55.4%	
Concentration Trend:		Increasing	Stable	Stable	Stable	Increasing	No Trend	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $> 95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
- Values shown in red are non-detect. All ND results were re-censored to the same value below the lowest detected concentrations

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GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

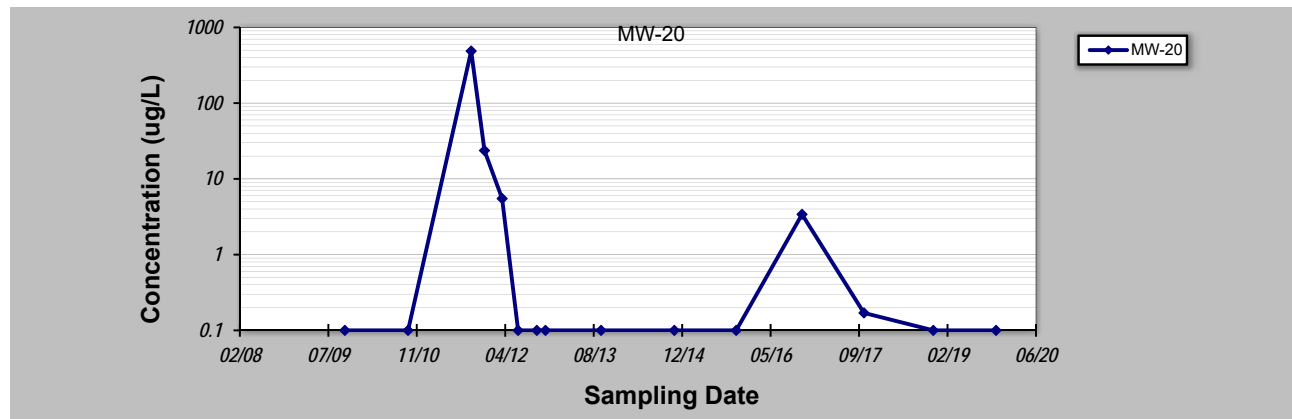
Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID: **Shallow CVOC-last 10 years**
 Constituent: **Total CVOCs**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-20**

Sampling Event	Sampling Date	TOTAL CVOCs CONCENTRATION (ug/L)						
1	7-Oct-09	0.10						
2	29-Sep-10	0.10						
3	21-Sep-11	487						
4	5-Dec-11	23.7						
5	14-Mar-12	5.50						
6	12-Jun-12	0.10						
7	26-Sep-12	0.10						
8	14-Nov-12	0.10						
9	24-Sep-13	0.10						
10	12-Nov-14	0.10						
11	28-Oct-15	0.10						
12	3-Nov-16	3.40						
13	19-Oct-17	0.17						
14	15-Nov-18	0.10						
15	5-Nov-19	0.10						
16								
17								
18								
19								
20								

Coefficient of Variation: **3.61**
 Mann-Kendall Statistic (S): **-16**
 Confidence Factor: **76.7%**
 Concentration Trend: **No Trend**



Notes:

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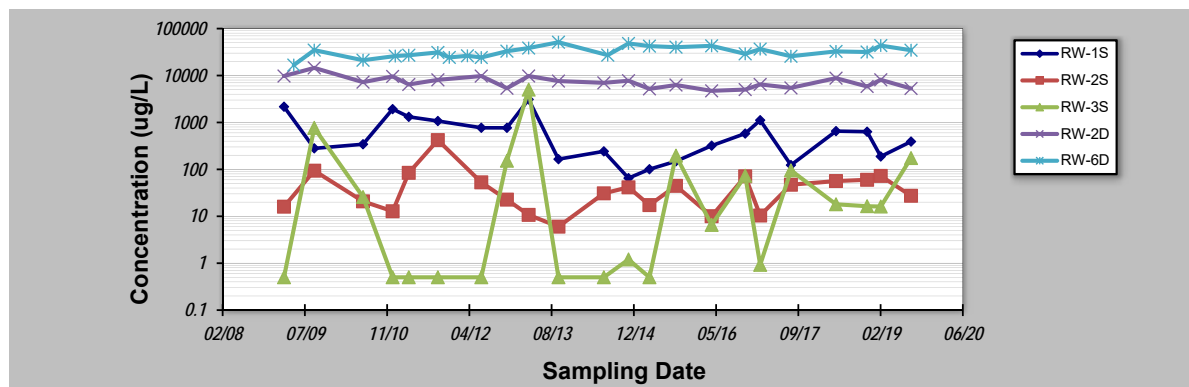
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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: 27-Feb-19	Job ID: CVOC-last 10 years
Facility Name: Hope-Essex	Constituent: Total CVOCs
Conducted By: David Mitchell	Concentration Units: ug/L

Sampling Point ID:	RW-1S	RW-2S	RW-3S	RW-2D	RW-6D		
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Sampling Event	Sampling Date	TOTAL CVOCs CONCENTRATION (ug/L)					
1	1-Mar-09	2,161	16.0	0.50	9,757		
2	29-Apr-09					16,688	
3	1-Sep-09	280	93.7	765	14,539	34,815	
4	24-Jun-10	343	20.8	25.7	7,227	21,184	
5	21-Dec-10	1,925	12.8	0.50	9,558		
6	6-Jan-11					26,000	
7	29-Mar-11	1,316	84.2	0.50	6,448	27,062	
8	22-Sep-11	1,072	420	0.50	8,093	31,050	
9	1-Dec-11					24,297	
10	20-Mar-12					26,369	
11	12-Jun-12	770	52.8	0.50	9,729	24,200	
12	15-Nov-12	768	22.6	153	5,357	32,995	
13	27-Mar-13	3,088	10.7	5,000	9,767	38,499	
14	24-Sep-13	165	6.00	0.50	7,620	51,182	
15	27-Jun-14	242	30.8	0.50	6,973		
16	21-Jul-14					27,156	
17	24-Nov-14	65.0	41.4	1.20	7,757	48,268	
18	31-Mar-15	101	17.3	0.50	5,192	42,306	
19	9-Sep-15	149	44.5	196	6,271	40,212	
20	13-Apr-16	320	10.1	6.54	4,719	42,958	
21	3-Nov-16	580	71.0	73.0	5,018	28,996	
22	2-Feb-17	1,117	10.4	0.92	6,460	36,571	
23	8-Aug-17	123	47.0	95.2	5,454	25,742	
24	9-May-18	653	56.3	18.0	8,770	32,652	
25	14-Nov-18	634	59.8	16.4	5,843	31,651	
26	5-Feb-19	188	72.4	16.1	8,112	43,462	
27	8-Aug-19	391	27.3	174	5,292	34,576	
28							
29							
30							
Coefficient of Variation:		1.04	1.54	3.66	0.24	0.27	
Mann-Kendall Statistic (S):		-59	7	48	-31	94	
Confidence Factor:		94.9%	58.9%	96.3%	87.0%	99.0%	
Concentration Trend:		Prob. Decreasing	No Trend	Increasing	Stable	Increasing	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $> 95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
- Values shown in red are non-detect. All ND results were re-censored to the same value below the lowest detected concentrations

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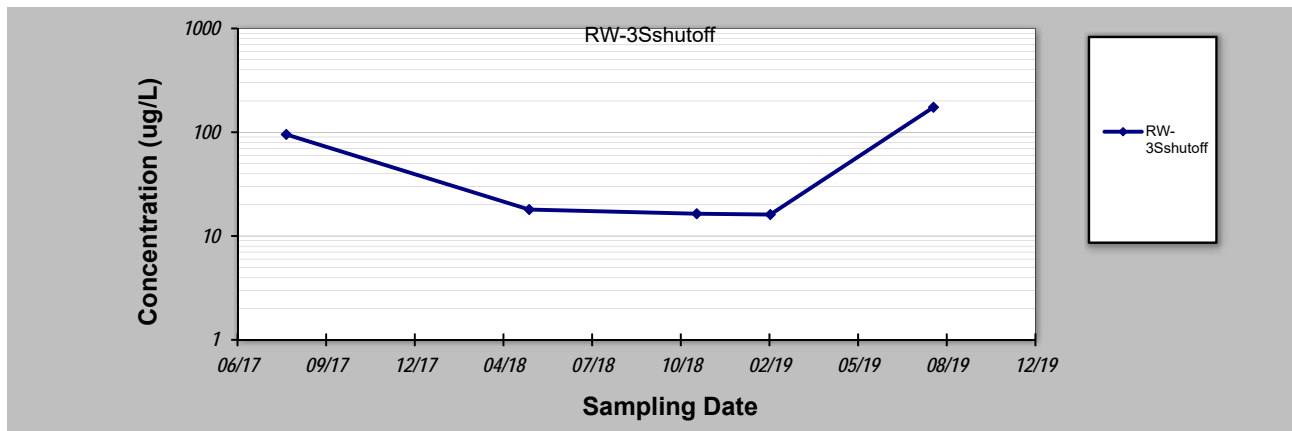
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GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 27-Feb-19	Job ID: RW3S since shutoff
Facility Name: Hope-Essex	Constituent: Total CVOCs
Conducted By: David Mitchell	Concentration Units: ug/L
Sampling Point ID: RW-3Sshutoff	

Sampling Event	Sampling Date	TOTAL CVOCS CONCENTRATION (ug/L)
1	8-Aug-17	95.2
2	9-May-18	18.0
3	14-Nov-18	16.4
4	5-Feb-19	16.1
5	8-Aug-19	174
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.10
Mann-Kendall Statistic (S):		-2
Confidence Factor:		59.2%
Concentration Trend:		No Trend



Notes:

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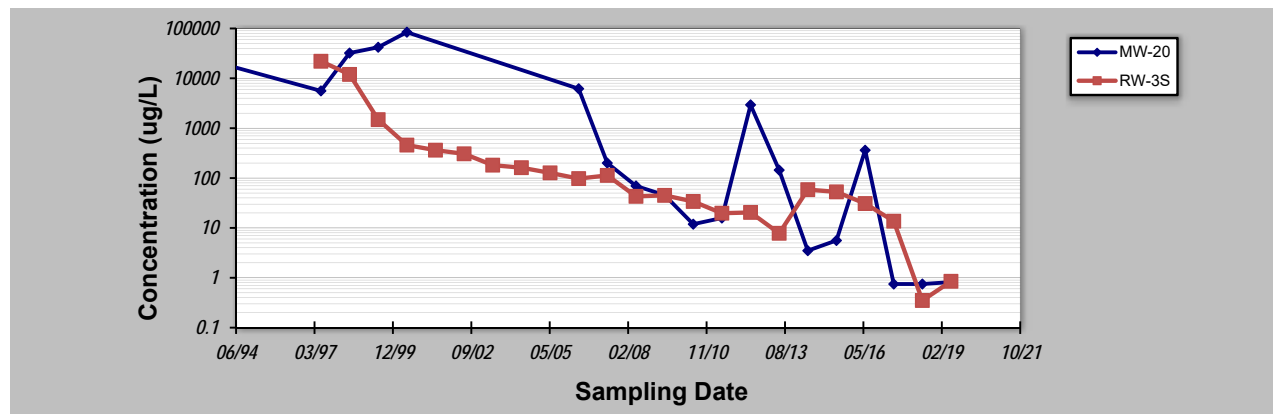
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GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **27-Feb-19** Job ID: **Total CBTEX-Average Annual (long records)**
 Facility Name: **Hope-Essex** Constituent: **Total CBTEX**
 Conducted By: **David Mitchell** Concentration Units: **ug/L**

Sampling Point ID:		MW-20	RW-3S				
Sampling Event	Sampling Date	TOTAL CBTEX CONCENTRATION (ug/L)					
1	1-Jun-93	23,890					
2	1-Jun-97	5,599	22,007				
3	1-Jun-98	32,153	11,984				
4	1-Jun-99	42,040	1,486				
5	1-Jun-00	84,203	458				
6	1-Jun-01		363				
7	1-Jun-02		306				
8	1-Jun-03		181				
9	1-Jun-04		162				
10	1-Jun-05		127				
11	1-Jun-06	6,182	97.6				
12	1-Jun-07	200	113				
13	1-Jun-08	69.5	43.0				
14	1-Jun-09	45.5	45.0				
15	1-Jun-10	11.9	34.0				
16	1-Jun-11	15.8	19.8				
17	1-Jun-12	2,936	20.5				
18	1-Jun-13	145	7.80				
19	1-Jun-14	3.50	58.6				
20	1-Jun-15	5.60	52.9				
21	1-Jun-16	362	30.9				
22	1-Jun-17	0.75	13.6				
23	1-Jun-18	0.75	0.35				
24	1-Jun-19	0.82	0.85				
25							
Coefficient of Variation:		2.08	1.16				
Mann-Kendall Statistic (S):		-108	-131				
Confidence Factor:		>99.9%	>99.9%				
Concentration Trend:		Decreasing	Decreasing				



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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 - Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
 - Due to large number of data, concentrations were averaged on an annual basis
 - Values shown in red are non-detect. All ND results were re-censored to the same value below the lowest detected concentrations
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GSI MANN-KENDALL TOOLKIT

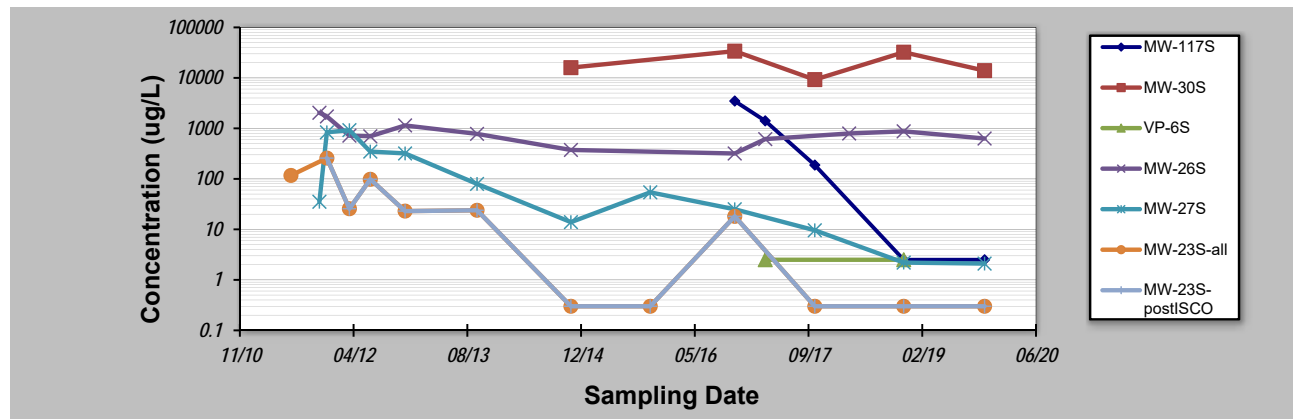
for Constituent Trend Analysis

Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID:
 Constituent: **Total CBTEX**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-117S** **MW-30S** **VP-6S** **MW-26S** **MW-27S** **MW-23S-all** **MW-23S-postISCO**

Sampling Event	Sampling Date	TOTAL CBTEX CONCENTRATION (ug/L)						
1	30-Jun-11						117	
2	2-Nov-11				2,039	35.2		
3	5-Dec-11				1,725	836	258	258
4	13-Mar-12				719	923	25.6	25.6
5	13-Jun-12				697	348	98.2	98.2
6	13-Nov-12				1,145	319	23.0	23.0
7	25-Sep-13				779	79.4	23.9	23.9
8	12-Nov-14		15,956		374	13.9	0.30	0.30
9	27-Oct-15					54.2	0.30	0.30
10	1-Nov-16	3,479	33,877		319	25.0	18.1	18.1
11	15-Mar-17	1,409		2.50	613			
12	19-Oct-17	187.6	9,237			9.60	0.30	0.30
13	19-Mar-18				792			
14	14-Nov-18	2.50	32,220	2.50	874	2.20	0.30	0.30
15	5-Nov-19	2.50	13,920		630	2.10	0.30	0.30
16								
17								
18								
19								
20								
Coefficient of Variation:		1.47	0.53	0.00	0.58	1.11	1.64	1.90
Mann-Kendall Statistic (S):		-9	-2	0	-22	-11	-46	-37
Confidence Factor:		97.5%	59.2%		92.4%	97.2%	100.0%	99.8%
Concentration Trend:		Decreasing	Stable		Prob. Decreasing	Decreasing	Decreasing	Decreasing



Notes:

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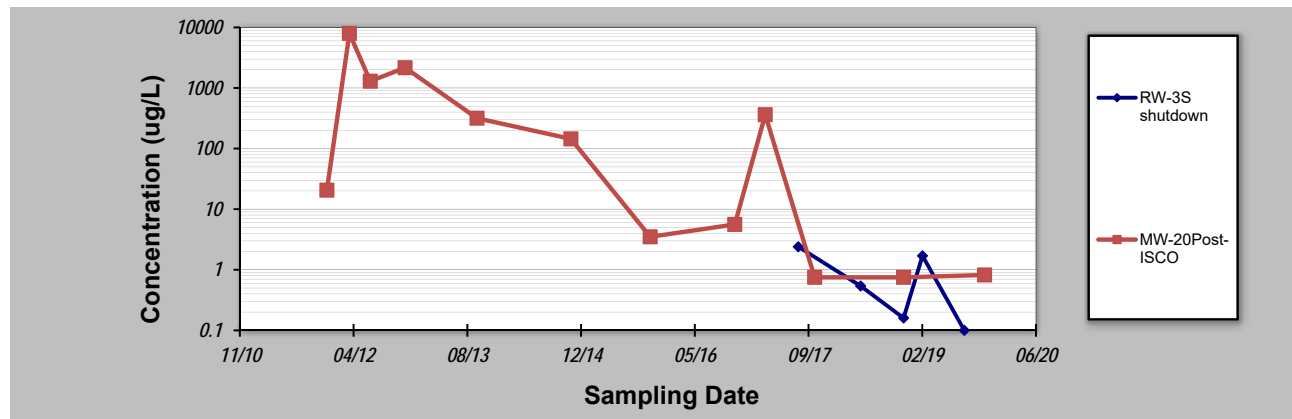
for Constituent Trend Analysis

Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID: **RW-3S After Shutoff, MW-20 after 2011 ISCO**
 Constituent: **Total CBTEX**
 Concentration Units: **ug/L**

Sampling Point ID: **RW-3S shutdown MW-20Post-ISCO**

Sampling Event	Sampling Date	TOTAL CBTEX CONCENTRATION (ug/L)					
1	5-Dec-11		20.6				
2	13-Mar-12		7,971				
3	13-Jun-12		1,294				
4	13-Nov-12		2,161				
5	25-Sep-13		317				
6	12-Nov-14		145				
7	27-Oct-15		3.50				
8	1-Nov-16		5.60				
9	15-Mar-17		362				
10	8-Aug-17	2.40					
11	19-Oct-17		0.75				
12	9-May-18	0.54					
13	14-Nov-18	0.16	0.75				
14	5-Feb-19	1.7					
15	8-Aug-19	0.1					
16	5-Nov-19		0.82				
17							
18							
19							
20							
Coefficient of Variation:		1.04	2.24				
Mann-Kendall Statistic (S):		-6	-37				
Confidence Factor:		88.3%	99.5%				
Concentration Trend:		No Trend	Decreasing				



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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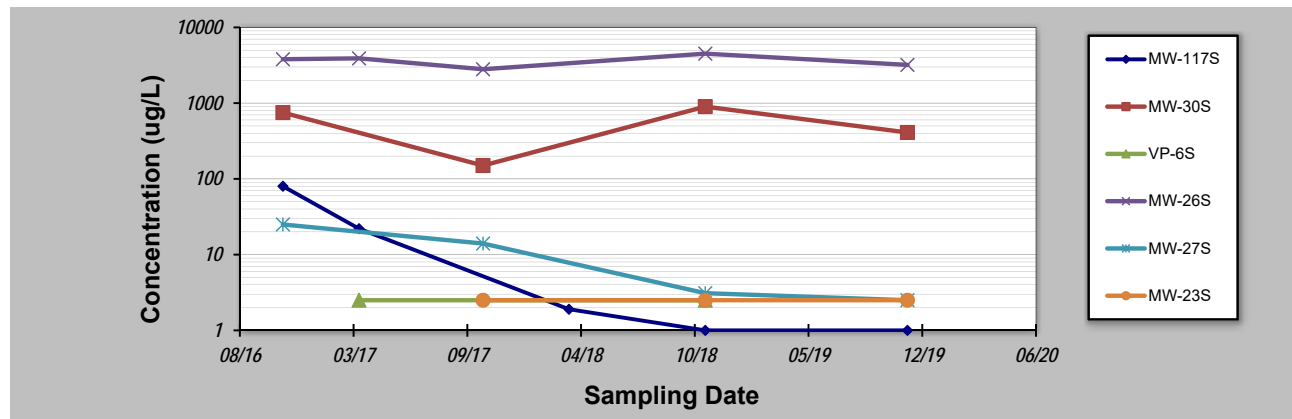
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: **27-Feb-19**
 Facility Name: **Hope-Essex**
 Conducted By: **David Mitchell**

Job ID:
 Constituent: **1,2,4-Trimethylbenzene**
 Concentration Units: **ug/L**

Sampling Point ID:		MW-117S	MW-30S	VP-6S	MW-26S	MW-27S	MW-23S	
Sampling Event	Sampling Date	1,2,4-TRIMETHYLBENZENE CONCENTRATION (ug/L)						
1	1-Nov-16	80.0	750		3,800	25.0		
2	15-Mar-17	22.0		2.50	3,900			
3	19-Oct-17		150		2,800	14.0	2.50	
4	19-Mar-18	1.90						
5	14-Nov-18	1.00	900	2.50	4,500	3.10	2.50	
6	5-Nov-19	1.00	410		3,200	2.50	2.50	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.61	0.61	0.00	0.18		0.00	
Mann-Kendall Statistic (S):		-9	0	0	0		0	
Confidence Factor:		97.5%	37.5%		40.8%			
Concentration Trend:		Decreasing	Stable		Stable			



Notes:

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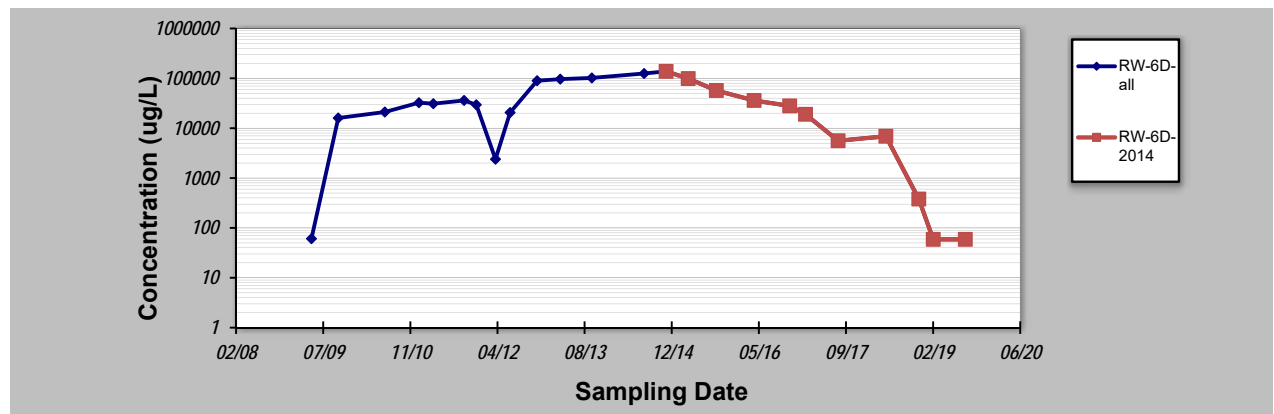
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GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 27-Feb-19	Job ID: RW-6D - last 10 years and since 2014
Facility Name: Hope-Essex	Constituent: Acetone
Conducted By: David Mitchell	Concentration Units: ug/L

Sampling Point ID:		RW-6D-all	RW-6D-2014					
Sampling Event	Sampling Date	ACETONE CONCENTRATION (ug/L)						
1	29-Apr-09	60.8						
2	30-Sep-09	16,000						
3	24-Jun-10	21,100						
4	6-Jan-11	32,500						
5	29-Mar-11	31,000						
6	22-Sep-11	36,000						
7	1-Dec-11	29,500						
8	20-Mar-12	2,390						
9	12-Jun-12	20,600						
10	14-Nov-12	89,600						
11	27-Mar-13	96,300						
12	24-Sep-13	102,000						
13	21-Jul-14	125,000						
14	24-Nov-14	138,000	138,000					
15	31-Mar-15	99,000	99,000					
16	9-Sep-15	57,000	57,000					
17	13-Apr-16	36,000	36,000					
18	3-Nov-16	28,000	28,000					
19	2-Feb-17	19,000	19,000					
20	8-Aug-17	5,600	5,600					
21	9-May-18	6,900	6,900					
22	14-Nov-18	380	380					
23	5-Feb-19	59	59					
24	8-Aug-19	59	59					
25								
Coefficient of Variation:		1.04	1.29					
Mann-Kendall Statistic (S):		-38	-52					
Confidence Factor:		81.9%	>99.9%					
Concentration Trend:		No Trend	Decreasing					



Notes:

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

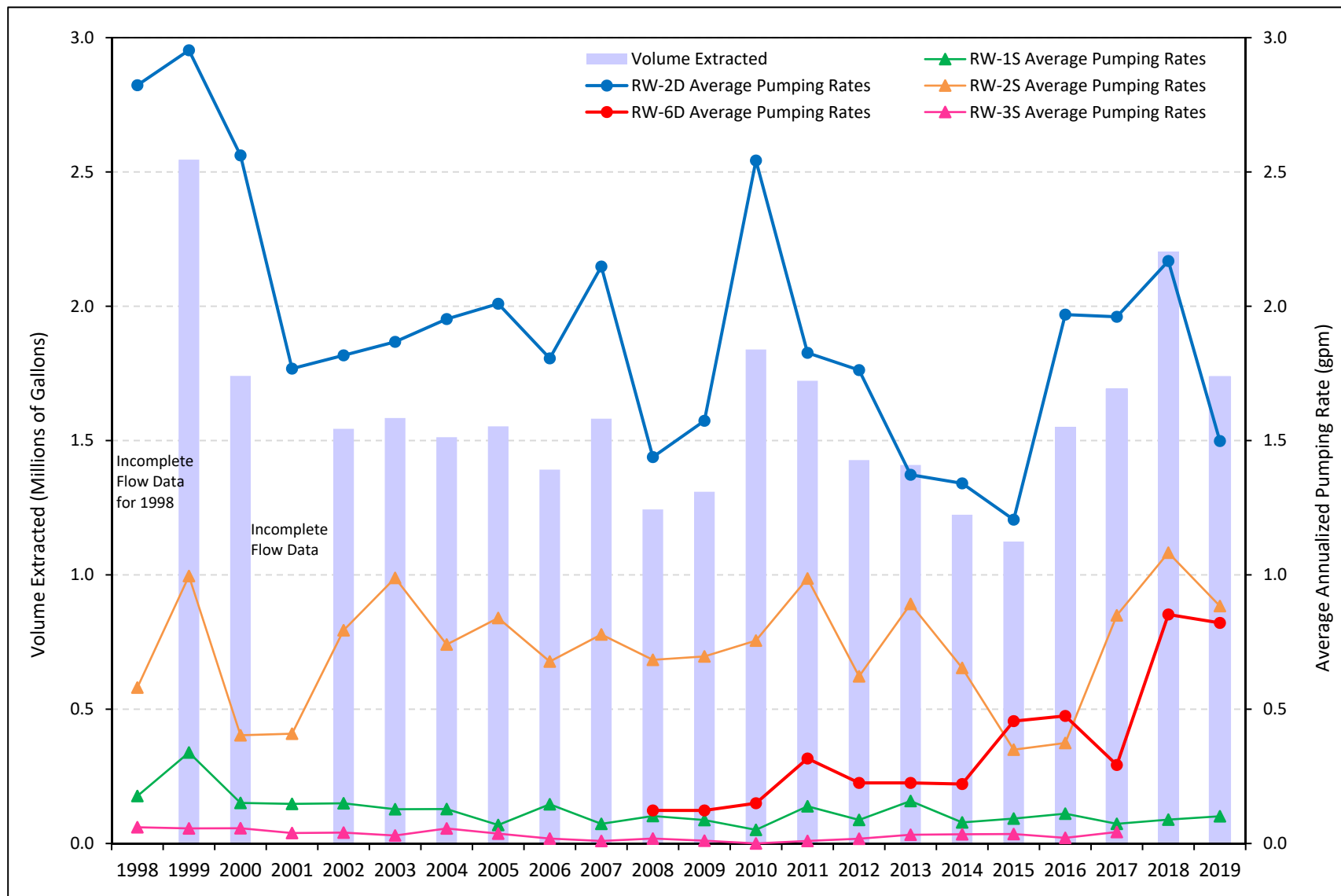
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI Environmental Inc., www.gsi-net.com

Appendix E

Groundwater Extraction Monitoring Data

Appendix E1
Groundwater Extraction System Data



Notes:

1. Pumping rates for 2019 were averaged over a 365-day reporting period.
2. RW-3S was taken offline in August 2017.

FIGURE E1
Annual Groundwater Extraction by Recovery Well
 2019 Annual Periodic Review Report
 Essex/Hope Site, Jamestown, New York



Appendix E2
Recovery Well Performance Data

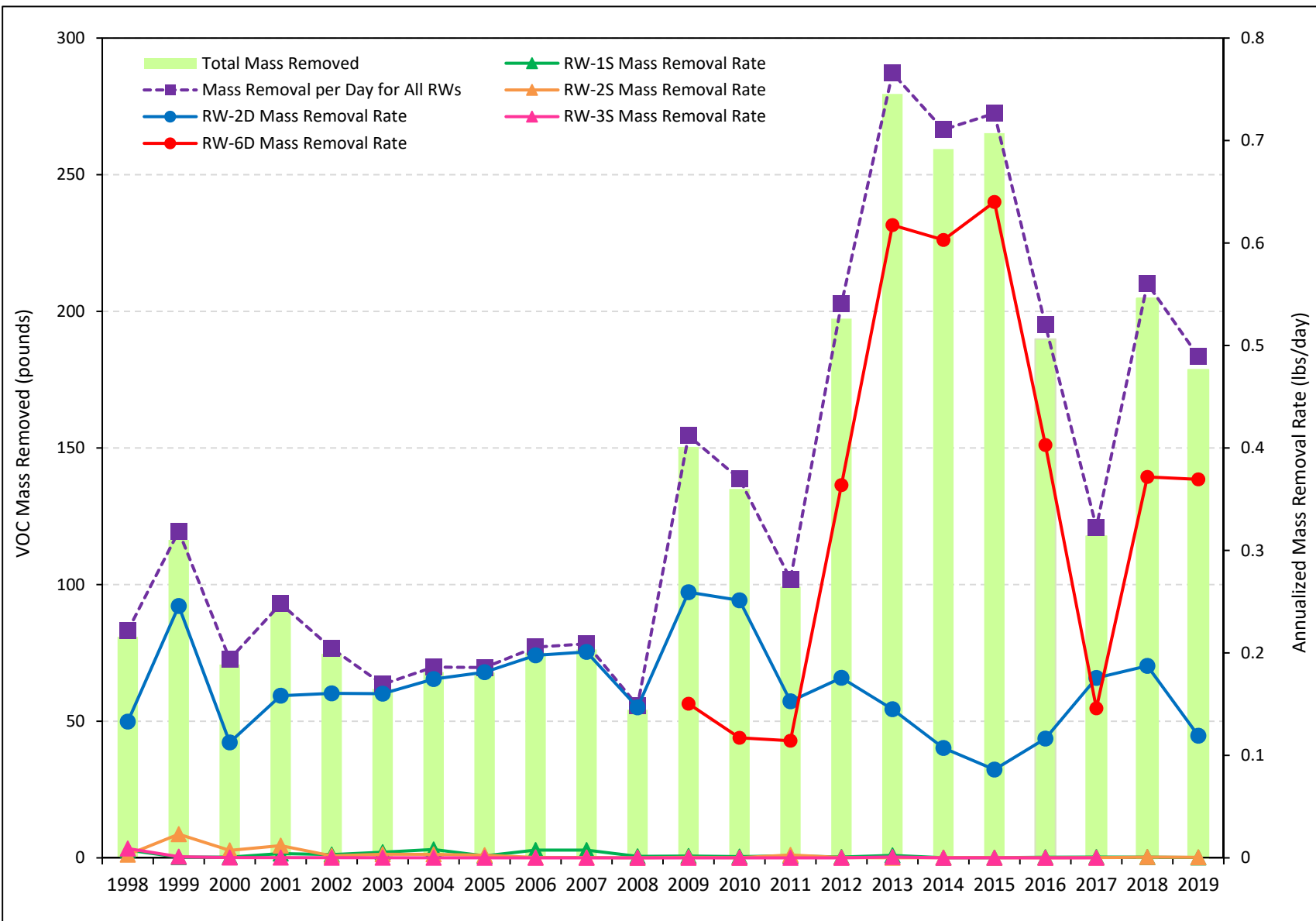


FIGURE E2

Notes:

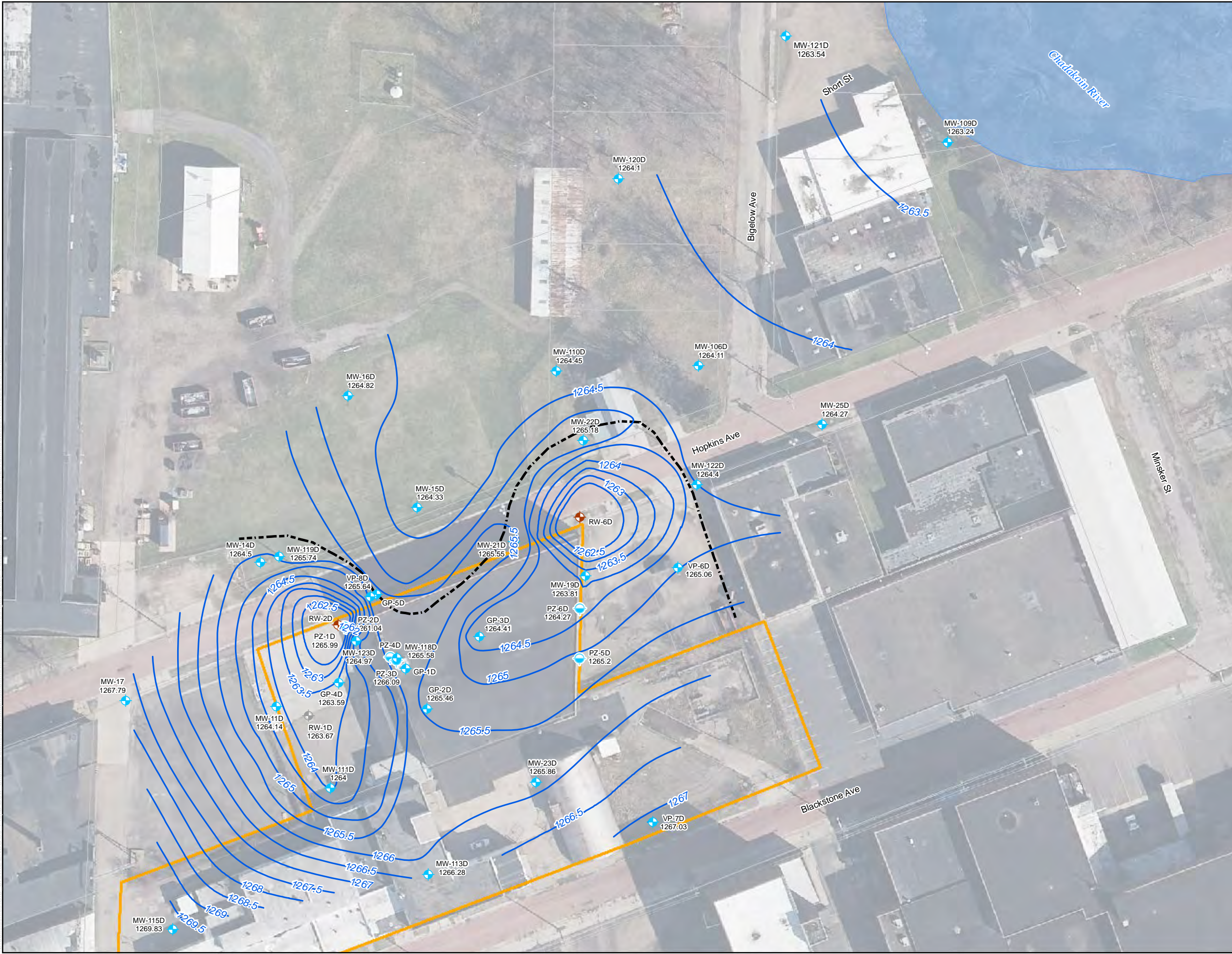
1. Mass removal calculations include acetone, which is removed but not not treated.
 2. RW-3S was taken offline in August 2017.
- RW = recovery well; VOC = volatile organic compound

Annual VOC Mass Removed by Well
 2019 Annual Periodic Review Report
 Essex/Hope Site, Jamestown, New York



Appendix F

Groundwater Potentiometric Surface Maps



Monitoring Well

Piezometer

Inactive Recovery Well

Active Recovery Well

Groundwater Elevation Contour
(Dashed where inferred)

Extent of Capture Zone

Approximate Site Boundary

Chautauqua County Tax Parcels

Chadakoin River

Note:

1. All elevations are in feet above mean sea level, NAVD88.
2. Previous week pumping rates (gpm):
RW-2D: 1.82
RW-6D: 0.68
3. RW-6D offline February 13 - March 13, 2019
4. gpm = gallons per minute
5. PZ-1D, PZ-2D PZ-3D, PZ-4D, and MW-14D appear to have anomalous water levels, not included in contouring.

N

BASE MAP SOURCE:
Sources: Esri, USGS, NOAA

0

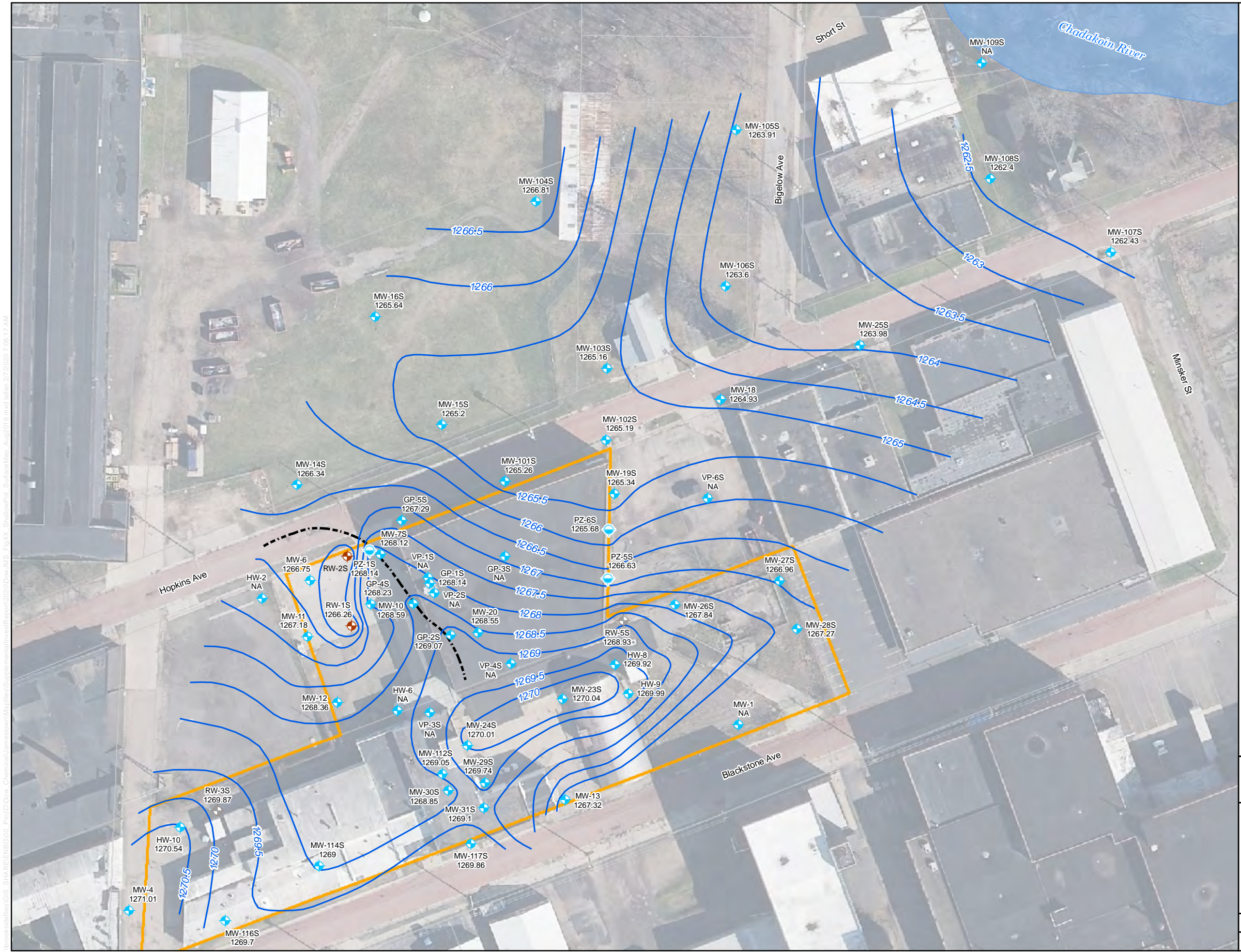
25

50

100

Scale in Feet

Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
Figure F2. Deep WBZ Potentiometric Surface Map March 28, 2019 2019 Annual Periodic Review Report	
CREATED BY: LA	JACOBS
REVIEWED BY: DM	

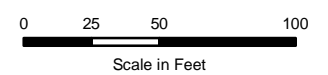


- Monitoring Well
- Piezometer
- Recovery Well
- Inactive Recovery Well
- Groundwater Elevation Contour (Dashed where inferred)
- Extent of Capture Zone
- Chautauqua County Tax Parcels
- Chadakoin River
- Approximate Site Boundary

Note:
1. All elevations are in feet above mean sea level, NAVD88.
2. Previous week pumping rates (gpm):
RW-1S: 0.0; Pump off
RW-2S: 0.7
3. gpm = gallons per minute



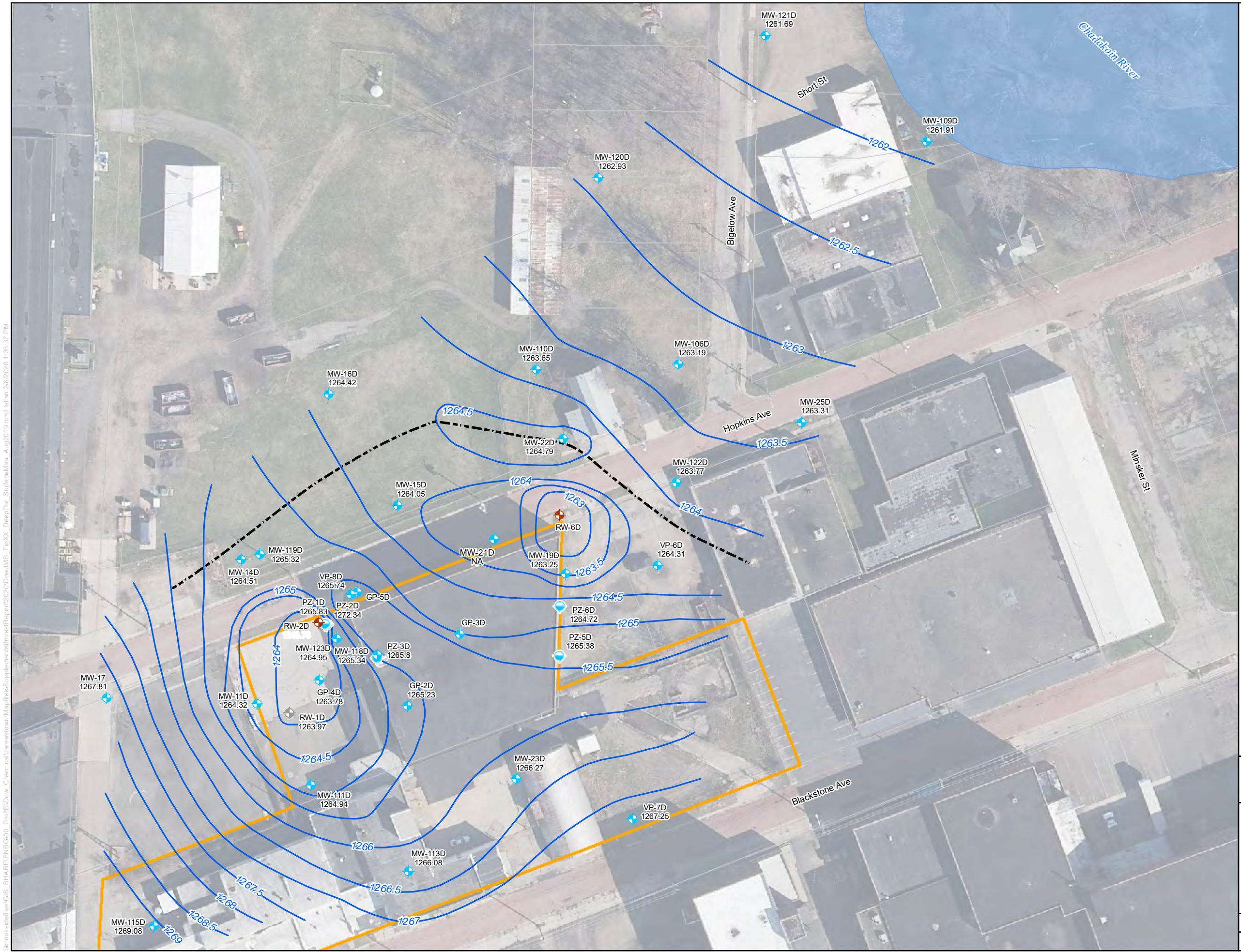
BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, 2016 Statewide
Orthoimagery, Obtained: Feb 2019.



Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
-------------------------------	--------------------------------------

Figure F5. Shallow WBZ Potentiometric Surface Map August 15th, 2019
2019 Annual Periodic Review Report

\\brooksdelles\GIS_SHARE\ENB0100_Proj\01Dow_Chemical\Jamestown\Mapfiles\SupplementalInvestReport\2020\Down\MS_FigXX_ShallowPot_SurfaceMap_Aug2019.mxd Iailian 2/7/2020 7:06:17 AM



Monitoring Well

Piezometer

Recovery Well

Inactive Recovery Well

Groundwater Elevation Contour
(Dashed where inferred)

Extent of Capture Zone

Approximate Site Boundary

Chautauqua County Tax Parcels

Chadakoin River

Note:

1. All elevations are in feet above mean sea level, NAVD88.
2. Previous week pumping rates (gpm):
RW-2D: 1.52
RW-6D: 0.87
3. gpm = gallons per minute
4. MW-14D, PZ-1D and PZ-2D appear to be anomalous and not included in contouring.

BASE MAP SOURCE:
NYS Office of Information Technology Services,
GIS Program Office, 2016 Statewide
Orthoimagery, Obtained: Feb 2019.

0

25

50

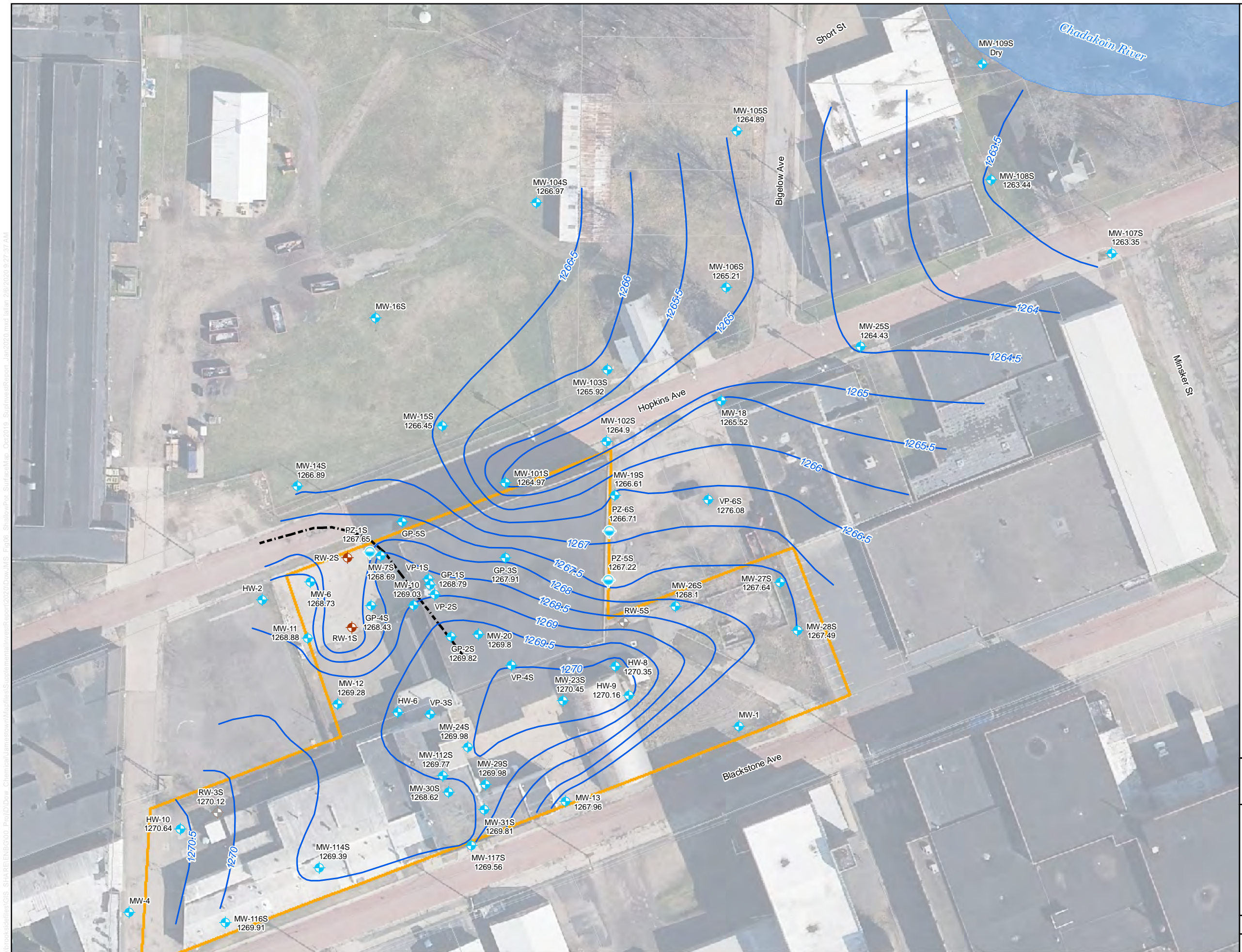
100

Scale in Feet

Essex Specialty Products, Inc	Essex/Hope Site, Jamestown, New York
Figure F6. Deep WBZ Potentiometric Surface Map August 15th, 2019 2019 Annual Periodic Review Report	
CREATED BY: LA	
REVIEWED BY: DM	

\\brooksides\GIS_SHARE\ENBG\00_Proj\ID\ow_Chemical\Jamestown\Mapfiles\Supplemental\InvestReport\2020\Down\MS_FigXX_DeepPot_SurfaceMap_Aug2019.mxd lailian 2/6/2020 1:36:37 PM

\\brooksdelles\GIS_SHARE\ENB\000_Proj\ID\000_Chemical\Jamestown\Mapfiles\SupplementalInvestReport\2020\Down\MS_Fig06_ShallowPot_SurfaceMap_Oct2019_SupInvestReport_Jan2020.mxd lalan 2/6/2020 9:27:37 AM



Monitoring Well

Piezometer

Recovery Well

Inactive Recovery Well

Groundwater Elevation Contour
(Dashed where inferred)

Extent of Capture Zone

Chautauqua County Tax Parcels

Chadakoin River

Approximate Site Boundary

Note:

1. All elevations are in feet above mean sea level, NAVD88.
2. Previous week pumping rates (gpm):
RW-1S: 0.19
RW-2S: 1.77
3. gpm = gallons per minute
4. MW-30S elevation appears to be anomalous, not included in contouring.

BASE MAP SOURCE:

0

25

50

100

Scale in Feet

Essex Specialty
Products, Inc

Essex/Hope Site,
Jamestown, New York

Figure F7. Shallow WBZ Potentiometric
Surface Map October 29th, 2019

2019 Annual Periodic Review Report

CREATED BY: LA

REVIEWED BY: DM

Appendix G
Groundwater Extraction System
Inspection Logs



Groundwater Extraction System Inspection Log
Essex-Hope Site, Jamestown, New York

Inspection Date and Time: 4/23/2019 @ 14:00

Inspected By: Jon Gowing

Recovery Well RW-1S

Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		

Recovery Well RW-2S

Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		

Recovery Well RW-2D

Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		

Recovery Well RW-6D

Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	Brand new pump and motor		



Groundwater Extraction System Inspection Log
Essex-Hope Site, Jamestown, New York

Inspection Date and Time: 10/9/2019

Inspected By: T. Pendry

Recovery Well RW-1S			
Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		
Recovery Well RW-2S			
Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		
Recovery Well RW-2D			
Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	none required		
Recovery Well RW-6D			
Pump Condition:	Good	Fair	Poor
Motor Condition:	Good	Fair	Poor
Level Control Condition:	Good	Fair	Poor
Sediment Accumulation:	Significant	Moderate	Minimal/None
Notes/Recommended Repairs:	Keep pump operating to avoid sediment settling around pump		

Appendix H

Asphalt Inspection Logs



120 St James Avenue
Boston, MA 02116
(617) 242-9222

Asphalt and Concrete Cap Inspection Log
Essex-Hope Site, Jamestown, New York

Inspection Date(s) and Time(s): 4/23/2019 @ 13:00

Inspected By: Jon Gowing

Cap Description

Typical asphalt caps consist of NYSDOT Type 3 binder and Type 7 wear coarse - approximately 3.5 in thick combined. Located at the southern portion of former NPLS Area and AST/UST and UST Areas.

Typical concrete cap consist of 4500 psi, 28 day compressive strength concrete - up to 8 in thick. Located at the northern portion of former NPLS Area.

Cap Conditions (cracks, poor drainage areas, etc.)

Asphalt cap at NPLS Area - up to 24 ft long cracks, up to 2 in deep and 1 in wide; 3 ft diameter pot hole.

Several cracks were identified, transversal and longitudinal; some with vegetation growth.

Concrete cap at NPLS Area - up to 90 ft long shallow crack, up to 0.5 in deep and 0.5 in wide. Concrete joints (one every 60 ft) appear eroded and some have minor vegetation growth.

Asphalt cap at AST/UST Area - Small cracks (under 5 ft long), but with moderate vegetation growth at cracks and joints with well pads and asphalt patches.

Asphalt cap at UST Area - intact, no visible cracks

Repairs Recommended

Recommend performing crack sealing work at at the NPLS Area and AST/UST Area asphalt and concrete caps.

Areas should be prepped prior to sealing by removing weeds and vegetation growing through cracks.

Photo(s)

Asphalt cap at NPLS Area:



Concrete cap at NPLS Area:





120 St James Avenue
Boston, MA 02116
(617) 242-9222

Asphalt and Concrete Cap Inspection Log
Essex-Hope Site, Jamestown, New York

Inspection Date(s) and Time(s): 10/9/2019 @ 15:00
Inspected By: Travis Pendry

Cap Description

Typical asphalt caps consist of NYSDOT Type 3 binder and Type 7 wear coarse - approximately 3.5 in thick combined. Located at the southern portion of former NPLS Area and AST/UST and UST Areas.

Typical concrete cap consist of 4500 psi, 28 day compressive strength concrete - up to 8 in thick. Located at the northern portion of former NPLS Area.

Cap Conditions (cracks, poor drainage areas, etc.)

Asphalt cap at NPLS Area - Recently repaired and sealed, intact, no visible cracks

Concrete cap at NPLS Area - Recently repaired and sealed, intact, no visible cracks

Asphalt cap at AST/UST Area - Recently repaired and sealed, intact, no visible cracks

Asphalt cap at UST Area - Intact, no visible cracks

Repairs Recommended

None, repairs, paving and crack sealing completed on September 10, 2019

Photo(s)

Asphalt cap at NPLS Area:



Concrete cap at NPLS Area:



Appendix I
Backflow Prevention Exemption
Certification



Jamestown Board of Public Utilities
Water Division
PO Box 700
Jamestown, NY 14702-0700
tlinamen@jamestownbpu.com

Backflow Prevention Device Exemption Renewal Form

THIS FORM IS TO BE FILLED OUT BY THE PROPERTY OWNER


If an exemption from having to install a backflow prevention device is approved by this office, the property owner of that facility must complete and send us this form **each year**. It serves as an assurance by the property owner that **none** of the conditions of his or her building have changed since it was initially inspected and approved as non-hazardous to the Jamestown BPU public water system. Please submit this report to Terri Linamen at the Jamestown Board of Public Utilities Water Department by either mail or email.

Most Recently Assigned Approval # : 1273-0918

Facility Name: Essex Specialty Products Contact Person: Kyle Block/Jacobs
Service Address: 126 Hopkins Avenue Contact Phone #: 617-626-7013
Mailing Address: 126 Hopkins Avenue Email Address: kyle.block@jacobs.com

By signing below, you are confirming that none of the conditions listed on the initial *Form for Backflow Prevention Device Exemption* have changed, and therefore, your facility can still be deemed non-hazardous and exempt from having to install a backflow prevention device. You are additionally agreeing that if the ownership of the property were to change, you will inform the new owner of their responsibility of completing and sending in this renewal form annually.

Property Owner's Name: Audrey Sidebottom / The Dow Chemical Company
Owner's Mailing Address: Bag 16, Hwy 15, Fort Saskatchewan AB T8L2P4, Canada
Owner's Phone Number: +1 (780) 998-5767

Owner's Signature: 
Date: September 11, 2019

From: Brenda Wagner
To: [Vidal, Maria/BOS](#)
Cc: [Block, Kyle/BOS](#)
Subject: [EXTERNAL] RE: 2019 Backflow Prevention Device Exemption Renewal Form for Essex Specialty Products
Date: Friday, January 3, 2020 5:11:28 PM
Attachments: [image001.png](#)
[Backflow Exemption Renewal Form.pdf](#)

Maria,

Happy holidays to you as well! I apologize for the delay - the exemption from having to install a backflow prevention device at Essex Specialty Products, located at 126 Hopkins Ave. in Jamestown, remains in effect. Your updated Approval # for this year is as follows:

Approval #: **1273-0919**

The first four digits of your Approval # are unique to your facility, while the last four digits indicate the month and year that the exemption was renewed. Please remember that the property owner must complete and send in the attached *Backflow Prevention Device Exemption Renewal Form* to this office every year since the date that the exemption was last approved. For instance, if your Approval # is 0000-0919, your exemption was last approved in September of 2019 and needs to be renewed again by September of 2020.

The Renewal Form serves as an assurance by the property owner that none of the conditions of the building have changed since it was initially inspected and approved as non-hazardous to the BPU public water system. An updated Approval # will be assigned to your facility each year, so please keep track of it in your records. Please make note of when your exemption is due to be renewed each year. If you become overdue for renewing your exemption, a reminder letter will be sent to you. If you fail to renew your exemption after that point, however, it will result in the loss of your exemption and the need to install the appropriate backflow prevention device at your facility.

The Renewal Form can also be found on the BPU website at <https://www.jamestownbpu.com/158/Backflow-Prevention>. If you have any questions, please contact our office at (716) 661-1688. Thank you very much for your time and attention to this matter!

Have a good weekend!

Brenda Wagner
Civil Engineering Technician
Water Department
Jamestown Board of Public Utilities
PO Box 700, Jamestown, NY 14702
Telephone: (716) 661-1688
Email: bwagner@jamestownbpu.com



Appendix J

Semiannual BPU Reports

Mr. Michael V. Saar, P.E.
Water Resources Manager
Division of Wastewater/Solid Waste
City of Jamestown Board of Public Utilities
P.O. Box 700
Jamestown, NY 14702-0700

July 18, 2019

**Subject: Essex-Hope Jamestown Site, 125 Blackstone Ave, Jamestown, NY 14701
Semiannual Self-Monitoring Report for January through June 2019
City of Jamestown Board of Public Utilities (BPU) Permit No. 26**

Dear Mr. Saar,

Jacobs Engineering Group Inc. (Jacobs) has prepared this Semiannual Self-Monitoring Report on behalf of the Essex Specialty Products, Inc. facility in Jamestown, New York (Essex-Hope site), which is classified as a Significant Industrial User subject to Categorical Pretreatment Standards. This report has been prepared in accordance with 40 *Code of Federal Regulations* (CFR) § 403.12, and the requirements set forth in the City of Jamestown BPU Industrial Wastewater Discharge Permit No. 26 (renewed on November 4, 2017 and included as Attachment 1). This report summarizes groundwater treatment operations and metrics completed between January 1 and June 30, 2019.

Self-monitoring reporting requirements applicable to the Essex-Hope site are detailed in Table 1 (attached), and include the following:

- Monthly concentrations of Total Toxic Organics (TTOs) in discharge to the publicly owned treatment works (POTW)
- Monthly pH measurements of discharge to the POTW
- Monthly flow rate measurements of discharge to the POTW
- Estimated daily average and maximum flow rates

Monthly discharge flow totals for the reporting period ranged from 61,753 to 199,844 gallons. These monthly discharge flows were generally consistent with those in previous reporting periods. Daily average flow rates shown in Table 1 were estimated based on totalizer readings for volume of water discharged at the beginning and end of each month. Daily maximum flow rates were estimated to be 20 percent greater than daily averages.

Acetone is not considered a TTO; however, for informational purposes only, the total mass of this constituent discharged per month to the POTW is also included in Table 1. Acetone mass in the discharge for this reporting period corresponds to approximately 0.005-pound. Although acetone concentrations have been declining in the influent over the past few years, concentrations in the influent and effluent for this reporting period represent a significant decrease of acetone, having non-detect results in the discharge from January through April 2019, and low concentration detections in May (1.6 micrograms per liter [µg/L]) and June (3.3 µg/L) 2019.

No noncompliance events occurred between January 1 and June 30, 2019. The treatment system was shut down for approximately 553 cumulative hours in the reporting period due to sediment fouling causing flow restrictions, and a granular activated carbon (GAC) changeout performed on February 7, 2019 with subsequent required carbon hydration time.

The supporting Laboratory Certificates of Analysis for the reported concentrations of volatile organic compounds performed by Alpha Analytical, Inc. (Westborough, Massachusetts) are included as Attachment 2.

We trust that this submittal satisfies the reporting requirements pursuant to 40 CFR § 403.12. Please contact me at 617.626.7013 should you have any questions or comments regarding the Essex-Hope site.

Regards,

Jacobs Engineering Group Inc.

A handwritten signature in dark ink, appearing to read 'Kyle Block', followed by a small circular mark and a stylized flourish.

Kyle Block
Project Manager

Copies to: Tim King (Essex-Hope)
Maurice Moore (NYSDEC)

Attachments: Table 1 January – June 2019 Post-Carbon (Effluent) Monitoring Data
City of Jamestown BPU Industrial Wastewater Discharge Permit No. 26
Laboratory Analytical Reports – January, February, March, April, May, and June 2019

Table

Table 1. January – June 2019 Post-Carbon (Effluent) Monitoring Data*Semiannual Self-Monitoring Report for January through June 2019, Essex-Hope Site, Jamestown, New York*

Reporting Requirements for Pre-Treated Discharge (System Effluent to POTW)	Units	Industrial Wastewater Discharge Permit No. 26 Effluent Limits	January	February	March	April	May	June
POTW Discharge Analytical Data								
Total TTOs	µg/L	2,130	34.2	29.5	2	0.3	0.5	0.8
Detected TTO Compounds	--	Report	cis-1,2-DCE, TCE, VC	Benzene, Carbon Tetrachloride, 1,1-DCE, cis-1,2-DCE, PCE, TCE, VC	TCE	cis-1,2-DCE	TCE, VC	TCE
pH	Standard units	5.5 to 10	7.05	6.33	6.85	6.69	6.79	6.83
			6.75	6.53	6.77	6.85	6.85	6.84
			6.78	6.79	6.79	6.77	6.77	7.07
			6.72	6.87	6.82	6.75	6.85	7.11
Acetone Discharged	Pounds	No limit	0	0	0	0	0.001	0.004
POTW Discharge Flow Data								
Monthly Total Flow	US gallons	Report	199,844	150,112	174,880	79,673	61,753	148,262
Average Daily Flow	US gallons	Report	6,056	6,004	7,287	3,187	1,669	8,237
Maximum Daily Flow	US gallons	Report	7,267	7,205	8,744	3,824	2,003	9,884

Notes:

1. Jamestown BPU Industrial Wastewater Discharge Permit No. 26 was renewed in November 2017, effective November 4, 2017, through November 3, 2022.
2. VOCs sample is a laboratory-prepared composite of four grab samples collected from the pretreatment system discharge to the POTW at 30-minute intervals.
3. pH measurements recorded are concurrent with the time of each post-carbon (effluent) grab sample.
4. Maximum Daily Flow is estimated to be 20 percent greater than Average Daily Flow.
5. System granular activated carbon was changed out on February 7, 2019.

µg/L = micrograms per liter

DCE = dichloroethene

PCE = tetrachloroethene

POTW = publicly owned treatment works

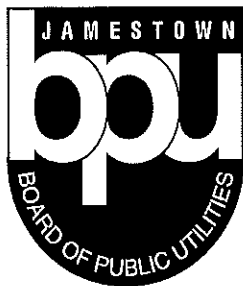
TCE = trichloroethene

TTO = Total Toxic Organic

VC = vinyl chloride

VOC = volatile organic compound

Attachment 1
City of Jamestown BPU Industrial
Wastewater Treatment Permit No. 26



PO Box 700
Jamestown, NY 14702-0700
Phone (716) 661-1673
Fax (716) 661-1617

**ELECTRIC
DISTRICT HEAT
WATER
WASTEWATER
SOLID WASTE**

November 2, 2017

Mr. Kyle Block
CH2M
18 Tremont St
Boston, MA 02108

Dear Mr. Block:

Please find enclosed a copy of your firm's renewed Industrial Waste Discharge Permit governing the wastewater discharge (s) from your facility to the Jamestown Publicly Owned Treatment Works (POTW). The effective dates of the permit are shown on the first page of the permit. This permit is subject to change should there be any additions and/or deletions made to the industrial pretreatment programs as established by the Environmental Protection Agency.

Please review your permit carefully as it may include changes from your previous permit. Should you have any questions or comments concerning your permit, please do not hesitate to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read 'Michael V Saar', is positioned above the printed name.

Michael V Saar, P.E.
Deputy General Manager

CITY OF JAMESTOWN
BOARD OF PUBLIC UTILITIES
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

PERMIT NUMBER	<u>26</u>
INDUSTRY NAME	<u>Essex Specialty Products, Inc</u>
INDUSTRY ADDRESS	<u>124 Blackstone Avenue, Jamestown</u>
SIC NUMBER	<u>Groundwater Remediation</u>
DATE ISSUED	<u>11/4/17</u>
EXPIRATION DATE	<u>11/3/22</u>

Essex Specialty Products, Inc. as a Significant Industrial User (SIU) of the City of Jamestown Publicly Owned Treatment Works (POTW), is hereby issued an industrial wastewater discharge permit pursuant to Chapter 24A of the Jamestown City Code (Jamestown Sewer Use Ordinance) and also with any applicable provisions of federal or state law(s) or regulation(s). Said permit shall be effective for a period of five years from the date of issuance hereof.

This permit is granted in accordance with the application filed on March 12, 1996 and notice of process modifications submitted on N/A and in conformity with the plans, specifications, semi-annual self monitoring reports, and other data submitted to the City in support of the above application, all of which are filed with and considered as part of this permit, together with the following named conditions and requirements:

Effective this 4th day of November , 2017
To expire the 3th day of November , 2022



Deputy General Manager - Board of Public Utilities

RIGHT OF ENTRY

The permittee shall allow duly authorized employees or representatives of the City to enter the permittee's premises for the purpose of inspection, observation, measurement, sampling, and testing in accordance with Article VIII of the Jamestown Sewer Use Ordinance.

SAMPLING MANHOLE REQUIREMENTS

If, in the opinion of the General Manager, there are not adequate facilities for the acquisition of representative samples and accurate flow measurements, the General Manager may require that a sampling manhole with flow measuring device be installed by the permittee at his expense. This sampling manhole shall be approved by this office before installation. The permittee shall be responsible for all maintenance of the sampling manhole and calibration of the monitoring equipment.

BOARD OF PUBLIC UTILITIES MONITORING

Compliance with the Jamestown Sewer Use Ordinance will be monitored via wastewater discharge monitoring. The City of Jamestown will monitor each SIU four times per year. Results will be transmitted to each SIU.

SELF MONITORING

Essex Specialty Products, Inc. must conduct monthly self-monitoring and report results to the City in accordance with applicable federal and local regulations. Monthly reports are due each **August 1** (including months January through June) and **February 1** (including months July through December). Essex Specialty Products, Inc. must notify the City of any violation of its self-monitoring within 24 hours. Such notification shall include a phone call followed up by a letter. All permit limits set forth in this permit are enforceable effluent limitations.

MONITORING LOCATION
SAMPLING VALVE

PARAMETER	SAMPLE	LOCAL
	Monthly	LIMIT
		MG/L
PH (4 grabs)	X	5.5-10.0
TSS (comp)		350
OIL & GREASE		100
CADMIUM (comp)		0.30
CHROMIUM (comp)		4.00
COPPER (comp)		1.25
LEAD (comp)		0.30
NICKEL (comp)		0.90
SILVER (comp)		0.20
ZINC (comp)		3.00
CYANIDE (comp)		0.65
Volatile Organics (4 grabs)	X	2.13

Notes :

1. Samples should be taken as **composites** of at least 4 grab samples collected during a typical production day except for pH. Four separate samples must be taken and **individually analyzed for pH**.
2. All analysis shall be preformed by a New York State Department of Health Certified Environmental Laboratory.
3. All analysis shall be performed in accordance with the latest edition of the following references:
 - a. Standard Methods for the Examination of Water and Wastewater
 - b. Method for Chemical Analysis of Water and Wastes, USEPA, technology Transfer, 1983

PROHIBITED DISCHARGES

The following should not be introduced into the City Sewer system:

- (1) Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21.
- (2) Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than **5.5** or greater than **10.0**;
- (3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;
- (4) Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a Discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW.
- (5) Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 deg.C (104 deg.F) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits.
- (6) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
- (7) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
- (8) Any trucked or hauled pollutants, except at discharge points designated by the POTW.
- (9) The discharge of concentrated solutions without pretreatment is strictly prohibited. Any request to discharge such wastes must be submitted to this office and is subject to the approval of the General Manager on a case by case basis.
- 10) Any water or waste containing fats, wax, grease, oils, or oil products, whether emulsified or not, in excess of **100 mg/l**.

HAZARDOUS WASTE DISCHARGE NOTIFICATION

For discharges of listed and characteristic hazardous wastes which are not already reported in periodic self-monitoring reports and which exceed 15 kilograms per month, the regulations require that all industrial users notify USEPA, NYSDEC, and the City of Jamestown as to the constituents of these wastes and the anticipated discharge volume of such wastes on both a monthly and an annual basis.

CHANGE IN WASTEWATER DISCHARGE

All discharges authorized herein shall comply with the terms and conditions of this permit. Any industrial facility expansions, production increases, or process modifications which result in new, different, or increased discharges of pollutants must be reported by submission of a new industrial waste disposal questionnaire. This permit may be modified to specify and limit any pollutants not previously limited. The discharge of any pollutant more frequently than or at a level in excess of that specified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

RECORDKEEPING

The permittee shall retain all records of monitoring activities and results (whether or not required by this permit) for a minimum of 3 years. These records shall be made available for inspection and copying to duly authorized employees or representatives of the City. This period of retention shall be extended during any unresolved litigation.

PERMIT MODIFICATIONS

After sufficient notice to the permittee, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- (a) Violation of any terms or conditions of this permit.
- (b) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- (c) If an effluent standard is established under any state or federal law for a pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

PERMIT TRANSFER

Sewer Use Permits are issued to a specific User for a specific operation. A wastewater discharge permit shall not be reassigned or, transferred, or sold to a new owner, new User, different premise, or a new or changed operation without the approval of the City. Any succeeding Owner or User shall also comply with the terms and conditions of the existing permit.

NOTICE OF NON-COMPLIANCE

The permittee shall notify the operator of the Jamestown Wastewater Treatment Plant **immediately**, by telephone (665-3980), so that the operator can take the necessary steps to prevent damage to the wastewater treatment process and equipment in the event the permittee:

- (1) Does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit.
- (2) Discharges or may discharge any wastewater which may cause a slug loading to the Jamestown Wastewater Treatment Plant. This includes wastewater which may cause pass through or interference with wastewater treatment plant operations.
- (3) Discharges or may discharge any material or wastewater which is prohibited from discharge as described in the City of Jamestown Local Sewer Use Ordinance or this permit.

These non-complying discharges or possible discharges may be due to:

Breakdown of industrial wastewater pretreatment equipment;
Accidents caused by human error or negligence; or
Other causes, such as acts of nature.

The General Manager shall be notified by telephone within 24 hours, and in writing within five (5) days and said notification shall include the following pertinent information:

- (1) A description of the non-complying discharge;
- (2) Cause of non-compliance;
- (3) Anticipated time the condition of non-compliance is expected to continue, or if such condition has been corrected, the duration of the period of non-compliance;
- (4) Steps taken by the permittee to reduce and eliminate the non-complying discharge; and
- (5) Steps to be taken by the permittee to prevent reoccurrence of the condition of non-compliance.

The permittee must also repeat sampling for all parameters exceeding discharge limitations and submit the results of the repeat analysis within thirty (30) days of the violation(s).

Nothing in this permit shall be construed to relieve the permittee from the penalties for non-compliance of this permit for any reason subject to Article (IX) (Penalties) of the Jamestown Sewer Ordinance.

SCHEDULE OF COMPLIANCE

The permittee shall comply with the following schedule if the present discharge does not conform to the effluent limitations described within this permit:

- a. By _____ the permittee shall have a registered Professional Engineer contact this office.
- b. By _____ the permittee shall complete an engineering report and submit it to this office.
- c. By _____ the permittee shall complete final plans and specifications for pretreatment facilities and submit them to this office for review and approval.
- d. By _____ the permittee shall start construction of its approved pretreatment facilities.
- e. By _____ the permittee shall complete construction of the pretreatment facilities.
- f. By _____ the permittee shall attain operational levels required to achieve the effluent limits specified within this permit.

CIVIL AND CRIMINAL PENALTIES

A permittee found violating applicable local, state or federal regulations may be subject to administrative penalties, civil action, and/or criminal prosecution. If administrative penalties are warranted, a fine in an amount not exceeding \$1000.00 per day per violation may be assessed. If criminal penalties are assessed, a fine in an amount not exceeding \$1,000.00 per violation per day may be assessed, imprisonment for not more than 6 months, or both. Any person violating applicable local, state or federal regulations that results in expense, loss or damage to the City and its property shall be liable for all costs.

Attachment 2
Laboratory Analytical Reports
January, February, March, April, May, and
June 2019



ANALYTICAL REPORT

Lab Number:	L1901445
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	699900.01.RT.OM
Report Date:	01/17/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1901445-01	PRE-CARB_20190111	WATER	JAMESTOWN, NY	01/11/19 07:45	01/11/19
L1901445-02	PRIMARY-EFF_20190111	WATER	JAMESTOWN, NY	01/11/19 07:55	01/11/19
L1901445-03	POST-CARB_20190111	WATER	JAMESTOWN, NY	01/11/19 09:30	01/11/19
L1901445-04	COMPOSITE OF POST- CARB_20190111-1,-2,-3,-4	WATER	JAMESTOWN, NY	01/11/19 09:30	01/11/19
L1901445-05	TRIP BLANK	WATER	JAMESTOWN, NY	01/11/19 00:00	01/11/19

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1901445-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1901445-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1197910-3 LCS recovery, associated with L1901445-01, -02, -03, and -05, is above the individual acceptance criteria for chloroethane (140%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1901445-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

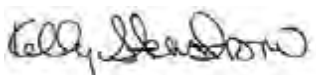
The initial calibration verification standard has the percent deviation for bromomethane (30%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1901445-01, -02, -03, and -05, did not meet the method required minimum response factor for 2-butanone, 4-methyl-2-pentanone, 2-hexanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The WG1197910-2 continuing calibration verification standard has the percent deviation for vinyl chloride (25%D), chloroethane (56%D), styrene (22%D), dichlorodifluoromethane (22%D), vinyl acetate (30%D), hexachlorobutadiene (26%D), and 1,4-dioxane (23%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 01/17/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-01 D
Client ID: PRE-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:45
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/15/19 10:08
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	62	18.	25
1,1-Dichloroethane	ND		ug/l	62	18.	25
Chloroform	ND		ug/l	62	18.	25
Carbon tetrachloride	ND		ug/l	12	3.4	25
1,2-Dichloropropane	ND		ug/l	25	3.4	25
Dibromochloromethane	ND		ug/l	12	3.7	25
1,1,2-Trichloroethane	ND		ug/l	38	12.	25
Tetrachloroethene	ND		ug/l	12	4.5	25
Chlorobenzene	ND		ug/l	62	18.	25
Trichlorofluoromethane	ND		ug/l	62	18.	25
1,2-Dichloroethane	ND		ug/l	12	3.3	25
1,1,1-Trichloroethane	ND		ug/l	62	18.	25
Bromodichloromethane	ND		ug/l	12	4.8	25
trans-1,3-Dichloropropene	ND		ug/l	12	4.1	25
cis-1,3-Dichloropropene	ND		ug/l	12	3.6	25
1,3-Dichloropropene, Total	ND		ug/l	12	3.6	25
1,1-Dichloropropene	ND		ug/l	62	18.	25
Bromoform	ND		ug/l	50	16.	25
1,1,2,2-Tetrachloroethane	ND		ug/l	12	4.2	25
Benzene	13		ug/l	12	4.0	25
Toluene	ND		ug/l	62	18.	25
Ethylbenzene	ND		ug/l	62	18.	25
Chloromethane	ND		ug/l	62	18.	25
Bromomethane	ND		ug/l	62	18.	25
Vinyl chloride	790		ug/l	25	1.8	25
Chloroethane	ND		ug/l	62	18.	25
1,1-Dichloroethene	18		ug/l	12	4.2	25
trans-1,2-Dichloroethene	23	J	ug/l	62	18.	25

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-01 D
Client ID: PRE-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:45
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	4300		ug/l	12	4.4	25
1,2-Dichlorobenzene	ND		ug/l	62	18.	25
1,3-Dichlorobenzene	ND		ug/l	62	18.	25
1,4-Dichlorobenzene	ND		ug/l	62	18.	25
Methyl tert butyl ether	ND		ug/l	62	18.	25
p/m-Xylene	ND		ug/l	62	18.	25
o-Xylene	ND		ug/l	62	18.	25
Xylenes, Total	ND		ug/l	62	18.	25
cis-1,2-Dichloroethene	4500		ug/l	62	18.	25
1,2-Dichloroethene, Total	4500	J	ug/l	62	18.	25
Dibromomethane	ND		ug/l	120	25.	25
1,2,3-Trichloropropane	ND		ug/l	62	18.	25
Styrene	ND		ug/l	62	18.	25
Dichlorodifluoromethane	ND		ug/l	120	25.	25
Acetone	ND		ug/l	120	36.	25
Carbon disulfide	ND		ug/l	120	25.	25
2-Butanone	ND		ug/l	120	48.	25
Vinyl acetate	ND		ug/l	120	25.	25
4-Methyl-2-pentanone	ND		ug/l	120	25.	25
2-Hexanone	ND		ug/l	120	25.	25
Bromochloromethane	ND		ug/l	62	18.	25
2,2-Dichloropropane	ND		ug/l	62	18.	25
1,2-Dibromoethane	ND		ug/l	50	16.	25
1,3-Dichloropropane	ND		ug/l	62	18.	25
1,1,1,2-Tetrachloroethane	ND		ug/l	62	18.	25
Bromobenzene	ND		ug/l	62	18.	25
n-Butylbenzene	ND		ug/l	62	18.	25
sec-Butylbenzene	ND		ug/l	62	18.	25
tert-Butylbenzene	ND		ug/l	62	18.	25
o-Chlorotoluene	ND		ug/l	62	18.	25
p-Chlorotoluene	ND		ug/l	62	18.	25
1,2-Dibromo-3-chloropropane	ND		ug/l	62	18.	25
Hexachlorobutadiene	ND		ug/l	62	18.	25
Isopropylbenzene	ND		ug/l	62	18.	25
p-Isopropyltoluene	ND		ug/l	62	18.	25
Naphthalene	ND		ug/l	62	18.	25
n-Propylbenzene	ND		ug/l	62	18.	25



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-01 D
Client ID: PRE-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:45
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	62	18.	25
1,2,4-Trichlorobenzene	ND		ug/l	62	18.	25
1,3,5-Trimethylbenzene	ND		ug/l	62	18.	25
1,2,4-Trimethylbenzene	ND		ug/l	62	18.	25
1,4-Dioxane	ND		ug/l	6200	1500	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-02 D
Client ID: PRIMARY-EFF_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:55
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/15/19 10:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	12	3.5	5
1,1-Dichloroethane	ND		ug/l	12	3.5	5
Chloroform	ND		ug/l	12	3.5	5
Carbon tetrachloride	ND		ug/l	2.5	0.67	5
1,2-Dichloropropane	ND		ug/l	5.0	0.68	5
Dibromochloromethane	ND		ug/l	2.5	0.74	5
1,1,2-Trichloroethane	ND		ug/l	7.5	2.5	5
Tetrachloroethene	ND		ug/l	2.5	0.90	5
Chlorobenzene	ND		ug/l	12	3.5	5
Trichlorofluoromethane	ND		ug/l	12	3.5	5
1,2-Dichloroethane	ND		ug/l	2.5	0.66	5
1,1,1-Trichloroethane	ND		ug/l	12	3.5	5
Bromodichloromethane	ND		ug/l	2.5	0.96	5
trans-1,3-Dichloropropene	ND		ug/l	2.5	0.82	5
cis-1,3-Dichloropropene	ND		ug/l	2.5	0.72	5
1,3-Dichloropropene, Total	ND		ug/l	2.5	0.72	5
1,1-Dichloropropene	ND		ug/l	12	3.5	5
Bromoform	ND		ug/l	10	3.2	5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	0.84	5
Benzene	ND		ug/l	2.5	0.80	5
Toluene	ND		ug/l	12	3.5	5
Ethylbenzene	ND		ug/l	12	3.5	5
Chloromethane	ND		ug/l	12	3.5	5
Bromomethane	ND		ug/l	12	3.5	5
Vinyl chloride	750		ug/l	5.0	0.36	5
Chloroethane	ND		ug/l	12	3.5	5
1,1-Dichloroethene	ND		ug/l	2.5	0.84	5
trans-1,2-Dichloroethene	ND		ug/l	12	3.5	5



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-02 D
Client ID: PRIMARY-EFF_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:55
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.8		ug/l	2.5	0.88	5
1,2-Dichlorobenzene	ND		ug/l	12	3.5	5
1,3-Dichlorobenzene	ND		ug/l	12	3.5	5
1,4-Dichlorobenzene	ND		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	ND		ug/l	12	3.5	5
o-Xylene	ND		ug/l	12	3.5	5
Xylenes, Total	ND		ug/l	12	3.5	5
cis-1,2-Dichloroethene	15		ug/l	12	3.5	5
1,2-Dichloroethene, Total	15		ug/l	12	3.5	5
Dibromomethane	ND		ug/l	25	5.0	5
1,2,3-Trichloropropane	ND		ug/l	12	3.5	5
Styrene	ND		ug/l	12	3.5	5
Dichlorodifluoromethane	ND		ug/l	25	5.0	5
Acetone	ND		ug/l	25	7.3	5
Carbon disulfide	ND		ug/l	25	5.0	5
2-Butanone	ND		ug/l	25	9.7	5
Vinyl acetate	ND		ug/l	25	5.0	5
4-Methyl-2-pentanone	ND		ug/l	25	5.0	5
2-Hexanone	ND		ug/l	25	5.0	5
Bromochloromethane	ND		ug/l	12	3.5	5
2,2-Dichloropropane	ND		ug/l	12	3.5	5
1,2-Dibromoethane	ND		ug/l	10	3.2	5
1,3-Dichloropropane	ND		ug/l	12	3.5	5
1,1,1,2-Tetrachloroethane	ND		ug/l	12	3.5	5
Bromobenzene	ND		ug/l	12	3.5	5
n-Butylbenzene	ND		ug/l	12	3.5	5
sec-Butylbenzene	ND		ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
o-Chlorotoluene	ND		ug/l	12	3.5	5
p-Chlorotoluene	ND		ug/l	12	3.5	5
1,2-Dibromo-3-chloropropane	ND		ug/l	12	3.5	5
Hexachlorobutadiene	ND		ug/l	12	3.5	5
Isopropylbenzene	ND		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	ND		ug/l	12	3.5	5
n-Propylbenzene	ND		ug/l	12	3.5	5



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-02 D
Client ID: PRIMARY-EFF_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 07:55
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	12	3.5	5
1,2,4-Trichlorobenzene	ND		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	ND		ug/l	12	3.5	5
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5
1,4-Dioxane	ND		ug/l	1200	300	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-03
Client ID: POST-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 09:30
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/15/19 14:19
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.72	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-03
Client ID: POST-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 09:30
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.5		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	31		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	31		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-03
Client ID: POST-CARB_20190111
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 09:30
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	112		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 00:00
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/15/19 09:39
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 00:00
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.51		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

SAMPLE RESULTS

Lab ID: L1901445-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 01/11/19 00:00
Date Received: 01/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/15/19 09:11
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1197910-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/15/19 09:11
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1197910-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/15/19 09:11
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1197910-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1197910-3 WG1197910-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	100		99		63-130	1		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	96		96		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	96		96		62-150	0		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	110		100		67-130	10		20
Bromodichloromethane	110		110		67-130	0		20
trans-1,3-Dichloropropene	100		97		70-130	3		20
cis-1,3-Dichloropropene	110		100		70-130	10		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	97		93		54-136	4		20
1,1,1,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	110		100		70-130	10		20
Toluene	100		100		70-130	0		20
Ethylbenzene	99		97		70-130	2		20
Chloromethane	80		78		64-130	3		20
Bromomethane	51		49		39-139	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1197910-3 WG1197910-4								
Vinyl chloride	110		110		55-140	0		20
Chloroethane	140	Q	130		55-138	7		20
1,1-Dichloroethene	100		99		61-145	1		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		110		70-130	0		20
1,2-Dichlorobenzene	94		94		70-130	0		20
1,3-Dichlorobenzene	96		95		70-130	1		20
1,4-Dichlorobenzene	96		96		70-130	0		20
Methyl tert butyl ether	110		110		63-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Dibromomethane	110		110		70-130	0		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	95		90		70-130	5		20
Dichlorodifluoromethane	69		67		36-147	3		20
Acetone	93		92		58-148	1		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	110		100		63-138	10		20
Vinyl acetate	130		120		70-130	8		20
4-Methyl-2-pentanone	96		97		59-130	1		20
2-Hexanone	87		90		57-130	3		20
Bromochloromethane	120		110		70-130	9		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1197910-3 WG1197910-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	100		99		70-130	1		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	100		99		64-130	1		20
Bromobenzene	92		92		70-130	0		20
n-Butylbenzene	90		89		53-136	1		20
sec-Butylbenzene	91		90		70-130	1		20
tert-Butylbenzene	88		89		70-130	1		20
o-Chlorotoluene	93		93		70-130	0		20
p-Chlorotoluene	93		93		70-130	0		20
1,2-Dibromo-3-chloropropane	90		83		41-144	8		20
Hexachlorobutadiene	74		73		63-130	1		20
Isopropylbenzene	90		91		70-130	1		20
p-Isopropyltoluene	88		88		70-130	0		20
Naphthalene	84		84		70-130	0		20
n-Propylbenzene	92		92		69-130	0		20
1,2,3-Trichlorobenzene	86		83		70-130	4		20
1,2,4-Trichlorobenzene	83		83		70-130	0		20
1,3,5-Trimethylbenzene	92		94		64-130	2		20
1,2,4-Trimethylbenzene	92		92		70-130	0		20
1,4-Dioxane	134		120		56-162	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1197910-3 WG1197910-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	92		96		70-130
Dibromofluoromethane	107		104		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445**Report Date:** 01/17/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
 A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1901445-01A	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-01B	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-01C	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-02A	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-02B	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-02C	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-03X	Vial HCl preserved split	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-03Y	Vial HCl preserved split	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-03Z	Vial HCl preserved split	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-04A	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04A1	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04A2	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04B	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04B1	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04B2	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04C	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04C1	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04C2	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04D	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04D1	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-04D2	Vial HCl preserved	A	NA		3.6	Y	Absent		COMP-VOA()
L1901445-05A	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L1901445-05B	Vial HCl preserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Serial_No:01171918:35
Lab Number: L1901445
Report Date: 01/17/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1901445
Report Date: 01/17/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information


The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO₃-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH₃-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO₃-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO₄-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3268		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd In Lab 1-11-19		ALPHA Job # L1901445																																																																																																																																																													
		Project Information Project Name: <u>Essex / Hope</u> Project Location: <u>JAMES TOWN NY</u> Project # <u>69900 - 61 - RT - DM</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input type="checkbox"/> Other		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #																																																																																																																																																															
Client Information Client: <u>JACOBS</u> Address: <u>18 Tremont St.</u> <u>BOSTON MA</u> Phone: Fax: Email: <u>Kyle Block @ Jacobs.com</u>		Project Manager: <u>Kyle Block</u> ALPHAQuote #: Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:																																																																																																																																																															
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Please specify Metals or TAL.		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">ALPHA Lab ID (Lab Use Only)</th> <th rowspan="2">Sample ID</th> <th colspan="2">Collection</th> <th rowspan="2">Sample Matrix</th> <th rowspan="2">Sampler's Initials</th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> </tr> <tr> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>01445- G1</td> <td>Pre-CARB-20190111</td> <td>01/11/19</td> <td>0745</td> <td>GW</td> <td>JRG</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>02</td> <td>Post-CARB-20190111</td> <td></td> <td>0755</td> <td></td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>03,04</td> <td>POST-CARB-20190111-1</td> <td></td> <td>0800</td> <td></td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>POST-CARB-20190111-2</td> <td></td> <td>0830</td> <td></td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>POST-CARB-20190111-3</td> <td></td> <td>0900</td> <td></td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>POST-CARB-20190111-4</td> <td></td> <td>0930</td> <td></td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>05</td> <td>TRIP BLANK</td> <td></td> <td></td> <td>WATER</td> <td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>		ALPHA Lab ID (Lab Use Only)	Sample ID	Collection			Sample Matrix	Sampler's Initials															Date	Time	01445- G1	Pre-CARB-20190111	01/11/19	0745	GW	JRG	X														02	Post-CARB-20190111		0755			X														03,04	POST-CARB-20190111-1		0800			X															POST-CARB-20190111-2		0830			X															POST-CARB-20190111-3		0900			X															POST-CARB-20190111-4		0930			X														05	TRIP BLANK			WATER		X												
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	POST-CARB-20190111-2		0830			X																																																																																																																																																															
	POST-CARB-20190111-3		0900			X																																																																																																																																																															
	POST-CARB-20190111-4		0930			X																																																																																																																																																															
05	TRIP BLANK			WATER		X																																																																																																																																																															
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type Preservative		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)																																																																																																																																																													
Relinquished By: <u>[Signature]</u>		Date/Time: <u>1/11/19 12:50</u>		Received By: <u>[Signature]</u>		Date/Time: <u>1/11/19 12:50</u>																																																																																																																																																															



ANALYTICAL REPORT

Lab Number:	L1904696
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	699900.01.RT.OM
Report Date:	02/12/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1904696-01	PRE-CARB_20190205	WATER	JAMESTOWN, NY	02/05/19 13:45	02/05/19
L1904696-02	PRIMARY-EFF_20190205	WATER	JAMESTOWN, NY	02/05/19 13:55	02/05/19
L1904696-03	POST-CARB_20190205	WATER	JAMESTOWN, NY	02/05/19 15:30	02/05/19
L1904696-04	COMPOSITE OF POST CARB_20190205-1,2,3,4	WATER	JAMESTOWN, NY	02/05/19 15:30	02/05/19
L1904696-05	TRIP BLANK	WATER	JAMESTOWN, NY	02/05/19 00:00	02/05/19

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1904696-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1904696-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1205382-3 LCS recovery, associated with L1904696-01, -02, -03, and -05, is above the individual acceptance criteria for dichlorodifluoromethane (150%), but within the overall method allowances. The results of the associated samples are reported. The LCS/LCSD RPD is above the acceptance criteria for dichlorodifluoromethane (22%).

The initial calibration, associated with L1904696-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for bromomethane, 1,1,2,2-tetrachloroethane, dibromomethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, bromochloromethane, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

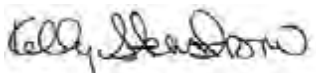
8260-E: The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (64%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1904696-01, -02, -03, and -05, did not meet the method required minimum response factor for bromomethane, chloroethane, 1,1,2,2-tetrachloroethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, bromochloromethane, 1,2-dibromo-3-chloropropane, and 1,4-dioxane

The continuing calibration verification standard WG1205382-2 has the percent deviation for bromomethane (35%), chloroethane (27%), and dichlorodifluoromethane (32%) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 02/12/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-01 D
Client ID: PRE-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:45
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/19 22:38
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
1,3-Dichloropropene, Total	ND		ug/l	20	5.8	40
1,1-Dichloropropene	ND		ug/l	100	28.	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	18	J	ug/l	20	6.4	40
Toluene	ND		ug/l	100	28.	40
Ethylbenzene	ND		ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	680		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	24		ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-01 D
Client ID: PRE-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:45
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	7000		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	ND		ug/l	100	28.	40
o-Xylene	ND		ug/l	100	28.	40
Xylenes, Total	ND		ug/l	100	28.	40
cis-1,2-Dichloroethene	5400		ug/l	100	28.	40
1,2-Dichloroethene, Total	5400		ug/l	100	28.	40
Dibromomethane	ND		ug/l	200	40.	40
1,2,3-Trichloropropane	ND		ug/l	100	28.	40
Styrene	ND		ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
Vinyl acetate	ND		ug/l	200	40.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
2,2-Dichloropropane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,3-Dichloropropane	ND		ug/l	100	28.	40
1,1,1,2-Tetrachloroethane	ND		ug/l	100	28.	40
Bromobenzene	ND		ug/l	100	28.	40
n-Butylbenzene	ND		ug/l	100	28.	40
sec-Butylbenzene	ND		ug/l	100	28.	40
tert-Butylbenzene	ND		ug/l	100	28.	40
o-Chlorotoluene	ND		ug/l	100	28.	40
p-Chlorotoluene	ND		ug/l	100	28.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Hexachlorobutadiene	ND		ug/l	100	28.	40
Isopropylbenzene	ND		ug/l	100	28.	40
p-Isopropyltoluene	ND		ug/l	100	28.	40
Naphthalene	ND		ug/l	100	28.	40
n-Propylbenzene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-01 D
Client ID: PRE-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:45
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
1,3,5-Trimethylbenzene	ND		ug/l	100	28.	40
1,2,4-Trimethylbenzene	ND		ug/l	100	28.	40
1,4-Dioxane	ND		ug/l	10000	2400	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-02 D
Client ID: PRIMARY-EFF_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:55
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/19 23:08
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	970		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	1.9	J	ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-02 D
Client ID: PRIMARY-EFF_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:55
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	120		ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	620		ug/l	25	7.0	10
1,2-Dichloroethene, Total	620		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-02 D
Client ID: PRIMARY-EFF_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 13:55
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-03
Client ID: POST-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 15:30
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/19 23:38
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	0.19	J	ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.22	J	ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.18	J	ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.60	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	0.28	J	ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-03
Client ID: POST-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 15:30
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3.0		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	25		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	25		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-03
Client ID: POST-CARB_20190205
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 15:30
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 00:00
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/19 00:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.08	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 00:00
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.76		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

SAMPLE RESULTS

Lab ID: L1904696-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 02/05/19 00:00
Date Received: 02/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/08/19 21:39
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1205382-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/08/19 21:39
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1205382-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/08/19 21:39
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1205382-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1205382-3 WG1205382-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	110		100		70-130	10		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	120		100		63-132	18		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	110		110		63-130	0		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	110		96		62-150	14		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	110		100		67-130	10		20
Bromodichloromethane	120		110		67-130	9		20
trans-1,3-Dichloropropene	100		99		70-130	1		20
cis-1,3-Dichloropropene	110		110		70-130	0		20
1,1-Dichloropropene	110		100		70-130	10		20
Bromoform	110		100		54-136	10		20
1,1,2,2-Tetrachloroethane	96		97		67-130	1		20
Benzene	110		110		70-130	0		20
Toluene	100		98		70-130	2		20
Ethylbenzene	100		97		70-130	3		20
Chloromethane	110		98		64-130	12		20
Bromomethane	70		64		39-139	9		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1205382-3 WG1205382-4								
Vinyl chloride	100		85		55-140	16		20
Chloroethane	83		75		55-138	10		20
1,1-Dichloroethene	110		100		61-145	10		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		110		70-130	0		20
1,2-Dichlorobenzene	100		98		70-130	2		20
1,3-Dichlorobenzene	100		96		70-130	4		20
1,4-Dichlorobenzene	98		96		70-130	2		20
Methyl tert butyl ether	120		110		63-130	9		20
p/m-Xylene	105		100		70-130	5		20
o-Xylene	105		100		70-130	5		20
cis-1,2-Dichloroethene	120		110		70-130	9		20
Dibromomethane	110		110		70-130	0		20
1,2,3-Trichloropropane	90		92		64-130	2		20
Styrene	105		100		70-130	5		20
Dichlorodifluoromethane	150	Q	120		36-147	22	Q	20
Acetone	97		98		58-148	1		20
Carbon disulfide	120		110		51-130	9		20
2-Butanone	100		120		63-138	18		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	95		93		59-130	2		20
2-Hexanone	76		77		57-130	1		20
Bromochloromethane	130		120		70-130	8		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1205382-3 WG1205382-4								
2,2-Dichloropropane	120		100		63-133	18		20
1,2-Dibromoethane	110		100		70-130	10		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	110		100		64-130	10		20
Bromobenzene	100		100		70-130	0		20
n-Butylbenzene	96		92		53-136	4		20
sec-Butylbenzene	95		92		70-130	3		20
tert-Butylbenzene	99		96		70-130	3		20
o-Chlorotoluene	89		87		70-130	2		20
p-Chlorotoluene	96		94		70-130	2		20
1,2-Dibromo-3-chloropropane	97		97		41-144	0		20
Hexachlorobutadiene	130		120		63-130	8		20
Isopropylbenzene	98		94		70-130	4		20
p-Isopropyltoluene	100		98		70-130	2		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	95		91		69-130	4		20
1,2,3-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trichlorobenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	100		95		64-130	5		20
1,2,4-Trimethylbenzene	99		97		70-130	2		20
1,4-Dioxane	140		134		56-162	4		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1205382-3 WG1205382-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		96		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		97		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-12 QC Sample: L1904697-03 Client ID: MS Sample												
Methylene chloride	ND	200	260	130		-	-		70-130	-		20
1,1-Dichloroethane	ND	200	260	130		-	-		70-130	-		20
Chloroform	ND	200	280	140	Q	-	-		70-130	-		20
Carbon tetrachloride	ND	200	300	150	Q	-	-		63-132	-		20
1,2-Dichloropropane	ND	200	250	125		-	-		70-130	-		20
Dibromochloromethane	ND	200	250	125		-	-		63-130	-		20
1,1,2-Trichloroethane	ND	200	220	110		-	-		70-130	-		20
Tetrachloroethene	ND	200	260	130		-	-		70-130	-		20
Chlorobenzene	ND	200	240	120		-	-		75-130	-		20
Trichlorofluoromethane	ND	200	300	150		-	-		62-150	-		20
1,2-Dichloroethane	ND	200	270	135	Q	-	-		70-130	-		20
1,1,1-Trichloroethane	ND	200	290	145	Q	-	-		67-130	-		20
Bromodichloromethane	ND	200	280	140	Q	-	-		67-130	-		20
trans-1,3-Dichloropropene	ND	200	220	110		-	-		70-130	-		20
cis-1,3-Dichloropropene	ND	200	250	125		-	-		70-130	-		20
1,1-Dichloropropene	ND	200	270	135	Q	-	-		70-130	-		20
Bromoform	ND	200	240	120		-	-		54-136	-		20
1,1,2,2-Tetrachloroethane	ND	200	200	100		-	-		67-130	-		20
Benzene	8.3J	200	270	135	Q	-	-		70-130	-		20
Toluene	ND	200	230	115		-	-		70-130	-		20
Ethylbenzene	ND	200	230	115		-	-		70-130	-		20
Chloromethane	ND	200	250	125		-	-		64-130	-		20
Bromomethane	ND	200	120	60		-	-		39-139	-		20
Vinyl chloride	660	200	900	150	Q	-	-		55-140	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-12 QC Sample: L1904697-03 Client ID: MS Sample												
Chloroethane	ND	200	200	100		-	-		55-138	-		20
1,1-Dichloroethene	24	200	300	138		-	-		61-145	-		20
trans-1,2-Dichloroethene	28J	200	290	145	Q	-	-		70-130	-		20
Trichloroethene	3300	200	3400	150	Q	-	-		70-130	-		20
1,2-Dichlorobenzene	ND	200	220	110		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	200	220	110		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	200	220	110		-	-		70-130	-		20
Methyl tert butyl ether	ND	200	260	130		-	-		63-130	-		20
p/m-Xylene	ND	400	470	118		-	-		70-130	-		20
o-Xylene	ND	400	470	118		-	-		70-130	-		20
cis-1,2-Dichloroethene	4100	200	4500E	200	Q	-	-		70-130	-		20
Dibromomethane	ND	200	260	130		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	200	220	110		-	-		64-130	-		20
Acrylonitrile	ND	200	200	100		-	-		70-130	-		20
Isopropyl Ether	ND	200	220	110		-	-		70-130	-		20
tert-Butyl Alcohol	ND	1000	1400	140	Q	-	-		70-130	-		20
Styrene	ND	400	450	113		-	-		70-130	-		20
Dichlorodifluoromethane	ND	200	390	195	Q	-	-		36-147	-		20
Acetone	ND	200	220	110		-	-		58-148	-		20
Carbon disulfide	ND	200	280	140	Q	-	-		51-130	-		20
2-Butanone	ND	200	160	80		-	-		63-138	-		20
Vinyl acetate	ND	200	240	120		-	-		70-130	-		20
4-Methyl-2-pentanone	ND	200	190	95		-	-		59-130	-		20
2-Hexanone	ND	200	160	80		-	-		57-130	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-12 QC Sample: L1904697-03 Client ID: MS Sample												
Acrolein	ND	200	220	110		-	-		40-160	-		20
Bromochloromethane	ND	200	290	145	Q	-	-		70-130	-		20
2,2-Dichloropropane	ND	200	260	130		-	-		63-133	-		20
1,2-Dibromoethane	ND	200	230	115		-	-		70-130	-		20
1,3-Dichloropropane	ND	200	220	110		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	200	250	125		-	-		64-130	-		20
Bromobenzene	ND	200	230	115		-	-		70-130	-		20
n-Butylbenzene	ND	200	200	100		-	-		53-136	-		20
sec-Butylbenzene	ND	200	210	105		-	-		70-130	-		20
tert-Butylbenzene	ND	200	220	110		-	-		70-130	-		20
o-Chlorotoluene	ND	200	200	100		-	-		70-130	-		20
p-Chlorotoluene	ND	200	210	105		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	200	200	100		-	-		41-144	-		20
Hexachlorobutadiene	ND	200	250	125		-	-		63-130	-		20
Isopropylbenzene	ND	200	220	110		-	-		70-130	-		20
p-Isopropyltoluene	ND	200	220	110		-	-		70-130	-		20
Naphthalene	ND	200	190	95		-	-		70-130	-		20
n-Propylbenzene	ND	200	210	105		-	-		69-130	-		20
1,2,3-Trichlorobenzene	ND	200	220	110		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	200	220	110		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	200	220	110		-	-		64-130	-		20
1,2,4-Trimethylbenzene	ND	200	220	110		-	-		70-130	-		20
Methyl Acetate	ND	200	170	85		-	-		70-130	-		20
Ethyl Acetate	ND	200	190J	95		-	-		70-130	-		20

Matrix Spike Analysis**Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-12 QC Sample: L1904697-03 Client ID: MS Sample												
Cyclohexane	ND	200	230	115		-	-		70-130	-		20
Ethyl-Tert-Butyl-Ether	ND	200	250	125		-	-		70-130	-		20
Tertiary-Amyl Methyl Ether	ND	200	250	125		-	-		66-130	-		20
1,4-Dioxane	ND	10000	14000	140		-	-		56-162	-		20
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	200	270	135	Q	-	-		70-130	-		20
1,4-Diethylbenzene	ND	200	220	110		-	-		70-130	-		20
4-Ethyltoluene	ND	200	220	110		-	-		70-130	-		20
1,2,4,5-Tetramethylbenzene	ND	200	220	110		-	-		70-130	-		20
Tetrahydrofuran	ND	200	200	100		-	-		58-130	-		20
Ethyl ether	ND	200	240	120		-	-		59-134	-		20
trans-1,4-Dichloro-2-butene	ND	200	180	90		-	-		70-130	-		20
Iodomethane	ND	200	160	80		-	-		70-130	-		20
Methyl cyclohexane	ND	200	280	140	Q	-	-		70-130	-		20

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101				70-130
4-Bromofluorobenzene	95				70-130
Dibromofluoromethane	102				70-130
Toluene-d8	89				70-130

Lab Duplicate Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-11 QC Sample: L1904697-03 Client ID: DUP Sample						
Methylene chloride	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
Chloroform	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Benzene	8.3J	8.6J	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-11 QC Sample: L1904697-03 Client ID: DUP Sample						
Ethylbenzene	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Vinyl chloride	660	620	ug/l	3		20
Chloroethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	24	23	ug/l	8		20
trans-1,2-Dichloroethene	28J	29J	ug/l	NC		20
Trichloroethene	3300	3200	ug/l	3		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Xylene (Total)	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	4100	4200E	ug/l	2		20
Dibromomethane	ND	ND	ug/l	NC		20
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Acetone	ND	ND	ug/l	NC		20

Lab Duplicate Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-11 QC Sample: L1904697-03 Client ID: DUP Sample						
Carbon disulfide	ND	ND	ug/l	NC		20
2-Butanone	ND	ND	ug/l	NC		20
Vinyl acetate	ND	ND	ug/l	NC		20
4-Methyl-2-pentanone	ND	ND	ug/l	NC		20
2-Hexanone	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 QC Batch ID: WG1205382-11 QC Sample: L1904697-03 Client ID: DUP Sample						
n-Propylbenzene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
1,4-Dioxane	ND	ND	ug/l	NC		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		95		70-130
Toluene-d8	90		90		70-130
4-Bromofluorobenzene	94		95		70-130
Dibromofluoromethane	100		99		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696

Report Date: 02/12/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1904696-01A	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-01B	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-01C	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-02A	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-02B	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-02C	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-03X	Vial HCl preserved split	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-03Y	Vial HCl preserved split	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-03Z	Vial HCl preserved split	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-04A	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04A1	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04A2	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04B	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04B1	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04B2	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04C	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04C1	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04C2	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04D	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04D1	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-04D2	Vial HCl preserved	A	NA		4.3	Y	Absent		COMP-VOA()
L1904696-05A	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)
L1904696-05B	Vial HCl preserved	A	NA		4.3	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Serial_No:02121915:42
Lab Number: L1904696
Report Date: 02/12/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total'

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e., co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1904696
Report Date: 02/12/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information


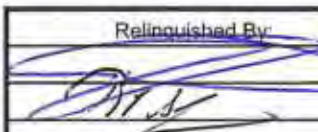
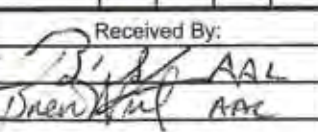
The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg. EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 2/7/19		ALPHA Job # 11904696		
Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information Project Name: <u>Essex / Hope</u> Project Location: <u>Jamestown NY</u> Project # <u>699900.01-RT-DM</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input type="checkbox"/> Other		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #		
Client Information Client: <u>JACOBS</u> Address: <u>18 Tremont St Boston MA</u> Phone: Fax: Email: <u>Kyle Block@jacobs</u>		Project Manager: <u>Kyle Block</u> ALPHAQuote #: Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:				
These samples have been previously analyzed by Alpha <input checked="" type="checkbox"/>				ANALYSIS		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)		Total Bottles		
Other project specific requirements/comments: <u>Composite all 4 Post-CARB Samples in LAB & Report as Post-CARB-20190205</u>				Please specify Metals or TAL.		Sample Specific Comments				
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials					
		Date	Time							
04696 - 01	Pre-Carb-20190205	02/05/19	1345	GW	JRG	X				3
- 02	Primary-EFF-20190205		1355			X				3
- 03-04	Post-CARB-20190205-1		1400			X				3
- 03-04	Post-CARB-20190205-2		1430			X				3
- 03-04	Post-CARB-20190205-3		1500			X				3
- 03-04	Post-CARB-20190205-4		1530			X				3
- 05	TRIP BLANK			Water		X				2
Preservative Code:		Container Code		Westboro: Certification No: MA935		Container Type		Preservative		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)
A = None		P = Plastic		Mansfield: Certification No: MA015		V		B		
B = HCl		A = Amber Glass								
C = HNO ₃		V = Vial								
D = H ₂ SO ₄		G = Glass								
E = NaOH		B = Bacteria Cup								
F = MeOH		C = Cube								
G = NaHSO ₄		O = Other								
H = Na ₂ S ₂ O ₃		E = Encore								
K/E = Zn Ac/NaOH		D = BOD Bottle								
Q = Other										
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By:		Date/Time		Received By:		Date/Time		
				02/05/19 09:15				02/05/19 @ 19:15		
				2/6/19 12:15		AAL		2/6/19 01:40		



ANALYTICAL REPORT

Lab Number:	L1908919
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	699900.01.RT.OM
Report Date:	03/13/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1908919-01	PRE-CARB_20190307	WATER	JAMESTOWN, NY	03/07/19 09:00	03/07/19
L1908919-02	PRIMARY-EFF_20190307	WATER	JAMESTOWN, NY	03/07/19 09:15	03/07/19
L1908919-03	POST-CARB_20190307	WATER	JAMESTOWN, NY	03/07/19 11:00	03/07/19
L1908919-04	COMPOSITE OF POST CARB_20190307-1,2,3,4	WATER	JAMESTOWN, NY	03/07/19 11:00	03/07/19
L1908919-05	TRIP BLANK	WATER	JAMESTOWN, NY	03/07/19 00:00	03/07/19

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1908919-01: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1908919-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (56%D) outside the 30% ICV criteria, but within overall method allowances.

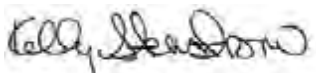
The initial calibration, associated with L1908919-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for bromodichloromethane, chloroethane, dibromomethane, acetone, 2-butanone, bromochloromethane, 4-methyl-2-pentanone, 2-hexanone, and 1,4-dioxane.

The continuing calibration, associated with L1908919-01, -02, -03, and -05, did not meet the method required minimum response factor for bromomethane, acetone, 2-butanone, bromochloromethane, 4-methyl-2-pentanone, 2-hexanone, and 1,4-dioxane.

The WG1214807-2 continuing calibration verification standard has the percent deviation for 1,4-dioxane (28%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 03/13/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-01 D
Client ID: PRE-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/11/19 22:41
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	62	18.	25
1,1-Dichloroethane	ND		ug/l	62	18.	25
Chloroform	ND		ug/l	62	18.	25
Carbon tetrachloride	ND		ug/l	12	3.4	25
1,2-Dichloropropane	ND		ug/l	25	3.4	25
Dibromochloromethane	ND		ug/l	12	3.7	25
1,1,2-Trichloroethane	ND		ug/l	38	12.	25
Tetrachloroethene	ND		ug/l	12	4.5	25
Chlorobenzene	ND		ug/l	62	18.	25
Trichlorofluoromethane	ND		ug/l	62	18.	25
1,2-Dichloroethane	ND		ug/l	12	3.3	25
1,1,1-Trichloroethane	ND		ug/l	62	18.	25
Bromodichloromethane	ND		ug/l	12	4.8	25
trans-1,3-Dichloropropene	ND		ug/l	12	4.1	25
cis-1,3-Dichloropropene	ND		ug/l	12	3.6	25
1,3-Dichloropropene, Total	ND		ug/l	12	3.6	25
1,1-Dichloropropene	ND		ug/l	62	18.	25
Bromoform	ND		ug/l	50	16.	25
1,1,2,2-Tetrachloroethane	ND		ug/l	12	4.2	25
Benzene	ND		ug/l	12	4.0	25
Toluene	ND		ug/l	62	18.	25
Ethylbenzene	ND		ug/l	62	18.	25
Chloromethane	ND		ug/l	62	18.	25
Bromomethane	ND		ug/l	62	18.	25
Vinyl chloride	310		ug/l	25	1.8	25
Chloroethane	ND		ug/l	62	18.	25
1,1-Dichloroethene	11	J	ug/l	12	4.2	25
trans-1,2-Dichloroethene	ND		ug/l	62	18.	25



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-01 D
Client ID: PRE-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1500		ug/l	12	4.4	25
1,2-Dichlorobenzene	ND		ug/l	62	18.	25
1,3-Dichlorobenzene	ND		ug/l	62	18.	25
1,4-Dichlorobenzene	ND		ug/l	62	18.	25
Methyl tert butyl ether	ND		ug/l	62	18.	25
p/m-Xylene	ND		ug/l	62	18.	25
o-Xylene	ND		ug/l	62	18.	25
Xylenes, Total	ND		ug/l	62	18.	25
cis-1,2-Dichloroethene	2100		ug/l	62	18.	25
1,2-Dichloroethene, Total	2100		ug/l	62	18.	25
Dibromomethane	ND		ug/l	120	25.	25
1,2,3-Trichloropropane	ND		ug/l	62	18.	25
Styrene	ND		ug/l	62	18.	25
Dichlorodifluoromethane	ND		ug/l	120	25.	25
Acetone	ND		ug/l	120	36.	25
Carbon disulfide	ND		ug/l	120	25.	25
2-Butanone	ND		ug/l	120	48.	25
Vinyl acetate	ND		ug/l	120	25.	25
4-Methyl-2-pentanone	ND		ug/l	120	25.	25
2-Hexanone	ND		ug/l	120	25.	25
Bromochloromethane	ND		ug/l	62	18.	25
2,2-Dichloropropane	ND		ug/l	62	18.	25
1,2-Dibromoethane	ND		ug/l	50	16.	25
1,3-Dichloropropane	ND		ug/l	62	18.	25
1,1,1,2-Tetrachloroethane	ND		ug/l	62	18.	25
Bromobenzene	ND		ug/l	62	18.	25
n-Butylbenzene	ND		ug/l	62	18.	25
sec-Butylbenzene	ND		ug/l	62	18.	25
tert-Butylbenzene	ND		ug/l	62	18.	25
o-Chlorotoluene	ND		ug/l	62	18.	25
p-Chlorotoluene	ND		ug/l	62	18.	25
1,2-Dibromo-3-chloropropane	ND		ug/l	62	18.	25
Hexachlorobutadiene	ND		ug/l	62	18.	25
Isopropylbenzene	ND		ug/l	62	18.	25
p-Isopropyltoluene	ND		ug/l	62	18.	25
Naphthalene	ND		ug/l	62	18.	25
n-Propylbenzene	ND		ug/l	62	18.	25



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-01 D
Client ID: PRE-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	62	18.	25
1,2,4-Trichlorobenzene	ND		ug/l	62	18.	25
1,3,5-Trimethylbenzene	ND		ug/l	62	18.	25
1,2,4-Trimethylbenzene	ND		ug/l	62	18.	25
1,4-Dioxane	ND		ug/l	6200	1500	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-02
Client ID: PRIMARY-EFF_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:15
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/11/19 22:15
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.61	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-02
Client ID: PRIMARY-EFF_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:15
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.2		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	19		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	19		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-02
Client ID: PRIMARY-EFF_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 09:15
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-03
Client ID: POST-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 11:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/11/19 21:50
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-03
Client ID: POST-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 11:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.8		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-03
Client ID: POST-CARB_20190307
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 11:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 00:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/11/19 21:25
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.07	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 00:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.57		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

SAMPLE RESULTS

Lab ID: L1908919-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 03/07/19 00:00
Date Received: 03/07/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/11/19 20:59
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1214807-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/11/19 20:59
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1214807-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/11/19 20:59
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1214807-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1214807-3 WG1214807-4								
Methylene chloride	97		98		70-130	1		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		99		70-130	1		20
Carbon tetrachloride	110		100		63-132	10		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	88		86		63-130	2		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	98		96		70-130	2		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	98		98		67-130	0		20
trans-1,3-Dichloropropene	94		90		70-130	4		20
cis-1,3-Dichloropropene	92		92		70-130	0		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	88		86		54-136	2		20
1,1,2,2-Tetrachloroethane	97		95		67-130	2		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	93		91		64-130	2		20
Bromomethane	88		86		39-139	2		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1214807-3 WG1214807-4								
Vinyl chloride	99		96		55-140	3		20
Chloroethane	100		100		55-138	0		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		100		70-130	0		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	100		100		70-130	0		20
Methyl tert butyl ether	96		95		63-130	1		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	97		94		70-130	3		20
1,2,3-Trichloropropane	99		88		64-130	12		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	100		97		36-147	3		20
Acetone	88		85		58-148	3		20
Carbon disulfide	100		97		51-130	3		20
2-Butanone	85		87		63-138	2		20
Vinyl acetate	97		95		70-130	2		20
4-Methyl-2-pentanone	89		86		59-130	3		20
2-Hexanone	85		83		57-130	2		20
Bromochloromethane	100		98		70-130	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1214807-3 WG1214807-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	100		98		70-130	2		20
1,3-Dichloropropane	100		99		70-130	1		20
1,1,1,2-Tetrachloroethane	100		100		64-130	0		20
Bromobenzene	100		100		70-130	0		20
n-Butylbenzene	110		110		53-136	0		20
sec-Butylbenzene	110		100		70-130	10		20
tert-Butylbenzene	110		110		70-130	0		20
o-Chlorotoluene	120		100		70-130	18		20
p-Chlorotoluene	110		100		70-130	10		20
1,2-Dibromo-3-chloropropane	88		83		41-144	6		20
Hexachlorobutadiene	110		100		63-130	10		20
Isopropylbenzene	110		110		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	100		96		70-130	4		20
n-Propylbenzene	110		110		69-130	0		20
1,2,3-Trichlorobenzene	100		97		70-130	3		20
1,2,4-Trichlorobenzene	100		98		70-130	2		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20
1,4-Dioxane	88		80		56-162	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1214807-3 WG1214807-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	98		99		70-130

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1908919-01A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-01B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-01C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-02A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-02B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-02C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-03X	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-03Y	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-03Z	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-04A	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04A1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04A2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04B	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04B1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04B2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04C	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04C1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04C2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04D	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04D1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-04D2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1908919-05A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1908919-05B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Serial_No:03131918:14
Lab Number: L1908919
Report Date: 03/13/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: 699900.01.RT.OM

Lab Number: L1908919
Report Date: 03/13/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L1908919

Form No. 04-25 HC (rev. 30-Sept-2013)



ANALYTICAL REPORT

Lab Number:	L1913562
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	04/10/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1913562-01	PRE-CARB_20190404	WATER	JAMESTOWN, NY	04/04/19 07:15	04/04/19
L1913562-02	PRIMARY-EFF_20190404	WATER	JAMESTOWN, NY	04/04/19 07:25	04/04/19
L1913562-03	POST-CARB_20190404	WATER	JAMESTOWN, NY	04/04/19 09:00	04/04/19
L1913562-04	COMPOSITE OF POST CARB_20190404-1,2,3,4	WATER	JAMESTOWN, NY	04/04/19 09:00	04/04/19
L1913562-05	TRIP BLANK	WATER	JAMESTOWN, NY	04/04/19 00:00	04/04/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1913562-01: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

The initial calibration, associated with L1913562-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for bromochloromethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,4-dioxane.

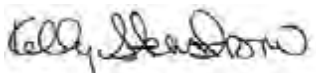
The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (156%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1913562-01, -02, -03, and -05, did not meet the method required minimum response factor for bromomethane, chloroethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,4-dioxane.

WG1224688-2: The continuing calibration verification standard has the percent deviation for chloromethane (70%D) and 2,2-dichloropropane (122%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 04/10/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-01 D2
Client ID: PRE-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:15
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/09/19 12:35
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	4100		ug/l	25	8.8	50
cis-1,2-Dichloroethene	3400		ug/l	120	35.	50
1,2-Dichloroethene, Total	3400		ug/l	12	3.5	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-01 D
Client ID: PRE-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:15
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/09/19 10:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	12	3.5	5
1,1-Dichloroethane	ND		ug/l	12	3.5	5
Chloroform	ND		ug/l	12	3.5	5
Carbon tetrachloride	ND		ug/l	2.5	0.67	5
1,2-Dichloropropane	ND		ug/l	5.0	0.68	5
Dibromochloromethane	ND		ug/l	2.5	0.74	5
1,1,2-Trichloroethane	ND		ug/l	7.5	2.5	5
Tetrachloroethene	ND		ug/l	2.5	0.90	5
Chlorobenzene	ND		ug/l	12	3.5	5
Trichlorofluoromethane	ND		ug/l	12	3.5	5
1,2-Dichloroethane	ND		ug/l	2.5	0.66	5
1,1,1-Trichloroethane	ND		ug/l	12	3.5	5
Bromodichloromethane	ND		ug/l	2.5	0.96	5
trans-1,3-Dichloropropene	ND		ug/l	2.5	0.82	5
cis-1,3-Dichloropropene	ND		ug/l	2.5	0.72	5
1,3-Dichloropropene, Total	ND		ug/l	2.5	0.72	5
1,1-Dichloropropene	ND		ug/l	12	3.5	5
Bromoform	ND		ug/l	10	3.2	5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	0.84	5
Benzene	13		ug/l	2.5	0.80	5
Toluene	ND		ug/l	12	3.5	5
Ethylbenzene	ND		ug/l	12	3.5	5
Chloromethane	ND		ug/l	12	3.5	5
Bromomethane	ND		ug/l	12	3.5	5
Vinyl chloride	660		ug/l	5.0	0.36	5
Chloroethane	ND		ug/l	12	3.5	5
1,1-Dichloroethene	17		ug/l	2.5	0.84	5
trans-1,2-Dichloroethene	20		ug/l	12	3.5	5



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-01 D
Client ID: PRE-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:15
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dichlorobenzene	ND		ug/l	12	3.5	5
1,3-Dichlorobenzene	ND		ug/l	12	3.5	5
1,4-Dichlorobenzene	ND		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	ND		ug/l	12	3.5	5
o-Xylene	ND		ug/l	12	3.5	5
Xylenes, Total	ND		ug/l	12	3.5	5
Dibromomethane	ND		ug/l	25	5.0	5
1,2,3-Trichloropropane	ND		ug/l	12	3.5	5
Styrene	ND		ug/l	12	3.5	5
Dichlorodifluoromethane	ND		ug/l	25	5.0	5
Acetone	15	J	ug/l	25	7.3	5
Carbon disulfide	ND		ug/l	25	5.0	5
2-Butanone	ND		ug/l	25	9.7	5
Vinyl acetate	ND		ug/l	25	5.0	5
4-Methyl-2-pentanone	ND		ug/l	25	5.0	5
2-Hexanone	ND		ug/l	25	5.0	5
Bromochloromethane	ND		ug/l	12	3.5	5
2,2-Dichloropropane	ND		ug/l	12	3.5	5
1,2-Dibromoethane	ND		ug/l	10	3.2	5
1,3-Dichloropropane	ND		ug/l	12	3.5	5
1,1,1,2-Tetrachloroethane	ND		ug/l	12	3.5	5
Bromobenzene	ND		ug/l	12	3.5	5
n-Butylbenzene	ND		ug/l	12	3.5	5
sec-Butylbenzene	ND		ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
o-Chlorotoluene	ND		ug/l	12	3.5	5
p-Chlorotoluene	ND		ug/l	12	3.5	5
1,2-Dibromo-3-chloropropane	ND		ug/l	12	3.5	5
Hexachlorobutadiene	ND		ug/l	12	3.5	5
Isopropylbenzene	ND		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	ND		ug/l	12	3.5	5
n-Propylbenzene	ND		ug/l	12	3.5	5
1,2,3-Trichlorobenzene	ND		ug/l	12	3.5	5
1,2,4-Trichlorobenzene	ND		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	ND		ug/l	12	3.5	5

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-01 D
Client ID: PRE-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:15
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5
1,4-Dioxane	ND		ug/l	1200	300	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-02
Client ID: PRIMARY-EFF_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:25
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/09/19 10:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	11		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-02
Client ID: PRIMARY-EFF_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:25
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.2		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	21		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	21		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-02
Client ID: PRIMARY-EFF_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 07:25
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-03
Client ID: POST-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 09:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/09/19 09:39
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-03
Client ID: POST-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 09:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.26	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-03
Client ID: POST-CARB_20190404
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 09:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 00:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/09/19 09:14
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 00:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

SAMPLE RESULTS

Lab ID: L1913562-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 04/04/19 00:00
Date Received: 04/04/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/09/19 08:49
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1224688-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/09/19 08:49
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1224688-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/09/19 08:49
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1224688-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1224688-3 WG1224688-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		99		70-130	1		20
Chloroform	100		99		70-130	1		20
Carbon tetrachloride	98		96		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	94		95		63-130	1		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	98		96		70-130	2		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	88		85		62-150	3		20
1,2-Dichloroethane	96		97		70-130	1		20
1,1,1-Trichloroethane	97		96		67-130	1		20
Bromodichloromethane	100		100		67-130	0		20
trans-1,3-Dichloropropene	96		96		70-130	0		20
cis-1,3-Dichloropropene	97		96		70-130	1		20
1,1-Dichloropropene	94		92		70-130	2		20
Bromoform	100		99		54-136	1		20
1,1,2,2-Tetrachloroethane	100		110		67-130	10		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		98		70-130	2		20
Chloromethane	81		80		64-130	1		20
Bromomethane	72		68		39-139	6		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1224688-3 WG1224688-4								
Vinyl chloride	87		87		55-140	0		20
Chloroethane	89		88		55-138	1		20
1,1-Dichloroethene	96		92		61-145	4		20
trans-1,2-Dichloroethene	100		99		70-130	1		20
Trichloroethene	97		96		70-130	1		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	100		100		70-130	0		20
Methyl tert butyl ether	98		100		63-130	2		20
p/m-Xylene	105		100		70-130	5		20
o-Xylene	105		100		70-130	5		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		100		70-130	0		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	80		78		36-147	3		20
Acetone	100		100		58-148	0		20
Carbon disulfide	99		96		51-130	3		20
2-Butanone	99		100		63-138	1		20
Vinyl acetate	100		100		70-130	0		20
4-Methyl-2-pentanone	88		92		59-130	4		20
2-Hexanone	87		90		57-130	3		20
Bromochloromethane	110		100		70-130	10		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1224688-3 WG1224688-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	100		110		70-130	10		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	100		110		64-130	10		20
Bromobenzene	100		100		70-130	0		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	97		94		70-130	3		20
tert-Butylbenzene	98		95		70-130	3		20
o-Chlorotoluene	100		98		70-130	2		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	97		99		41-144	2		20
Hexachlorobutadiene	100		93		63-130	7		20
Isopropylbenzene	99		96		70-130	3		20
p-Isopropyltoluene	99		95		70-130	4		20
Naphthalene	96		93		70-130	3		20
n-Propylbenzene	100		98		69-130	2		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	96		93		70-130	3		20
1,3,5-Trimethylbenzene	100		99		64-130	1		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
1,4-Dioxane	96		98		56-162	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1224688-3 WG1224688-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		99		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	99		100		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562**Report Date:** 04/10/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1913562-01A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-01B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-01C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-02A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-02B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-02C	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-03X	Vial HCl preserved split	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-03Y	Vial HCl preserved split	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-03Z	Vial HCl preserved split	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-04A	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04A1	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04A2	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04B	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04B1	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04B2	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04C	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04C1	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04C2	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04D	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04D1	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-04D2	Vial HCl preserved	A	NA		4.9	Y	Absent		COMP-VOA()
L1913562-05A	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)
L1913562-05B	Vial HCl preserved	A	NA		4.9	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:04101916:31
Lab Number: L1913562
Report Date: 04/10/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1.8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1913562
Report Date: 04/10/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**Revision **12**

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L1918226
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	05/08/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1918226-01	PRE-CARB_20190502	WATER	JAMESTOWN, NY	05/02/19 08:15	05/02/19
L1918226-02	PRIMARY-EFF_20190502	WATER	JAMESTOWN, NY	05/02/19 08:25	05/02/19
L1918226-03	POST-CARB_20190502	WATER	JAMESTOWN, NY	05/02/19 10:00	05/02/19
L1918226-04	COMPOSITE OF POST CARB_20190502-1,2,3,4	WATER	JAMESTOWN, NY	05/02/19 10:00	05/02/19
L1918226-05	TRIP BLANK	WATER	JAMESTOWN, NY	05/02/19 00:00	05/02/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1918226-01: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1918226-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The previous analysis showed there was no potential for carry over.

The WG1234083-3 LCS/LCSD recoveries, associated with L1918226-01, -02, -03, and -05, are above the individual acceptance criteria for 1,4-dioxane (192%/180%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1918226-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for acetone, 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The continuing calibration, associated with L1918226-01, -02, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

WG1234083-2: The continuing calibration verification standard has the percent deviation for chloromethane (31%D), vinyl chloride (33%D), 1,4-dioxane (23%D), 1,2,4-Trichlorobenzene (23%D), and 1,2,3-Trichlorobenzene (24%D) and above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 05/08/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-01 D
Client ID: PRE-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:15
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/05/19 18:30
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	18	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	1200		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	22	J	ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-01 D
Client ID: PRE-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:15
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	6700		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	5600		ug/l	120	35.	50
1,2-Dichloroethene, Total	5600		ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-01 D
Client ID: PRE-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:15
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-02
Client ID: PRIMARY-EFF_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:25
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/05/19 19:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	74		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-02
Client ID: PRIMARY-EFF_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:25
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.4		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	23		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	23		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-02
Client ID: PRIMARY-EFF_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 08:25
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-03
Client ID: POST-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 10:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/05/19 19:38
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.10	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-03
Client ID: POST-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 10:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.37	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-03
Client ID: POST-CARB_20190502
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 10:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 00:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/05/19 18:08
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.09	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 00:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.76		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.8	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

SAMPLE RESULTS

Lab ID: L1918226-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 05/02/19 00:00
Date Received: 05/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/05/19 17:45
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1234083-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/05/19 17:45
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1234083-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/05/19 17:45
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1234083-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1234083-3 WG1234083-4								
Methylene chloride	100		88		70-130	13		20
1,1-Dichloroethane	100		96		70-130	4		20
Chloroform	94		96		70-130	2		20
Carbon tetrachloride	85		89		63-132	5		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	100		100		63-130	0		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	110		110		75-130	0		20
Trichlorofluoromethane	96		87		62-150	10		20
1,2-Dichloroethane	99		93		70-130	6		20
1,1,1-Trichloroethane	88		92		67-130	4		20
Bromodichloromethane	100		98		67-130	2		20
trans-1,3-Dichloropropene	98		100		70-130	2		20
cis-1,3-Dichloropropene	100		100		70-130	0		20
1,1-Dichloropropene	100		98		70-130	2		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	99		100		67-130	1		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	130		120		64-130	8		20
Bromomethane	100		96		39-139	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1234083-3 WG1234083-4								
Vinyl chloride	120		120		55-140	0		20
Chloroethane	98		92		55-138	6		20
1,1-Dichloroethene	100		87		61-145	14		20
trans-1,2-Dichloroethene	99		83		70-130	18		20
Trichloroethene	98		98		70-130	0		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	110		110		70-130	0		20
1,4-Dichlorobenzene	110		100		70-130	10		20
Methyl tert butyl ether	85		80		63-130	6		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	110		105		70-130	5		20
cis-1,2-Dichloroethene	92		91		70-130	1		20
Dibromomethane	100		100		70-130	0		20
1,2,3-Trichloropropane	100		110		64-130	10		20
Styrene	110		110		70-130	0		20
Dichlorodifluoromethane	84		80		36-147	5		20
Acetone	91		90		58-148	1		20
Carbon disulfide	110		91		51-130	19		20
2-Butanone	84		99		63-138	16		20
Vinyl acetate	82		78		70-130	5		20
4-Methyl-2-pentanone	110		110		59-130	0		20
2-Hexanone	95		100		57-130	5		20
Bromochloromethane	98		100		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1234083-3 WG1234083-4								
2,2-Dichloropropane	85		79		63-133	7		20
1,2-Dibromoethane	100		100		70-130	0		20
1,3-Dichloropropane	110		110		70-130	0		20
1,1,1,2-Tetrachloroethane	100		100		64-130	0		20
Bromobenzene	100		100		70-130	0		20
n-Butylbenzene	110		110		53-136	0		20
sec-Butylbenzene	100		100		70-130	0		20
tert-Butylbenzene	88		89		70-130	1		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	100		110		70-130	10		20
1,2-Dibromo-3-chloropropane	100		100		41-144	0		20
Hexachlorobutadiene	100		97		63-130	3		20
Isopropylbenzene	110		110		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	100		96		70-130	4		20
n-Propylbenzene	110		110		69-130	0		20
1,2,3-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20
1,4-Dioxane	192	Q	180	Q	56-162	6		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1918226**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 05/08/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1234083-3 WG1234083-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	93		96		70-130
Dibromofluoromethane	93		92		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226**Report Date:** 05/08/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1918226-01A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-01B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-01C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-02A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-02B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-02C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-03X	Vial HCl preserved split	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-03Y	Vial HCl preserved split	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-03Z	Vial HCl preserved split	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-04A	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04A1	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04A2	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04B	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04B1	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04B2	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04C	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04C1	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04C2	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04D	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04D1	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-04D2	Vial HCl preserved	A	NA		2.8	Y	Absent		COMP-VOA()
L1918226-05A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)
L1918226-05B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:05081915:09
Lab Number: L1918226
Report Date: 05/08/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1.8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1918226
Report Date: 05/08/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information


The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 5/3/19		ALPHA Job # 11918224	
		Project Information Project Name: <u>Essex / Hope</u> Project Location: <u>James town NY</u> Project # <u>DWJMS002.A.CS.EV.01.0M</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> EQUIS (4 File) <input type="checkbox"/> Other		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #			
Client Information Client: <u>Jacobs</u> Address: <u>18 Tremont St</u> <u>Boston MA</u> Phone: Fax: Email: <u>Kyle Block @ Jacobs</u>		Project Manager: <u>Kyle Block</u> ALPHAQuote #: Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities: Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:			
These samples have been previously analyzed by Alpha <input checked="" type="checkbox"/>						ANALYSIS		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)	
Other project specific requirements/comments: <u>Composite all 4 POST-CARB Samples in LAB's Report as POST-CARB-20190502</u>						VOCs 8260		Total Bottle	
Please specify Metals or TAL.									
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials	
18226-01		Pre-Carb-20190502		05/02/19 08:15		WATER		JRG	
-02		Primary-EFF-20190502		08:25				X	
-03-04		POST-CARB-20190502-1		08:30				X	
-03-04		POST-CARB-20190502-2		09:00				X	
-03-04		POST-CARB-20190502-3		09:30				X	
-03-04		POST-CARB-20190502-4		10:00				X	
-05		TRIP BLANK		—				X	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube Q = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type <u>V</u>		Preservative <u>B</u>	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/2/19 13:10</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/2/19 13:10</u> <u>5/3/19 02:13</u>	

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)



ANALYTICAL REPORT

Lab Number:	L1923777
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	06/11/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1923777-01	PRE-CARB_20190603	WATER	JAMESTOWN, NY	06/03/19 18:50	06/05/19
L1923777-02	PRIMARY-EFF_20190603	WATER	JAMESTOWN, NY	06/03/19 18:55	06/05/19
L1923777-03	POST-CARB_20190603	WATER	JAMESTOWN, NY	06/03/19 20:30	06/05/19
L1923777-04	COMPOSITE OF POST CARB_20190603-1,2,3,4	WATER	JAMESTOWN, NY	06/03/19 20:30	06/05/19
L1923777-05	TRIP BLANK	WATER	JAMESTOWN, NY	06/03/19 00:00	06/05/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1923777-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1923777-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1246508-3/-4 LCS/LCSD RPD, associated with L1923777-01, -02, -03, and -05, are above the acceptance criteria for 2-butanone (28%).

The initial calibration, associated with L1923777-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for acetone, bromochloromethane, 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The continuing calibration, associated with L1923777-01, -02, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

WG1246508-2: The continuing calibration verification standard has the percent deviation for chloromethane (29%D), bromomethane (40%D), chloroethane (39%D), acetone (22%D), 2-butanone (22%D), 1,4-dioxane (57%D), and 2-hexanone (25%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 06/11/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-01 D
Client ID: PRE-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:50
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/09/19 12:23
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	18	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	890		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	23	J	ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-01 D
Client ID: PRE-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:50
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	6700		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	6400		ug/l	120	35.	50
1,2-Dichloroethene, Total	6400		ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-01 D
Client ID: PRE-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:50
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-02 D
Client ID: PRIMARY-EFF_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:55
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/09/19 14:13
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	0.36	2.5
1,1-Dichloropropene	ND		ug/l	6.2	1.8	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	ND		ug/l	1.2	0.40	2.5
Toluene	ND		ug/l	6.2	1.8	2.5
Ethylbenzene	ND		ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	250		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-02 D
Client ID: PRIMARY-EFF_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:55
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.5		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	ND		ug/l	6.2	1.8	2.5
o-Xylene	ND		ug/l	6.2	1.8	2.5
Xylenes, Total	ND		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	21		ug/l	6.2	1.8	2.5
1,2-Dichloroethene, Total	21		ug/l	6.2	1.8	2.5
Dibromomethane	ND		ug/l	12	2.5	2.5
1,2,3-Trichloropropane	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	3.7	J	ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
Vinyl acetate	ND		ug/l	12	2.5	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
2,2-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,3-Dichloropropane	ND		ug/l	6.2	1.8	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	6.2	1.8	2.5
Bromobenzene	ND		ug/l	6.2	1.8	2.5
n-Butylbenzene	ND		ug/l	6.2	1.8	2.5
sec-Butylbenzene	ND		ug/l	6.2	1.8	2.5
tert-Butylbenzene	ND		ug/l	6.2	1.8	2.5
o-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
p-Chlorotoluene	ND		ug/l	6.2	1.8	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Hexachlorobutadiene	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	ND		ug/l	6.2	1.8	2.5
p-Isopropyltoluene	ND		ug/l	6.2	1.8	2.5
Naphthalene	ND		ug/l	6.2	1.8	2.5
n-Propylbenzene	ND		ug/l	6.2	1.8	2.5



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-02 D
Client ID: PRIMARY-EFF_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 18:55
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,3,5-Trimethylbenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trimethylbenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	95		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-03
Client ID: POST-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 20:30
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/09/19 12:01
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-03
Client ID: POST-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 20:30
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.78		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.3	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-03
Client ID: POST-CARB_20190603
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 20:30
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 00:00
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/09/19 11:39
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.09	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 00:00
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.2		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

SAMPLE RESULTS

Lab ID: L1923777-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 06/03/19 00:00
Date Received: 06/05/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/09/19 11:17
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1246508-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/09/19 11:17
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1246508-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/09/19 11:17
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1246508-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1246508-3 WG1246508-4								
Methylene chloride	96		96		70-130	0		20
1,1-Dichloroethane	94		100		70-130	6		20
Chloroform	96		99		70-130	3		20
Carbon tetrachloride	97		100		63-132	3		20
1,2-Dichloropropane	93		96		70-130	3		20
Dibromochloromethane	97		100		63-130	3		20
1,1,2-Trichloroethane	94		100		70-130	6		20
Tetrachloroethene	90		94		70-130	4		20
Chlorobenzene	95		99		75-130	4		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	89		94		70-130	5		20
1,1,1-Trichloroethane	99		100		67-130	1		20
Bromodichloromethane	94		96		67-130	2		20
trans-1,3-Dichloropropene	83		86		70-130	4		20
cis-1,3-Dichloropropene	90		90		70-130	0		20
1,1-Dichloropropene	94		98		70-130	4		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	94		94		67-130	0		20
Benzene	95		99		70-130	4		20
Toluene	91		96		70-130	5		20
Ethylbenzene	92		95		70-130	3		20
Chloromethane	82		84		64-130	2		20
Bromomethane	120		120		39-139	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1246508-3 WG1246508-4								
Vinyl chloride	86		100		55-140	15		20
Chloroethane	120		130		55-138	8		20
1,1-Dichloroethene	93		95		61-145	2		20
trans-1,2-Dichloroethene	88		90		70-130	2		20
Trichloroethene	96		99		70-130	3		20
1,2-Dichlorobenzene	96		100		70-130	4		20
1,3-Dichlorobenzene	99		100		70-130	1		20
1,4-Dichlorobenzene	98		100		70-130	2		20
Methyl tert butyl ether	90		94		63-130	4		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		100		70-130	0		20
1,2,3-Trichloropropane	89		92		64-130	3		20
Styrene	95		100		70-130	5		20
Dichlorodifluoromethane	84		86		36-147	2		20
Acetone	98		100		58-148	2		20
Carbon disulfide	94		100		51-130	6		20
2-Butanone	110		83		63-138	28	Q	20
Vinyl acetate	88		89		70-130	1		20
4-Methyl-2-pentanone	84		87		59-130	4		20
2-Hexanone	74		77		57-130	4		20
Bromochloromethane	100		110		70-130	10		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1246508-3 WG1246508-4								
2,2-Dichloropropane	96		96		63-133	0		20
1,2-Dibromoethane	94		98		70-130	4		20
1,3-Dichloropropane	93		95		70-130	2		20
1,1,1,2-Tetrachloroethane	96		100		64-130	4		20
Bromobenzene	98		100		70-130	2		20
n-Butylbenzene	97		99		53-136	2		20
sec-Butylbenzene	98		100		70-130	2		20
tert-Butylbenzene	82		83		70-130	1		20
o-Chlorotoluene	90		93		70-130	3		20
p-Chlorotoluene	91		93		70-130	2		20
1,2-Dibromo-3-chloropropane	99		100		41-144	1		20
Hexachlorobutadiene	100		110		63-130	10		20
Isopropylbenzene	94		97		70-130	3		20
p-Isopropyltoluene	97		98		70-130	1		20
Naphthalene	90		94		70-130	4		20
n-Propylbenzene	96		97		69-130	1		20
1,2,3-Trichlorobenzene	100		100		70-130	0		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	94		97		64-130	3		20
1,2,4-Trimethylbenzene	94		97		70-130	3		20
1,4-Dioxane	140		148		56-162	6		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1923777**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 06/11/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1246508-3 WG1246508-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		96		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	98		101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777

Report Date: 06/11/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1923777-01A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-01B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-01C	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-02A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-02B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-02C	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-03X	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-03Y	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-03Z	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-04A	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04A1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04A2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04B	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04B1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04B2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04C	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04C1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04C2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04D	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04D1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-04D2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1923777-05A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1923777-05B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:06111915:59
Lab Number: L1923777
Report Date: 06/11/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1923777
Report Date: 06/11/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**Revision **12**

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO₃-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH₃-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO₃-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO₄-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

[illegible]

Mr. Michael V. Saar, PE
Water Resources Manager
Division of Wastewater/Solid Waste
City of Jamestown Board of Public Utilities
PO Box 700
Jamestown, NY 14702-0700

January 14, 2020

**Subject: Essex-Hope Jamestown Site, 125 Blackstone Avenue, Jamestown, New York 14701
Semiannual Self-Monitoring Report for July through December 2019
City of Jamestown Board of Public Utilities (BPU) Permit No. 26**

Dear Mr. Saar,

Jacobs Engineering Group Inc. prepared this Semiannual Self-Monitoring Report on behalf of the Essex Specialty Products, Inc. facility in Jamestown, New York (Essex-Hope site), which is classified as a Significant Industrial User subject to Categorical Pretreatment Standards. This report was prepared in accordance with 40 *Code of Federal Regulations* (CFR) § 403.12, and the requirements set forth in the City of Jamestown BPU Industrial Wastewater Discharge Permit No. 26 (renewed on November 4, 2017 and included as Attachment 1). This report summarizes groundwater treatment operations and metrics completed between July 1 and December 31, 2019.

Self-monitoring reporting requirements applicable to the Essex-Hope site are detailed in Table 1 and include:

- Monthly concentrations of total toxic organics in discharge to the publicly owned treatment works (POTW)
- Monthly pH measurements of discharge to the POTW
- Monthly flow rate measurements of discharge to the POTW
- Estimated daily average and maximum flow rates

Monthly discharge flow totals for the reporting period ranged from 123,803 to 168,349 gallons. These monthly discharge flows generally were consistent with those in previous reporting periods. Daily average flow rates shown in Table 1 were estimated based on totalizer readings for volume of water discharged at the beginning and end of each month. Daily maximum flow rates were estimated to be 20% greater than daily averages.

Acetone is not considered a total toxic organic; however, historically it has been considered a constituent of concern for the site. Acetone influent concentrations have been declining since March 2018 and have remained low (under 10 micrograms per liter) to nondetect in the effluent since May 2018. As a result, acetone concentrations in the influent and effluent will continue to be monitored for informational purposes only.

No noncompliance events occurred between July 1 and December 31, 2019. The treatment system operated continuously during this reporting period with no recorded full system down time.

Attachment 2 contains the supporting Laboratory Certificates of Analysis for the reported concentrations of volatile organic compounds performed by Alpha Analytical, Inc. of Westborough, Massachusetts.

We trust that this submittal satisfies the reporting requirements pursuant to 40 CFR § 403.12. Please contact me at 617.626.7013 should you have any questions or comments regarding the Essex-Hope site.

Sincerely,

Jacobs Engineering Group Inc.

A handwritten signature in dark ink, appearing to read "Kyle Block".

Kyle Block
Project Manager

Copies to: Audrey Sidebottom (Essex-Hope)
Maurice Moore (New York State Department of Environmental Conservation)

Attachments:

- Table 1. July – December 2019 Post-Carbon (Effluent) Monitoring Data
- Attachment 1. City of Jamestown BPU Industrial Wastewater Discharge Permit No. 26
- Attachment 2. Laboratory Analytical Reports – July, August, September, October, November, and December 2019

Table

Table 1. July – December 2019 Post-Carbon (Effluent) Monitoring Data*Semiannual Self-Monitoring Report for July through December 2019, Essex-Hope Site, Jamestown, New York*

Reporting Requirements for Pretreated Discharge (System Effluent to POTW) ^a	Units	Industrial Wastewater Discharge Permit No. 26 Effluent Limits	2019					
			July	August	September	October	November	December
POTW Discharge Analytical Data								
Total Toxic Organics	µg/L	2,130	2.9	0.7	14.5	0.42	0.37	14.1
Detected Total Toxic Organic Compounds ^b	--	Report	cis-1,2-DCE, TCE	TCE, VC	Chloroethane, TCE, VC	VC	TCE	Chloroethane, TCE, VC
pH ^c	Standard units	5.5 to 10	6.79	6.89	7.01	7.24	6.91	6.91
			6.83	7.03	7.10	6.84	7.05	7.05
			6.94	7.09	7.07	6.90	7.12	7.12
			7.04	7.08	7.03	6.92	7.09	7.09
Acetone Discharged	Pounds	No limit	0	0.002	0	0	0.003	0.003
POTW Discharge Flow Data								
Monthly Total Flow	US gallons	Report	123,803	126,988	126,944	147,577	168,349	166,467
Average Daily Flow	US gallons	Report	4,269	3,735	4,095	4,341	6,475	5,945
Maximum Daily Flow ^d	US gallons	Report	5,123	4,482	4,914	5,209	7,770	7,134

Notes:

System granular activated carbon was last changed out on February 7, 2019.

^a Jamestown BPU Industrial Wastewater Discharge Permit No. 26 was renewed in November 2017, effective November 4, 2017, through November 3, 2022.^b Volatile organic compound sample is a laboratory-prepared composite of four grab samples collected from the pretreatment system discharge to the POTW at 30-minute intervals.^c pH measurements recorded are concurrent with the time of each post-carbon (effluent) grab sample.^d Maximum daily flow is estimated to be 20% greater than average daily flow.

µg/L = micrograms per liter

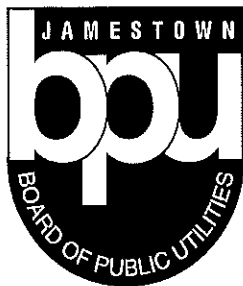
DCE = dichloroethene

POTW = publicly owned treatment works

TCE = trichloroethene

VC = vinyl chloride

Attachment 1
City of Jamestown BPU Industrial
Wastewater Discharge Permit No. 26



PO Box 700
Jamestown, NY 14702-0700
Phone (716) 661-1673
Fax (716) 661-1617

**ELECTRIC
DISTRICT HEAT
WATER
WASTEWATER
SOLID WASTE**

November 2, 2017

Mr. Kyle Block
CH2M
18 Tremont St
Boston, MA 02108

Dear Mr. Block:

Please find enclosed a copy of your firm's renewed Industrial Waste Discharge Permit governing the wastewater discharge (s) from your facility to the Jamestown Publicly Owned Treatment Works (POTW). The effective dates of the permit are shown on the first page of the permit. This permit is subject to change should there be any additions and/or deletions made to the industrial pretreatment programs as established by the Environmental Protection Agency.

Please review your permit carefully as it may include changes from your previous permit. Should you have any questions or comments concerning your permit, please do not hesitate to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read 'Michael V Saar', is positioned above the typed name.

Michael V Saar, P.E.
Deputy General Manager

CITY OF JAMESTOWN
BOARD OF PUBLIC UTILITIES
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

PERMIT NUMBER	<u>26</u>
INDUSTRY NAME	<u>Essex Specialty Products, Inc</u>
INDUSTRY ADDRESS	<u>124 Blackstone Avenue, Jamestown</u>
SIC NUMBER	<u>Groundwater Remediation</u>
DATE ISSUED	<u>11/4/17</u>
EXPIRATION DATE	<u>11/3/22</u>

Essex Specialty Products, Inc. as a Significant Industrial User (SIU) of the City of Jamestown Publicly Owned Treatment Works (POTW), is hereby issued an industrial wastewater discharge permit pursuant to Chapter 24A of the Jamestown City Code (Jamestown Sewer Use Ordinance) and also with any applicable provisions of federal or state law(s) or regulation(s). Said permit shall be effective for a period of five years from the date of issuance hereof.

This permit is granted in accordance with the application filed on March 12, 1996 and notice of process modifications submitted on N/A and in conformity with the plans, specifications, semi-annual self monitoring reports, and other data submitted to the City in support of the above application, all of which are filed with and considered as part of this permit, together with the following named conditions and requirements:

Effective this 4th day of November , 2017
To expire the 3th day of November , 2022



Deputy General Manager - Board of Public Utilities

RIGHT OF ENTRY

The permittee shall allow duly authorized employees or representatives of the City to enter the permittee's premises for the purpose of inspection, observation, measurement, sampling, and testing in accordance with Article VIII of the Jamestown Sewer Use Ordinance.

SAMPLING MANHOLE REQUIREMENTS

If, in the opinion of the General Manager, there are not adequate facilities for the acquisition of representative samples and accurate flow measurements, the General Manager may require that a sampling manhole with flow measuring device be installed by the permittee at his expense. This sampling manhole shall be approved by this office before installation. The permittee shall be responsible for all maintenance of the sampling manhole and calibration of the monitoring equipment.

BOARD OF PUBLIC UTILITIES MONITORING

Compliance with the Jamestown Sewer Use Ordinance will be monitored via wastewater discharge monitoring. The City of Jamestown will monitor each SIU four times per year. Results will be transmitted to each SIU.

SELF MONITORING

Essex Specialty Products, Inc. must conduct monthly self-monitoring and report results to the City in accordance with applicable federal and local regulations. Monthly reports are due each **August 1** (including months January through June) and **February 1** (including months July through December). Essex Specialty Products, Inc. must notify the City of any violation of its self-monitoring within 24 hours. Such notification shall include a phone call followed up by a letter. All permit limits set forth in this permit are enforceable effluent limitations.

MONITORING LOCATION
SAMPLING VALVE

PARAMETER	SAMPLE	LOCAL
	Monthly	LIMIT
		MG/L
PH (4 grabs)	X	5.5-10.0
TSS (comp)		350
OIL & GREASE		100
CADMIUM (comp)		0.30
CHROMIUM (comp)		4.00
COPPER (comp)		1.25
LEAD (comp)		0.30
NICKEL (comp)		0.90
SILVER (comp)		0.20
ZINC (comp)		3.00
CYANIDE (comp)		0.65
Volatile Organics (4 grabs)	X	2.13

Notes :

1. Samples should be taken as **composites** of at least 4 grab samples collected during a typical production day except for pH. Four separate samples must be taken and **individually analyzed for pH**.
2. All analysis shall be preformed by a New York State Department of Health Certified Environmental Laboratory.
3. All analysis shall be performed in accordance with the latest edition of the following references:
 - a. Standard Methods for the Examination of Water and Wastewater
 - b. Method for Chemical Analysis of Water and Wastes, USEPA, technology Transfer, 1983

PROHIBITED DISCHARGES

The following should not be introduced into the City Sewer system:

- (1) Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21.
- (2) Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than **5.5** or greater than **10.0**;
- (3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;
- (4) Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a Discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW.
- (5) Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 deg.C (104 deg.F) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits.
- (6) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
- (7) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
- (8) Any trucked or hauled pollutants, except at discharge points designated by the POTW.
- (9) The discharge of concentrated solutions without pretreatment is strictly prohibited. Any request to discharge such wastes must be submitted to this office and is subject to the approval of the General Manager on a case by case basis.
- 10) Any water or waste containing fats, wax, grease, oils, or oil products, whether emulsified or not, in excess of **100 mg/l**.

HAZARDOUS WASTE DISCHARGE NOTIFICATION

For discharges of listed and characteristic hazardous wastes which are not already reported in periodic self-monitoring reports and which exceed 15 kilograms per month, the regulations require that all industrial users notify USEPA, NYSDEC, and the City of Jamestown as to the constituents of these wastes and the anticipated discharge volume of such wastes on both a monthly and an annual basis.

CHANGE IN WASTEWATER DISCHARGE

All discharges authorized herein shall comply with the terms and conditions of this permit. Any industrial facility expansions, production increases, or process modifications which result in new, different, or increased discharges of pollutants must be reported by submission of a new industrial waste disposal questionnaire. This permit may be modified to specify and limit any pollutants not previously limited. The discharge of any pollutant more frequently than or at a level in excess of that specified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

RECORDKEEPING

The permittee shall retain all records of monitoring activities and results (whether or not required by this permit) for a minimum of 3 years. These records shall be made available for inspection and copying to duly authorized employees or representatives of the City. This period of retention shall be extended during any unresolved litigation.

PERMIT MODIFICATIONS

After sufficient notice to the permittee, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- (a) Violation of any terms or conditions of this permit.
- (b) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- (c) If an effluent standard is established under any state or federal law for a pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

PERMIT TRANSFER

Sewer Use Permits are issued to a specific User for a specific operation. A wastewater discharge permit shall not be reassigned or, transferred, or sold to a new owner, new User, different premise, or a new or changed operation without the approval of the City. Any succeeding Owner or User shall also comply with the terms and conditions of the existing permit.

NOTICE OF NON-COMPLIANCE

The permittee shall notify the operator of the Jamestown Wastewater Treatment Plant **immediately**, by telephone (665-3980), so that the operator can take the necessary steps to prevent damage to the wastewater treatment process and equipment in the event the permittee:

- (1) Does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit.
- (2) Discharges or may discharge any wastewater which may cause a slug loading to the Jamestown Wastewater Treatment Plant. This includes wastewater which may cause pass through or interference with wastewater treatment plant operations.
- (3) Discharges or may discharge any material or wastewater which is prohibited from discharge as described in the City of Jamestown Local Sewer Use Ordinance or this permit.

These non-complying discharges or possible discharges may be due to:

Breakdown of industrial wastewater pretreatment equipment;
Accidents caused by human error or negligence; or
Other causes, such as acts of nature.

The General Manager shall be notified by telephone within 24 hours, and in writing within five (5) days and said notification shall include the following pertinent information:

- (1) A description of the non-complying discharge;
- (2) Cause of non-compliance;
- (3) Anticipated time the condition of non-compliance is expected to continue, or if such condition has been corrected, the duration of the period of non-compliance;
- (4) Steps taken by the permittee to reduce and eliminate the non-complying discharge; and
- (5) Steps to be taken by the permittee to prevent reoccurrence of the condition of non-compliance.

The permittee must also repeat sampling for all parameters exceeding discharge limitations and submit the results of the repeat analysis within thirty (30) days of the violation(s).

Nothing in this permit shall be construed to relieve the permittee from the penalties for non-compliance of this permit for any reason subject to Article (IX) (Penalties) of the Jamestown Sewer Ordinance.

SCHEDULE OF COMPLIANCE

The permittee shall comply with the following schedule if the present discharge does not conform to the effluent limitations described within this permit:

- a. By _____ the permittee shall have a registered Professional Engineer contact this office.
- b. By _____ the permittee shall complete an engineering report and submit it to this office.
- c. By _____ the permittee shall complete final plans and specifications for pretreatment facilities and submit them to this office for review and approval.
- d. By _____ the permittee shall start construction of its approved pretreatment facilities.
- e. By _____ the permittee shall complete construction of the pretreatment facilities.
- f. By _____ the permittee shall attain operational levels required to achieve the effluent limits specified within this permit.

CIVIL AND CRIMINAL PENALTIES

A permittee found violating applicable local, state or federal regulations may be subject to administrative penalties, civil action, and/or criminal prosecution. If administrative penalties are warranted, a fine in an amount not exceeding \$1000.00 per day per violation may be assessed. If criminal penalties are assessed, a fine in an amount not exceeding \$1,000.00 per violation per day may be assessed, imprisonment for not more than 6 months, or both. Any person violating applicable local, state or federal regulations that results in expense, loss or damage to the City and its property shall be liable for all costs.

Attachment 2
Laboratory Analytical Reports –
July, August, September, October,
November, and December 2019



ANALYTICAL REPORT

Lab Number:	L1930077
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	07/17/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1930077-01	PRE-CARB_20190710	WATER	JAMESTOWN, NY	07/10/19 08:10	07/10/19
L1930077-02	PRIMARY-EFF_20190710	WATER	JAMESTOWN, NY	07/10/19 08:20	07/10/19
L1930077-03	POST-CARB_20190710	WATER	JAMESTOWN, NY	07/10/19 10:00	07/10/19
L1930077-04	COMPOSITE OF POST CARB_20190710-1,2,3,4	WATER	JAMESTOWN, NY	07/10/19 10:00	07/10/19
L1930077-05	TRIP BLANK	WATER	JAMESTOWN, NY	07/10/19 00:00	07/10/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1930077-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1930077-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1260473-3/-4 LCS/LCSD recoveries, associated with L1930077-01, -02, -03, and -05, are above the individual acceptance criteria for 1,4-dioxane (176%/184%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1930077-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for acetone, bromochloromethane, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, 2-hexanone, and 1,2-dibromo-3-chloropropane.

The continuing calibration, associated with L1930077-01, -02, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone and 1,2-dibromo-3-chloropropane.

WG1260472-2: The continuing calibration verification standard has the percent deviation for 1,4-dioxane (95%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 07/17/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-01 D
Client ID: PRE-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:10
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/19 21:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	21	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	970		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	29		ug/l	25	8.4	50
trans-1,2-Dichloroethene	36	J	ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-01 D
Client ID: PRE-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:10
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	9400		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	7100		ug/l	120	35.	50
1,2-Dichloroethene, Total	7100	J	ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-01 D
Client ID: PRE-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:10
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-02 D
Client ID: PRIMARY-EFF_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:20
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/19 22:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	1400		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-02 D
Client ID: PRIMARY-EFF_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:20
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3.3	J	ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	28		ug/l	25	7.0	10
1,2-Dichloroethene, Total	28		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-02 D
Client ID: PRIMARY-EFF_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 08:20
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-03
Client ID: POST-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 10:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/19 22:00
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-03
Client ID: POST-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 10:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.5		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	1.4	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	1.4	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-03
Client ID: POST-CARB_20190710
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 10:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 00:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/19 20:36
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.42	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 00:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	5.7		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	2.4	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	2.4	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

SAMPLE RESULTS

Lab ID: L1930077-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 07/10/19 00:00
Date Received: 07/10/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 07/15/19 20:08
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1260473-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 07/15/19 20:08
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1260473-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 07/15/19 20:08
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1260473-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1260473-3 WG1260473-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		110		70-130	10		20
Carbon tetrachloride	110		110		63-132	0		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	100		99		63-130	1		20
1,1,2-Trichloroethane	110		100		70-130	10		20
Tetrachloroethene	110		110		70-130	0		20
Chlorobenzene	110		100		75-130	10		20
Trichlorofluoromethane	99		100		62-150	1		20
1,2-Dichloroethane	96		97		70-130	1		20
1,1,1-Trichloroethane	110		110		67-130	0		20
Bromodichloromethane	100		100		67-130	0		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	99		99		70-130	0		20
1,1-Dichloropropene	110		110		70-130	0		20
Bromoform	95		98		54-136	3		20
1,1,2,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	110		110		70-130	0		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	79		77		64-130	3		20
Bromomethane	87		86		39-139	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1260473-3 WG1260473-4								
Vinyl chloride	93		91		55-140	2		20
Chloroethane	98		98		55-138	0		20
1,1-Dichloroethene	120		110		61-145	9		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		110		70-130	0		20
1,2-Dichlorobenzene	100		99		70-130	1		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	100		98		70-130	2		20
Methyl tert butyl ether	110		110		63-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Dibromomethane	100		100		70-130	0		20
1,2,3-Trichloropropane	100		100		64-130	0		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	80		78		36-147	3		20
Acetone	110		110		58-148	0		20
Carbon disulfide	110		100		51-130	10		20
2-Butanone	97		97		63-138	0		20
Vinyl acetate	93		91		70-130	2		20
4-Methyl-2-pentanone	99		95		59-130	4		20
2-Hexanone	92		89		57-130	3		20
Bromochloromethane	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1260473-3 WG1260473-4								
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	110		110		70-130	0		20
1,3-Dichloropropane	100		100		70-130	0		20
1,1,1,2-Tetrachloroethane	100		100		64-130	0		20
Bromobenzene	100		98		70-130	2		20
n-Butylbenzene	110		100		53-136	10		20
sec-Butylbenzene	82		84		70-130	2		20
tert-Butylbenzene	110		100		70-130	10		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	100		110		41-144	10		20
Hexachlorobutadiene	100		100		63-130	0		20
Isopropylbenzene	110		110		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	110		100		69-130	10		20
1,2,3-Trichlorobenzene	100		96		70-130	4		20
1,2,4-Trichlorobenzene	100		98		70-130	2		20
1,3,5-Trimethylbenzene	110		100		64-130	10		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20
1,4-Dioxane	176	Q	184	Q	56-162	4		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1930077**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 07/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1260473-3 WG1260473-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	99		104		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077

Report Date: 07/17/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1930077-01A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-01B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-01C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-02A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-02B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-02C	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-03X	Vial HCl preserved split	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-03Y	Vial HCl preserved split	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-03Z	Vial HCl preserved split	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-04A	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04A1	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04A2	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04B	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04B1	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04B2	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04C	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04C1	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04C2	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04D	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04D1	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-04D2	Vial HCl preserved	A	NA		2.5	Y	Absent		COMP-VOA()
L1930077-05A	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)
L1930077-05B	Vial HCl preserved	A	NA		2.5	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:07171912:33
Lab Number: L1930077
Report Date: 07/17/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1930077
Report Date: 07/17/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**Revision **12**

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

[illegible]



ANALYTICAL REPORT

Lab Number:	L1935640
Client:	Jacobs 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	08/15/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1935640-01	PRE-CARB_20190808	WATER	JAMESTOWN, NY	08/08/19 07:45	08/08/19
L1935640-02	PRIMARY-EFF_20190808	WATER	JAMESTOWN, NY	08/08/19 07:55	08/08/19
L1935640-03	POST-CARB_20190808-01	WATER	JAMESTOWN, NY	08/08/19 09:30	08/08/19
L1935640-04	COMPOSITE OF POST CARB_20190808-1,2,3,4	WATER	JAMESTOWN, NY	08/08/19 09:30	08/08/19
L1935640-05	TRIP BLANK	WATER	JAMESTOWN, NY	08/08/19 00:00	08/08/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1935640-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1935640-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample was re-analyzed for confirmation; re-analysis achieved similar results. The results of the original analysis are reported. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1935640-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for trichloroethene, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,2-dibromo-3-chloropropane.

The initial calibration verification standard has the percent deviation for 1,4-dioxane (55%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1935640-05, did not meet the method required minimum response factor for acetone, 2-butanone, and 4-methyl-2-pentanone.

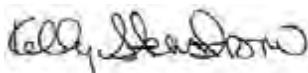
The continuing calibration, associated with L1935640-01 through -03, did not meet the method required minimum response factor for acetone, 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

WG1272292-2: The continuing calibration verification standard has the percent deviation for 2-butanone (22%D) and 1,4-dioxane (21%D) above the 20% CCV criteria, but within overall method allowances.

WG1272290-8: The continuing calibration verification standard has the percent deviation for 1,4-dioxane (58%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 08/15/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-01 D
Client ID: PRE-CARB_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:45
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/15/19 01:18
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	18	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	860		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	24	J	ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-01 D
Client ID: PRE-CARB_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:45
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	7400		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	5900		ug/l	120	35.	50
1,2-Dichloroethene, Total	5900		ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-01 D
Client ID: PRE-CARB_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:45
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-02 D
Client ID: PRIMARY-EFF_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:55
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/15/19 01:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	1600		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-02 D
Client ID: PRIMARY-EFF_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:55
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	5.7		ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	24	J	ug/l	25	7.0	10
1,2-Dichloroethene, Total	24	J	ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-02 D
Client ID: PRIMARY-EFF_20190808
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 07:55
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-03
Client ID: POST-CARB_20190808-01
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 09:30
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/15/19 00:53
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.08	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-03
Client ID: POST-CARB_20190808-01
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 09:30
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.61		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.0	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-03
Client ID: POST-CARB_20190808-01
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 09:30
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 00:00
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/12/19 21:48
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.31	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 00:00
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3.2		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	1.2	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	1.2	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 08/08/19 00:00
Date Received: 08/08/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/14/19 23:12
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1272292-10					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/14/19 23:12
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1272292-10					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/14/19 23:12
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1272292-10					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/12/19 20:57
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1272292-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/12/19 20:57
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1272292-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 08/12/19 20:57
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1272292-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1272292-3 WG1272292-4								
Methylene chloride	94		97		70-130	3		20
1,1-Dichloroethane	95		97		70-130	2		20
Chloroform	94		96		70-130	2		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	97		96		70-130	1		20
Dibromochloromethane	98		100		63-130	2		20
1,1,2-Trichloroethane	100		110		70-130	10		20
Tetrachloroethene	100		110		70-130	10		20
Chlorobenzene	97		100		75-130	3		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	100		99		70-130	1		20
1,1,1-Trichloroethane	98		100		67-130	2		20
Bromodichloromethane	95		97		67-130	2		20
trans-1,3-Dichloropropene	98		100		70-130	2		20
cis-1,3-Dichloropropene	95		96		70-130	1		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	100		110		67-130	10		20
Benzene	97		100		70-130	3		20
Toluene	97		100		70-130	3		20
Ethylbenzene	97		100		70-130	3		20
Chloromethane	99		100		64-130	1		20
Bromomethane	100		110		39-139	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1272292-3 WG1272292-4								
Vinyl chloride	93		97		55-140	4		20
Chloroethane	94		94		55-138	0		20
1,1-Dichloroethene	98		100		61-145	2		20
trans-1,2-Dichloroethene	95		99		70-130	4		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	99		100		70-130	1		20
1,4-Dichlorobenzene	98		100		70-130	2		20
Methyl tert butyl ether	100		100		63-130	0		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
cis-1,2-Dichloroethene	94		98		70-130	4		20
Dibromomethane	100		98		70-130	2		20
1,2,3-Trichloropropane	110		100		64-130	10		20
Styrene	95		100		70-130	5		20
Dichlorodifluoromethane	97		99		36-147	2		20
Acetone	120		120		58-148	0		20
Carbon disulfide	92		94		51-130	2		20
2-Butanone	120		120		63-138	0		20
Vinyl acetate	100		100		70-130	0		20
4-Methyl-2-pentanone	110		120		59-130	9		20
2-Hexanone	110		120		57-130	9		20
Bromochloromethane	98		100		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1272292-3 WG1272292-4								
2,2-Dichloropropane	100		100		63-133	0		20
1,2-Dibromoethane	100		110		70-130	10		20
1,3-Dichloropropane	100		110		70-130	10		20
1,1,1,2-Tetrachloroethane	96		100		64-130	4		20
Bromobenzene	98		100		70-130	2		20
n-Butylbenzene	100		110		53-136	10		20
sec-Butylbenzene	100		110		70-130	10		20
tert-Butylbenzene	100		110		70-130	10		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	98		100		70-130	2		20
1,2-Dibromo-3-chloropropane	100		99		41-144	1		20
Hexachlorobutadiene	98		100		63-130	2		20
Isopropylbenzene	100		110		70-130	10		20
p-Isopropyltoluene	100		110		70-130	10		20
Naphthalene	120		120		70-130	0		20
n-Propylbenzene	100		110		69-130	10		20
1,2,3-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		110		70-130	10		20
1,4-Dioxane	132		128		56-162	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1272292-3 WG1272292-4

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	105		106		70-130
Toluene-d8	102		104		70-130
4-Bromofluorobenzene	100		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1272292-8 WG1272292-9								
Methylene chloride	92		92		70-130	0		20
1,1-Dichloroethane	89		92		70-130	3		20
Chloroform	93		94		70-130	1		20
Carbon tetrachloride	94		96		63-132	2		20
1,2-Dichloropropane	93		94		70-130	1		20
Dibromochloromethane	97		94		63-130	3		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	98		99		70-130	1		20
Chlorobenzene	96		97		75-130	1		20
Trichlorofluoromethane	92		92		62-150	0		20
1,2-Dichloroethane	94		92		70-130	2		20
1,1,1-Trichloroethane	92		93		67-130	1		20
Bromodichloromethane	91		91		67-130	0		20
trans-1,3-Dichloropropene	96		93		70-130	3		20
cis-1,3-Dichloropropene	94		92		70-130	2		20
1,1-Dichloropropene	93		96		70-130	3		20
Bromoform	100		97		54-136	3		20
1,1,2,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	95		96		70-130	1		20
Toluene	95		95		70-130	0		20
Ethylbenzene	94		96		70-130	2		20
Chloromethane	86		88		64-130	2		20
Bromomethane	80		84		39-139	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1272292-8 WG1272292-9								
Vinyl chloride	90		90		55-140	0		20
Chloroethane	90		92		55-138	2		20
1,1-Dichloroethene	94		94		61-145	0		20
trans-1,2-Dichloroethene	91		96		70-130	5		20
Trichloroethene	96		95		70-130	1		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	95		99		70-130	4		20
1,4-Dichlorobenzene	96		97		70-130	1		20
Methyl tert butyl ether	98		97		63-130	1		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	93		94		70-130	1		20
Dibromomethane	99		96		70-130	3		20
1,2,3-Trichloropropane	96		91		64-130	5		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	85		88		36-147	3		20
Acetone	120		110		58-148	9		20
Carbon disulfide	88		88		51-130	0		20
2-Butanone	110		110		63-138	0		20
Vinyl acetate	96		93		70-130	3		20
4-Methyl-2-pentanone	110		100		59-130	10		20
2-Hexanone	110		100		57-130	10		20
Bromochloromethane	95		94		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1272292-8 WG1272292-9								
2,2-Dichloropropane	87		84		63-133	4		20
1,2-Dibromoethane	100		100		70-130	0		20
1,3-Dichloropropane	100		99		70-130	1		20
1,1,1,2-Tetrachloroethane	92		95		64-130	3		20
Bromobenzene	95		97		70-130	2		20
n-Butylbenzene	99		100		53-136	1		20
sec-Butylbenzene	100		100		70-130	0		20
tert-Butylbenzene	99		100		70-130	1		20
o-Chlorotoluene	96		98		70-130	2		20
p-Chlorotoluene	95		96		70-130	1		20
1,2-Dibromo-3-chloropropane	100		100		41-144	0		20
Hexachlorobutadiene	100		100		63-130	0		20
Isopropylbenzene	98		100		70-130	2		20
p-Isopropyltoluene	99		100		70-130	1		20
Naphthalene	130		120		70-130	8		20
n-Propylbenzene	98		99		69-130	1		20
1,2,3-Trichlorobenzene	120		110		70-130	9		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	96		98		64-130	2		20
1,2,4-Trimethylbenzene	99		100		70-130	1		20
1,4-Dioxane	162		142		56-162	13		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1935640**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1272292-8 WG1272292-9

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	97		96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640**Report Date:** 08/15/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1935640-01A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-01B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-01C	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-02A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-02B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-02C	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03X	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03X1	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03Y	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03Y1	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03Z	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-03Z1	Vial HCl preserved split	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-04A	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04A1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04A2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04B	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04B1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04B2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04C	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04C1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04C2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04D	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-04D1	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:08151919:45
Lab Number: L1935640
Report Date: 08/15/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1935640-04D2	Vial HCl preserved	A	NA		4.1	Y	Absent		COMP-VOA()
L1935640-05A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1935640-05B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1935640
Report Date: 08/15/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

[illegible]



ANALYTICAL REPORT

Lab Number:	L1940768
Client:	Jacobs Engineering Group 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	09/12/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940768-01	PRE-CARB_20190906	WATER	JAMESTOWN, NY	09/06/19 07:45	09/06/19
L1940768-02	PRIMARY-EFF_20190906	WATER	JAMESTOWN, NY	09/06/19 07:55	09/06/19
L1940768-03	POST-CARB_20190906	WATER	JAMESTOWN, NY	09/06/19 09:30	09/06/19
L1940768-04	COMPOSITE OF POST CARB_20190808-1,2,3,4	WATER	JAMESTOWN, NY	09/06/19 09:30	09/06/19
L1940768-05	TRIP BLANK	WATER	JAMESTOWN, NY	09/06/19 00:00	09/06/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1940768-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1940768-05: The Trip Blank has a result for acetone present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1940768-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for 2-butanone, 1,4-dioxane, cis-1,3-Dichloropropene, and 4-methyl-2-pentanone.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (47%D) and bromomethane (41%D) outside the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1940768-01, -02, -03, and -05, did not meet the method required minimum response factor for 2-butanone, 1,4-dioxane, and 4-methyl-2-pentanone.

The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (39%D), bromomethane (21%D), vinyl acetate (35%D), and 1,4-dioxane (23%D) above the 20% CCV criteria but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/12/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-01 D
Client ID: PRE-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:45
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/11/19 18:52
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	14	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	760		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	22	J	ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-01 D
Client ID: PRE-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:45
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	7400		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	5300		ug/l	120	35.	50
1,2-Dichloroethene, Total	5300		ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-01 D
Client ID: PRE-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:45
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-02 D
Client ID: PRIMARY-EFF_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:55
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/11/19 19:17
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	1600		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-02 D
Client ID: PRIMARY-EFF_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:55
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3.4	J	ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	45		ug/l	25	7.0	10
1,2-Dichloroethene, Total	45		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-02 D
Client ID: PRIMARY-EFF_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 07:55
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-03
Client ID: POST-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/11/19 16:21
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	11		ug/l	1.0	0.07	1
Chloroethane	3.2		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-03
Client ID: POST-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.27	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-03
Client ID: POST-CARB_20190906
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	105		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 09/11/19 15:56
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	8.8		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

SAMPLE RESULTS

Lab ID: L1940768-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 09/06/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/11/19 11:45
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1283026-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/11/19 11:45
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1283026-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 09/11/19 11:45
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1283026-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	84		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1283026-3 WG1283026-4								
Methylene chloride	99		95		70-130	4		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		97		70-130	3		20
Carbon tetrachloride	99		97		63-132	2		20
1,2-Dichloropropane	100		98		70-130	2		20
Dibromochloromethane	94		92		63-130	2		20
1,1,2-Trichloroethane	100		95		70-130	5		20
Tetrachloroethene	93		92		70-130	1		20
Chlorobenzene	90		90		75-130	0		20
Trichlorofluoromethane	100		110		62-150	10		20
1,2-Dichloroethane	97		94		70-130	3		20
1,1,1-Trichloroethane	97		92		67-130	5		20
Bromodichloromethane	98		97		67-130	1		20
trans-1,3-Dichloropropene	91		87		70-130	4		20
cis-1,3-Dichloropropene	90		87		70-130	3		20
1,1-Dichloropropene	94		92		70-130	2		20
Bromoform	98		94		54-136	4		20
1,1,2,2-Tetrachloroethane	97		92		67-130	5		20
Benzene	110		100		70-130	10		20
Toluene	92		91		70-130	1		20
Ethylbenzene	92		92		70-130	0		20
Chloromethane	120		120		64-130	0		20
Bromomethane	52		45		39-139	14		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1283026-3 WG1283026-4								
Vinyl chloride	93		91		55-140	2		20
Chloroethane	92		88		55-138	4		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		97		70-130	3		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	92		90		70-130	2		20
1,3-Dichlorobenzene	94		93		70-130	1		20
1,4-Dichlorobenzene	93		90		70-130	3		20
Methyl tert butyl ether	87		81		63-130	7		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
cis-1,2-Dichloroethene	99		97		70-130	2		20
Dibromomethane	92		90		70-130	2		20
1,2,3-Trichloropropane	90		86		64-130	5		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	130		130		36-147	0		20
Acetone	110		120		58-148	9		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	120		110		63-138	9		20
Vinyl acetate	120		120		70-130	0		20
4-Methyl-2-pentanone	90		84		59-130	7		20
2-Hexanone	84		78		57-130	7		20
Bromochloromethane	100		99		70-130	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1283026-3 WG1283026-4								
2,2-Dichloropropane	90		81		63-133	11		20
1,2-Dibromoethane	92		86		70-130	7		20
1,3-Dichloropropane	95		90		70-130	5		20
1,1,1,2-Tetrachloroethane	96		95		64-130	1		20
Bromobenzene	89		87		70-130	2		20
n-Butylbenzene	95		94		53-136	1		20
sec-Butylbenzene	92		94		70-130	2		20
tert-Butylbenzene	86		85		70-130	1		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	89		88		70-130	1		20
1,2-Dibromo-3-chloropropane	89		81		41-144	9		20
Hexachlorobutadiene	98		98		63-130	0		20
Isopropylbenzene	86		84		70-130	2		20
p-Isopropyltoluene	86		85		70-130	1		20
Naphthalene	83		78		70-130	6		20
n-Propylbenzene	90		89		69-130	1		20
1,2,3-Trichlorobenzene	91		86		70-130	6		20
1,2,4-Trichlorobenzene	87		86		70-130	1		20
1,3,5-Trimethylbenzene	87		86		64-130	1		20
1,2,4-Trimethylbenzene	86		85		70-130	1		20
1,4-Dioxane	110		102		56-162	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Parameter	<i>LCS</i> %Recovery	Qual	<i>LCSD</i> %Recovery	Qual	<i>%Recovery</i> Limits	RPD	Qual	<i>RPD</i> Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1283026-3 WG1283026-4								

<i>Surrogate</i>	<i>LCS</i> %Recovery	Qual	<i>LCSD</i> %Recovery	Qual	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	103		100		70-130
Toluene-d8	91		92		70-130
4-Bromofluorobenzene	83		83		70-130
Dibromofluoromethane	96		96		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940768-01A	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-01B	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-01C	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-02A	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-02B	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-02C	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03X	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03X1	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03Y	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03Y1	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03Z	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-03Z1	Vial HCl preserved split	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-04A	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04A1	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04A2	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04B	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04B1	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04B2	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04C	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04C1	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04C2	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04D	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-04D1	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:09121914:21
Lab Number: L1940768
Report Date: 09/12/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940768-04D2	Vial HCl preserved	A	NA		3.5	Y	Absent		COMP-VOA()
L1940768-05A	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)
L1940768-05B	Vial HCl preserved	A	NA		3.5	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1940768
Report Date: 09/12/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L1947310
Client:	Jacobs Engineering Group 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	10/15/19

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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1947310-01	PRE-CARB_20191009	WATER	JAMESTOWN, NY	10/09/19 11:30	10/09/19
L1947310-02	PRIMARY-EFF_20191009	WATER	JAMESTOWN, NY	10/09/19 11:45	10/09/19
L1947310-03	POST-CARB_20191009	WATER	JAMESTOWN, NY	10/09/19 12:00	10/09/19
L1947310-04	COMPOSITE OF POST CARB_20191009-1,2,3,4	WATER	JAMESTOWN, NY	10/09/19 12:30	10/09/19
L1947310-05	TRIP BLANK	WATER	JAMESTOWN, NY	10/09/19 00:00	10/09/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1947310-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1947310-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The WG1296106-4 LCSD recovery, associated with L1947310-01, -02, -03, and -05, is below the individual acceptance criteria for 2,2-dichloropropane (59%), but within the overall method allowances. The results of the associated samples are reported.

The initial calibration, associated with L1947310-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.


The continuing calibration, associated with L1947310-01, -02, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone,

Bromodichloromethane, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

WG1296106-2: The continuing calibration verification standard has the percent deviation for chloromethane (30%D), bromomethane (22%), Methylene chloride (21%D), Methyl tert-butyl ether (50%D), 2,2-dichloropropane (37%D), and Bromodichloromethane (25%D) above the 20% CCV criteria, but within overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 10/15/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-01 D
Client ID: PRE-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:30
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/14/19 13:09
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
1,3-Dichloropropene, Total	ND		ug/l	20	5.8	40
1,1-Dichloropropene	ND		ug/l	100	28.	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	9.7	J	ug/l	20	6.4	40
Toluene	ND		ug/l	100	28.	40
Ethylbenzene	ND		ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	410		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	13	J	ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-01 D
Client ID: PRE-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:30
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	4800		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	ND		ug/l	100	28.	40
o-Xylene	ND		ug/l	100	28.	40
Xylenes, Total	ND		ug/l	100	28.	40
cis-1,2-Dichloroethene	3400		ug/l	100	28.	40
1,2-Dichloroethene, Total	3400		ug/l	100	28.	40
Dibromomethane	ND		ug/l	200	40.	40
1,2,3-Trichloropropane	ND		ug/l	100	28.	40
Styrene	ND		ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
Vinyl acetate	ND		ug/l	200	40.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
2,2-Dichloropropane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,3-Dichloropropane	ND		ug/l	100	28.	40
1,1,1,2-Tetrachloroethane	ND		ug/l	100	28.	40
Bromobenzene	ND		ug/l	100	28.	40
n-Butylbenzene	ND		ug/l	100	28.	40
sec-Butylbenzene	ND		ug/l	100	28.	40
tert-Butylbenzene	ND		ug/l	100	28.	40
o-Chlorotoluene	ND		ug/l	100	28.	40
p-Chlorotoluene	ND		ug/l	100	28.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Hexachlorobutadiene	ND		ug/l	100	28.	40
Isopropylbenzene	ND		ug/l	100	28.	40
p-Isopropyltoluene	ND		ug/l	100	28.	40
Naphthalene	ND		ug/l	100	28.	40
n-Propylbenzene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-01 D
Client ID: PRE-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:30
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
1,3,5-Trimethylbenzene	ND		ug/l	100	28.	40
1,2,4-Trimethylbenzene	ND		ug/l	100	28.	40
1,4-Dioxane	ND		ug/l	10000	2400	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	109		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-02 D
Client ID: PRIMARY-EFF_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:45
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/14/19 16:08
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	12	3.5	5
1,1-Dichloroethane	ND		ug/l	12	3.5	5
Chloroform	ND		ug/l	12	3.5	5
Carbon tetrachloride	ND		ug/l	2.5	0.67	5
1,2-Dichloropropane	ND		ug/l	5.0	0.68	5
Dibromochloromethane	ND		ug/l	2.5	0.74	5
1,1,2-Trichloroethane	ND		ug/l	7.5	2.5	5
Tetrachloroethene	ND		ug/l	2.5	0.90	5
Chlorobenzene	ND		ug/l	12	3.5	5
Trichlorofluoromethane	ND		ug/l	12	3.5	5
1,2-Dichloroethane	ND		ug/l	2.5	0.66	5
1,1,1-Trichloroethane	ND		ug/l	12	3.5	5
Bromodichloromethane	ND		ug/l	2.5	0.96	5
trans-1,3-Dichloropropene	ND		ug/l	2.5	0.82	5
cis-1,3-Dichloropropene	ND		ug/l	2.5	0.72	5
1,3-Dichloropropene, Total	ND		ug/l	2.5	0.72	5
1,1-Dichloropropene	ND		ug/l	12	3.5	5
Bromoform	ND		ug/l	10	3.2	5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	0.84	5
Benzene	ND		ug/l	2.5	0.80	5
Toluene	ND		ug/l	12	3.5	5
Ethylbenzene	ND		ug/l	12	3.5	5
Chloromethane	ND		ug/l	12	3.5	5
Bromomethane	ND		ug/l	12	3.5	5
Vinyl chloride	750		ug/l	5.0	0.36	5
Chloroethane	11	J	ug/l	12	3.5	5
1,1-Dichloroethene	ND		ug/l	2.5	0.84	5
trans-1,2-Dichloroethene	ND		ug/l	12	3.5	5



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-02 D
Client ID: PRIMARY-EFF_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:45
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	2.5	0.88	5
1,2-Dichlorobenzene	ND		ug/l	12	3.5	5
1,3-Dichlorobenzene	ND		ug/l	12	3.5	5
1,4-Dichlorobenzene	ND		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	ND		ug/l	12	3.5	5
o-Xylene	ND		ug/l	12	3.5	5
Xylenes, Total	ND		ug/l	12	3.5	5
cis-1,2-Dichloroethene	ND		ug/l	12	3.5	5
1,2-Dichloroethene, Total	ND		ug/l	12	3.5	5
Dibromomethane	ND		ug/l	25	5.0	5
1,2,3-Trichloropropane	ND		ug/l	12	3.5	5
Styrene	ND		ug/l	12	3.5	5
Dichlorodifluoromethane	ND		ug/l	25	5.0	5
Acetone	ND		ug/l	25	7.3	5
Carbon disulfide	ND		ug/l	25	5.0	5
2-Butanone	ND		ug/l	25	9.7	5
Vinyl acetate	ND		ug/l	25	5.0	5
4-Methyl-2-pentanone	ND		ug/l	25	5.0	5
2-Hexanone	ND		ug/l	25	5.0	5
Bromochloromethane	ND		ug/l	12	3.5	5
2,2-Dichloropropane	ND		ug/l	12	3.5	5
1,2-Dibromoethane	ND		ug/l	10	3.2	5
1,3-Dichloropropane	ND		ug/l	12	3.5	5
1,1,1,2-Tetrachloroethane	ND		ug/l	12	3.5	5
Bromobenzene	ND		ug/l	12	3.5	5
n-Butylbenzene	ND		ug/l	12	3.5	5
sec-Butylbenzene	ND		ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
o-Chlorotoluene	ND		ug/l	12	3.5	5
p-Chlorotoluene	ND		ug/l	12	3.5	5
1,2-Dibromo-3-chloropropane	ND		ug/l	12	3.5	5
Hexachlorobutadiene	ND		ug/l	12	3.5	5
Isopropylbenzene	ND		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	ND		ug/l	12	3.5	5
n-Propylbenzene	ND		ug/l	12	3.5	5



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-02 D
Client ID: PRIMARY-EFF_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 11:45
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	12	3.5	5
1,2,4-Trichlorobenzene	ND		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	ND		ug/l	12	3.5	5
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5
1,4-Dioxane	ND		ug/l	1200	300	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	121		70-130



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-03
Client ID: POST-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 12:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/14/19 12:18
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-03
Client ID: POST-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 12:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.42	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-03
Client ID: POST-CARB_20191009
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 12:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	114		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 00:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/14/19 11:52
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 00:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.6		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.1	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1947310-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 10/09/19 00:00
Date Received: 10/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	117		70-130



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/14/19 08:57
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1296106-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/14/19 08:57
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1296106-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/14/19 08:57
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1296106-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	107		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1296106-3 WG1296106-4								
Methylene chloride	84		86		70-130	2		20
1,1-Dichloroethane	82		81		70-130	1		20
Chloroform	92		92		70-130	0		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	81		84		70-130	4		20
Dibromochloromethane	99		98		63-130	1		20
1,1,2-Trichloroethane	89		93		70-130	4		20
Tetrachloroethene	98		97		70-130	1		20
Chlorobenzene	94		95		75-130	1		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	89		93		70-130	4		20
1,1,1-Trichloroethane	98		97		67-130	1		20
Bromodichloromethane	88		90		67-130	2		20
trans-1,3-Dichloropropene	90		91		70-130	1		20
cis-1,3-Dichloropropene	93		90		70-130	3		20
1,1-Dichloropropene	92		92		70-130	0		20
Bromoform	99		100		54-136	1		20
1,1,2,2-Tetrachloroethane	95		97		67-130	2		20
Benzene	91		91		70-130	0		20
Toluene	92		92		70-130	0		20
Ethylbenzene	95		97		70-130	2		20
Chloromethane	72		72		64-130	0		20
Bromomethane	49		48		39-139	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1296106-3 WG1296106-4								
Vinyl chloride	86		83		55-140	4		20
Chloroethane	94		94		55-138	0		20
1,1-Dichloroethene	94		93		61-145	1		20
trans-1,2-Dichloroethene	92		94		70-130	2		20
Trichloroethene	94		94		70-130	0		20
1,2-Dichlorobenzene	99		98		70-130	1		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	96		97		70-130	1		20
Methyl tert butyl ether	76		76		63-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	91		94		70-130	3		20
Dibromomethane	88		90		70-130	2		20
1,2,3-Trichloropropane	95		98		64-130	3		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	89		88		36-147	1		20
Acetone	93		100		58-148	7		20
Carbon disulfide	86		86		51-130	0		20
2-Butanone	84		88		63-138	5		20
Vinyl acetate	110		110		70-130	0		20
4-Methyl-2-pentanone	90		100		59-130	11		20
2-Hexanone	85		91		57-130	7		20
Bromochloromethane	93		94		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1296106-3 WG1296106-4								
2,2-Dichloropropane	66		59	Q	63-133	11		20
1,2-Dibromoethane	90		94		70-130	4		20
1,3-Dichloropropane	90		92		70-130	2		20
1,1,1,2-Tetrachloroethane	100		100		64-130	0		20
Bromobenzene	97		95		70-130	2		20
n-Butylbenzene	110		110		53-136	0		20
sec-Butylbenzene	110		110		70-130	0		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	100		99		70-130	1		20
1,2-Dibromo-3-chloropropane	99		100		41-144	1		20
Hexachlorobutadiene	110		110		63-130	0		20
Isopropylbenzene	100		100		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	100		100		70-130	0		20
n-Propylbenzene	99		98		69-130	1		20
1,2,3-Trichlorobenzene	96		95		70-130	1		20
1,2,4-Trichlorobenzene	97		99		70-130	2		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
1,4-Dioxane	110		128		56-162	15		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1947310**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1296106-3 WG1296106-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		108		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	106		110		70-130
Dibromofluoromethane	105		106		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310**Report Date:** 10/15/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1947310-01A	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-01B	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-01C	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-02A	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-02B	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-02C	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-03X	Vial HCl preserved split	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-03Y	Vial HCl preserved split	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-03Z	Vial HCl preserved split	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-04A	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04A1	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04A2	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04B	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04B1	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04B2	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04C	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04C1	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04C2	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04D	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04D1	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-04D2	Vial HCl preserved	A	NA		3.1	Y	Absent		COMP-VOA()
L1947310-05A	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)
L1947310-05B	Vial HCl preserved	A	NA		3.1	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:10151913:48
Lab Number: L1947310
Report Date: 10/15/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
---------------	-----------------------	---------------------	-----------------------	-------------	-------------	-----------------------------	--------------------

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1947310
Report Date: 10/15/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,


3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3268		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd In Lab 10/10/19		ALPHA Job # 11947310																																																			
		Project Information Project Name: <u>Essex/Hope</u> Project Location: <u>Jamestown, NY</u> Project #: <u>DWJMS002 - ACS EV 01.04</u> (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input type="checkbox"/> ASP-A <input type="checkbox"/> ASP-B <input type="checkbox"/> EQuIS (1 File) <input type="checkbox"/> EQuIS (4 File) <input type="checkbox"/> Other		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO #																																																					
Client Information Client: <u>JACOBS</u> Address: <u>18 Tremont St.</u> <u>Boston, MA</u> Phone: Fax: Email: <u>Kyle.Black@Jacobs.com</u>		Project Manager: <u>Kyle Black</u> ALPHAQuote #: Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement <input type="checkbox"/> NY TOGS <input type="checkbox"/> NY Part 375 <input type="checkbox"/> AWO Standards <input type="checkbox"/> NY CP-51 <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> Other <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input checked="" type="checkbox"/> NY <input type="checkbox"/> Other:																																																					
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Other project specific requirements/comments: <u>Composite All 4 Post-Carb samples in Lab AND report AS Post-Carb - 20191009</u> Please specify Metals or TAL.						VOC's 8260		T O B O T T L E																																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">ALPHA Lab ID (Lab Use Only)</th> <th rowspan="2">Sample ID</th> <th colspan="2">Collection</th> <th rowspan="2">Sample Matrix</th> <th rowspan="2">Sampler's Initials</th> </tr> <tr> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>47310-01</td> <td>Pre-Carb-20191009</td> <td>10/9/19</td> <td>1130</td> <td>GW</td> <td>TD</td> </tr> <tr> <td>-02</td> <td>Primary-EFF-20191009</td> <td></td> <td>1145</td> <td></td> <td></td> </tr> <tr> <td>-03-04</td> <td>Post-Carb-20191009-1</td> <td></td> <td>1200</td> <td></td> <td></td> </tr> <tr> <td>-03-04</td> <td>Post-Carb-20191009-2</td> <td></td> <td>1230</td> <td></td> <td></td> </tr> <tr> <td>-03-04</td> <td>Post-Carb-20191009-3</td> <td></td> <td>1300</td> <td></td> <td></td> </tr> <tr> <td>-03-04</td> <td>Post-Carb-20191009-4</td> <td></td> <td>1330</td> <td></td> <td></td> </tr> <tr> <td>-05</td> <td>T.P. BLANK</td> <td></td> <td></td> <td>Water</td> <td></td> </tr> </tbody> </table>										ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	Date	Time	47310-01	Pre-Carb-20191009	10/9/19	1130	GW	TD	-02	Primary-EFF-20191009		1145			-03-04	Post-Carb-20191009-1		1200			-03-04	Post-Carb-20191009-2		1230			-03-04	Post-Carb-20191009-3		1300			-03-04	Post-Carb-20191009-4		1330			-05	T.P. BLANK			Water	
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-05	T.P. BLANK			Water																																																							
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other						Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015																																																			
Container Type <input checked="" type="checkbox"/>						Preservative <u>B</u>		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)																																																			
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ANALYTICAL REPORT

Lab Number:	L1952640
Client:	Jacobs Engineering Group 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	11/12/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1952640-01	PRE-CARB_20191104	WATER	JAMESTOWN, NY	11/04/19 14:05	11/06/19
L1952640-02	PRIMARY-EFF_20191104	WATER	JAMESTOWN, NY	11/04/19 14:15	11/06/19
L1952640-03	POST-CARB_20191104	WATER	JAMESTOWN, NY	11/04/19 14:30	11/06/19
L1952640-04	COMPOSITE OF POST- CARB_20191104	WATER	JAMESTOWN, NY	11/04/19 15:00	11/06/19
L1952640-05	TRIP BLANK	WATER	JAMESTOWN, NY	11/04/19 00:00	11/06/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1952640-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1952640-05: The Trip Blank has a result for Trichloroethene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1952640-01, -03, and -05, did not meet the method required minimum response factor for the calibration standards for bromomethane, acetone, 2-butanone, dibromomethane, 1,4-dioxane, 4-methyl-2-pentanone and 2-hexanone.

The continuing calibration, associated with L1952640-01, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, 2-Hexanone, and 1,1,2,2-Tetrachloroethane.

The continuing calibration verification standard has the percent deviation for Dichlorodifluoromethane (34%), Chloromethane (39%D), and Vinyl acetate (23%D), above the 20% CCV criteria, but within overall method allowances.

The initial calibration, associated with L1952640-02, did not meet the method required minimum response factor for the calibration standards for bromomethane, acetone, 2-butanone, dibromomethane, 1,4-dioxane, 4-methyl-2-pentanone and 2-hexanone.

The continuing calibration, associated with L1952640-02, did not meet the method required minimum response factor for acetone, 2-butanone, 1,4-dioxane, 4-methyl-2-pentanone, 2-Hexanone, and 1,1,2,2-Tetrachloroethane.

The continuing calibration verification standard has the percent deviation for Dichlorodifluoromethane (33%), Chloromethane (42%D), Vinyl acetate (21%D), 1,4-Dichlorobenzene (24%D), and 1,2,3-Trichloropropane

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Case Narrative (continued)

(22%D) above the 20% CCV criteria, but within overall method allowances.

The WG1307515-4 LCSD recovery, associated with L1952640-02, is below the individual acceptance criteria for chloromethane (60%), but within the overall method allowances. The results of the associated samples are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 11/12/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-01 D
Client ID: PRE-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:05
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/11/19 10:00
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
1,3-Dichloropropene, Total	ND		ug/l	20	5.8	40
1,1-Dichloropropene	ND		ug/l	100	28.	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	9.0	J	ug/l	20	6.4	40
Toluene	ND		ug/l	100	28.	40
Ethylbenzene	ND		ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	400		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	13	J	ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-01 D
Client ID: PRE-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:05
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3900		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	ND		ug/l	100	28.	40
o-Xylene	ND		ug/l	100	28.	40
Xylenes, Total	ND		ug/l	100	28.	40
cis-1,2-Dichloroethene	3100		ug/l	100	28.	40
1,2-Dichloroethene, Total	3100		ug/l	100	28.	40
Dibromomethane	ND		ug/l	200	40.	40
1,2,3-Trichloropropane	ND		ug/l	100	28.	40
Styrene	ND		ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
Vinyl acetate	ND		ug/l	200	40.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
2,2-Dichloropropane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,3-Dichloropropane	ND		ug/l	100	28.	40
1,1,1,2-Tetrachloroethane	ND		ug/l	100	28.	40
Bromobenzene	ND		ug/l	100	28.	40
n-Butylbenzene	ND		ug/l	100	28.	40
sec-Butylbenzene	ND		ug/l	100	28.	40
tert-Butylbenzene	ND		ug/l	100	28.	40
o-Chlorotoluene	ND		ug/l	100	28.	40
p-Chlorotoluene	ND		ug/l	100	28.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Hexachlorobutadiene	ND		ug/l	100	28.	40
Isopropylbenzene	ND		ug/l	100	28.	40
p-Isopropyltoluene	ND		ug/l	100	28.	40
Naphthalene	ND		ug/l	100	28.	40
n-Propylbenzene	ND		ug/l	100	28.	40



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-01 D
Client ID: PRE-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:05
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
1,3,5-Trimethylbenzene	ND		ug/l	100	28.	40
1,2,4-Trimethylbenzene	ND		ug/l	100	28.	40
1,4-Dioxane	ND		ug/l	10000	2400	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	107		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-02 D
Client ID: PRIMARY-EFF_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:15
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/11/19 21:40
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	1400		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-02 D
Client ID: PRIMARY-EFF_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:15
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	ND		ug/l	25	7.0	10
1,2-Dichloroethene, Total	ND		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-02 D
Client ID: PRIMARY-EFF_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:15
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-03
Client ID: POST-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:30
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/11/19 10:47
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-03
Client ID: POST-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:30
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.37	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.9	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-03
Client ID: POST-CARB_20191104
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 14:30
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	106		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 00:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/11/19 09:37
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.32	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 00:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	3.2		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	1.4	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	1.4	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

SAMPLE RESULTS

Lab ID: L1952640-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 11/04/19 00:00
Date Received: 11/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03,05 Batch: WG1307172-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03,05 Batch: WG1307172-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 09:14
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03,05 Batch: WG1307172-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	104		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 21:12
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1307515-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 21:12
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1307515-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 11/11/19 21:12
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1307515-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 Batch: WG1307172-3 WG1307172-4								
Methylene chloride	94		93		70-130	1		20
1,1-Dichloroethane	89		87		70-130	2		20
Chloroform	92		92		70-130	0		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	87		85		70-130	2		20
Dibromochloromethane	96		94		63-130	2		20
1,1,2-Trichloroethane	96		93		70-130	3		20
Tetrachloroethene	120		110		70-130	9		20
Chlorobenzene	100		98		75-130	2		20
Trichlorofluoromethane	95		94		62-150	1		20
1,2-Dichloroethane	88		85		70-130	3		20
1,1,1-Trichloroethane	99		96		67-130	3		20
Bromodichloromethane	92		88		67-130	4		20
trans-1,3-Dichloropropene	80		79		70-130	1		20
cis-1,3-Dichloropropene	93		91		70-130	2		20
1,1-Dichloropropene	96		94		70-130	2		20
Bromoform	100		97		54-136	3		20
1,1,2,2-Tetrachloroethane	92		88		67-130	4		20
Benzene	96		94		70-130	2		20
Toluene	97		93		70-130	4		20
Ethylbenzene	97		94		70-130	3		20
Chloromethane	65		64		64-130	2		20
Bromomethane	100		100		39-139	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 Batch: WG1307172-3 WG1307172-4								
Vinyl chloride	81		83		55-140	2		20
Chloroethane	95		93		55-138	2		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	96		93		70-130	3		20
Trichloroethene	93		92		70-130	1		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	99		99		70-130	0		20
Methyl tert butyl ether	96		93		63-130	3		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	105		100		70-130	5		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Dibromomethane	99		96		70-130	3		20
1,2,3-Trichloropropane	87		84		64-130	4		20
Styrene	110		105		70-130	5		20
Dichlorodifluoromethane	64		62		36-147	3		20
Acetone	85		85		58-148	0		20
Carbon disulfide	88		86		51-130	2		20
2-Butanone	80		87		63-138	8		20
Vinyl acetate	75		74		70-130	1		20
4-Methyl-2-pentanone	88		84		59-130	5		20
2-Hexanone	76		74		57-130	3		20
Bromochloromethane	110		110		70-130	0		20

Lab Control Sample Analysis Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 Batch: WG1307172-3 WG1307172-4								
2,2-Dichloropropane	98		94		63-133	4		20
1,2-Dibromoethane	100		100		70-130	0		20
1,3-Dichloropropane	90		88		70-130	2		20
1,1,1,2-Tetrachloroethane	100		99		64-130	1		20
Bromobenzene	99		97		70-130	2		20
n-Butylbenzene	100		96		53-136	4		20
sec-Butylbenzene	100		100		70-130	0		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	86		84		70-130	2		20
p-Chlorotoluene	88		88		70-130	0		20
1,2-Dibromo-3-chloropropane	100		100		41-144	0		20
Hexachlorobutadiene	130		120		63-130	8		20
Isopropylbenzene	100		98		70-130	2		20
p-Isopropyltoluene	110		100		70-130	10		20
Naphthalene	120		110		70-130	9		20
n-Propylbenzene	96		94		69-130	2		20
1,2,3-Trichlorobenzene	120		110		70-130	9		20
1,2,4-Trichlorobenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	99		97		64-130	2		20
1,2,4-Trimethylbenzene	99		97		70-130	2		20
1,4-Dioxane	112		108		56-162	4		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1952640**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 Batch: WG1307172-3 WG1307172-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		94		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	89		88		70-130
Dibromofluoromethane	107		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1307515-3 WG1307515-4								
Methylene chloride	93		90		70-130	3		20
1,1-Dichloroethane	89		85		70-130	5		20
Chloroform	94		90		70-130	4		20
Carbon tetrachloride	100		99		63-132	1		20
1,2-Dichloropropane	86		86		70-130	0		20
Dibromochloromethane	95		94		63-130	1		20
1,1,2-Trichloroethane	93		96		70-130	3		20
Tetrachloroethene	120		110		70-130	9		20
Chlorobenzene	100		96		75-130	4		20
Trichlorofluoromethane	96		91		62-150	5		20
1,2-Dichloroethane	88		88		70-130	0		20
1,1,1-Trichloroethane	100		95		67-130	5		20
Bromodichloromethane	90		89		67-130	1		20
trans-1,3-Dichloropropene	78		78		70-130	0		20
cis-1,3-Dichloropropene	90		91		70-130	1		20
1,1-Dichloropropene	96		91		70-130	5		20
Bromoform	96		98		54-136	2		20
1,1,2,2-Tetrachloroethane	87		93		67-130	7		20
Benzene	95		92		70-130	3		20
Toluene	96		92		70-130	4		20
Ethylbenzene	96		92		70-130	4		20
Chloromethane	65		60	Q	64-130	8		20
Bromomethane	110		99		39-139	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1307515-3 WG1307515-4								
Vinyl chloride	81		78		55-140	4		20
Chloroethane	94		89		55-138	5		20
1,1-Dichloroethene	100		98		61-145	2		20
trans-1,2-Dichloroethene	94		90		70-130	4		20
Trichloroethene	92		89		70-130	3		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		99		70-130	1		20
1,4-Dichlorobenzene	100		97		70-130	3		20
Methyl tert butyl ether	93		98		63-130	5		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	105		100		70-130	5		20
cis-1,2-Dichloroethene	110		100		70-130	10		20
Dibromomethane	96		100		70-130	4		20
1,2,3-Trichloropropane	84		77		64-130	9		20
Styrene	110		105		70-130	5		20
Dichlorodifluoromethane	65		61		36-147	6		20
Acetone	88		88		58-148	0		20
Carbon disulfide	86		81		51-130	6		20
2-Butanone	72		84		63-138	15		20
Vinyl acetate	72		75		70-130	4		20
4-Methyl-2-pentanone	81		85		59-130	5		20
2-Hexanone	70		76		57-130	8		20
Bromochloromethane	110		110		70-130	0		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1307515-3 WG1307515-4								
2,2-Dichloropropane	96		95		63-133	1		20
1,2-Dibromoethane	100		100		70-130	0		20
1,3-Dichloropropane	89		90		70-130	1		20
1,1,1,2-Tetrachloroethane	100		97		64-130	3		20
Bromobenzene	100		97		70-130	3		20
n-Butylbenzene	99		92		53-136	7		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	100		97		70-130	3		20
o-Chlorotoluene	96		94		70-130	2		20
p-Chlorotoluene	89		86		70-130	3		20
1,2-Dibromo-3-chloropropane	96		100		41-144	4		20
Hexachlorobutadiene	130		110		63-130	17		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	110		100		70-130	10		20
Naphthalene	110		120		70-130	9		20
n-Propylbenzene	97		90		69-130	7		20
1,2,3-Trichlorobenzene	110		120		70-130	9		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		95		64-130	5		20
1,2,4-Trimethylbenzene	99		95		70-130	4		20
1,4-Dioxane	100		112		56-162	11		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1307515-3 WG1307515-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	88		90		70-130
Dibromofluoromethane	105		106		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 QC Batch ID: WG1307172-6 WG1307172-7 QC Sample: L1952644-11 Client ID: MS Sample												
Methylene chloride	ND	10	10	100		10	100		70-130	0		20
1,1-Dichloroethane	ND	10	9.9	99		9.8	98		70-130	1		20
Chloroform	ND	10	11	110		10	100		70-130	10		20
Carbon tetrachloride	ND	10	12	120		12	120		63-132	0		20
1,2-Dichloropropane	ND	10	9.1	91		9.3	93		70-130	2		20
Dibromochloromethane	ND	10	11	110		10	100		63-130	10		20
1,1,2-Trichloroethane	ND	10	10	100		10	100		70-130	0		20
Tetrachloroethene	ND	10	12	120		12	120		70-130	0		20
Chlorobenzene	ND	10	10	100		10	100		75-130	0		20
Trichlorofluoromethane	ND	10	11	110		11	110		62-150	0		20
1,2-Dichloroethane	ND	10	11	110		10	100		70-130	10		20
1,1,1-Trichloroethane	ND	10	12	120		11	110		67-130	9		20
Bromodichloromethane	ND	10	10	100		10	100		67-130	0		20
trans-1,3-Dichloropropene	ND	10	8.3	83		8.4	84		70-130	1		20
cis-1,3-Dichloropropene	ND	10	9.3	93		9.3	93		70-130	0		20
1,1-Dichloropropene	ND	10	10	100		10	100		70-130	0		20
Bromoform	ND	10	10	100		10	100		54-136	0		20
1,1,2,2-Tetrachloroethane	ND	10	9.0	90		9.3	93		67-130	3		20
Benzene	ND	10	10	100		10	100		70-130	0		20
Toluene	ND	10	10	100		10	100		70-130	0		20
Ethylbenzene	ND	10	10	100		10	100		70-130	0		20
Chloromethane	ND	10	6.5	65		7.0	70		64-130	7		20
Bromomethane	ND	10	8.9	89		9.3	93		39-139	4		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 01,03,05 QC Batch ID: WG1307172-6 WG1307172-7 QC Sample: L1952644-11 Client ID:												
Vinyl chloride	ND	10	8.9	89		9.1	91		55-140	2		20
Chloroethane	ND	10	11	110		11	110		55-138	0		20
1,1-Dichloroethene	ND	10	11	110		11	110		61-145	0		20
trans-1,2-Dichloroethene	ND	10	10	100		10	100		70-130	0		20
Trichloroethene	ND	10	10	100		10	100		70-130	0		20
1,2-Dichlorobenzene	ND	10	10	100		10	100		70-130	0		20
1,3-Dichlorobenzene	ND	10	10	100		10	100		70-130	0		20
1,4-Dichlorobenzene	ND	10	10	100		10	100		70-130	0		20
Methyl tert butyl ether	ND	10	10	100		10	100		63-130	0		20
p/m-Xylene	ND	20	21	105		22	110		70-130	5		20
o-Xylene	ND	20	22	110		21	105		70-130	5		20
cis-1,2-Dichloroethene	ND	10	12	120		12	120		70-130	0		20
Dibromomethane	ND	10	11	110		11	110		70-130	0		20
1,2,3-Trichloropropane	ND	10	8.1	81		8.2	82		64-130	1		20
Styrene	ND	20	23	115		22	110		70-130	4		20
Dichlorodifluoromethane	ND	10	7.3	73		7.2	72		36-147	1		20
Acetone	3.3J	10	11	110		11	110		58-148	0		20
Carbon disulfide	ND	10	9.2	92		9.0	90		51-130	2		20
2-Butanone	ND	10	8.5	85		9.0	90		63-138	6		20
Vinyl acetate	ND	10	7.7	77		7.7	77		70-130	0		20
4-Methyl-2-pentanone	ND	10	8.5	85		8.6	86		59-130	1		20
2-Hexanone	ND	10	7.5	75		7.8	78		57-130	4		20
Bromochloromethane	ND	10	13	130		13	130		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 01,03,05 QC Batch ID: WG1307172-6 WG1307172-7 QC Sample: L1952644-11 Client ID:												
2,2-Dichloropropane	ND	10	9.8	98		9.7	97		63-133	1		20
1,2-Dibromoethane	ND	10	11	110		11	110		70-130	0		20
1,3-Dichloropropane	ND	10	9.7	97		9.6	96		70-130	1		20
1,1,1,2-Tetrachloroethane	ND	10	11	110		11	110		64-130	0		20
Bromobenzene	ND	10	10	100		10	100		70-130	0		20
n-Butylbenzene	ND	10	9.4	94		9.6	96		53-136	2		20
sec-Butylbenzene	ND	10	9.9	99		10	100		70-130	1		20
tert-Butylbenzene	ND	10	10	100		10	100		70-130	0		20
o-Chlorotoluene	ND	10	9.9	99		9.8	98		70-130	1		20
p-Chlorotoluene	ND	10	8.9	89		8.9	89		70-130	0		20
1,2-Dibromo-3-chloropropane	ND	10	10	100		10	100		41-144	0		20
Hexachlorobutadiene	ND	10	10	100		11	110		63-130	10		20
Isopropylbenzene	ND	10	9.9	99		10	100		70-130	1		20
p-Isopropyltoluene	ND	10	11	110		10	100		70-130	10		20
Naphthalene	ND	10	9.1	91		11	110		70-130	19		20
n-Propylbenzene	ND	10	9.4	94		9.6	96		69-130	2		20
1,2,3-Trichlorobenzene	ND	10	9.2	92		11	110		70-130	18		20
1,2,4-Trichlorobenzene	ND	10	9.7	97		11	110		70-130	13		20
1,3,5-Trimethylbenzene	ND	10	9.9	99		9.9	99		64-130	0		20
1,2,4-Trimethylbenzene	ND	10	10	100		10	100		70-130	0		20
1,4-Dioxane	ND	500	440	88		520	104		56-162	17		20

Matrix Spike Analysis**Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03,05 QC Batch ID: WG1307172-6 WG1307172-7 QC Sample: L1952644-11 Client ID: MS Sample												

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		105		70-130
4-Bromofluorobenzene	87		86		70-130
Dibromofluoromethane	112		110		70-130
Toluene-d8	98		97		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640**Report Date:** 11/12/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
 B Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1952640-01A	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-01B	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-01C	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-02A	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-02B	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-02C	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-03A	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03A1	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03A2	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03B	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03B1	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03B2	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03C	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03C1	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03C2	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03D	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03D1	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03D2	Vial HCl preserved	B	NA		2.1	Y	Absent		-
L1952640-03X	Vial HCl preserved split	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-03Y	Vial HCl preserved split	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-03Z	Vial HCl preserved split	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-04A	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04A1	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()

Project Name: ESSEX/HOPE**Lab Number:** L1952640**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 11/12/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1952640-04A2	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04B	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04B1	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04B2	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04C	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04C1	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04C2	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04D	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04D1	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-04D2	Vial HCl preserved	B	NA		2.1	Y	Absent		COMP-VOA()
L1952640-05A	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)
L1952640-05B	Vial HCl preserved	B	NA		2.1	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1952640
Report Date: 11/12/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L1958404
Client:	Jacobs Engineering Group 18 Tremont Street Suite 700 Boston, MA 02108
ATTN:	Kyle Block
Phone:	(617) 523-2260
Project Name:	ESSEX/HOPE
Project Number:	DWJMS001.A.CS.EV.01
Report Date:	12/13/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1958404-01	PRE-CARB_20191206	WATER	JAMESTOWN, NY	12/06/19 08:00	12/06/19
L1958404-02	PRIMARY-EFF_20191206	WATER	JAMESTOWN, NY	12/06/19 08:15	12/06/19
L1958404-03	POST-CARB_20191206	WATER	JAMESTOWN, NY	12/06/19 08:30	12/06/19
L1958404-04	COMPOSITE OF POST- CARB_20191206	WATER	JAMESTOWN, NY	12/06/19 09:00	12/06/19
L1958404-05	TRIP BLANK	WATER	JAMESTOWN, NY	12/06/19 00:00	12/06/19

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1958404-05: Headspace was noted in the sample containers submitted for TCL Volatiles - EPA 8260C. The analysis was performed at the client's request.

Volatile Organics

L1958404-01 and -02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1958404-05: The Trip Blank has a result for trichloroethene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

The initial calibration, associated with L1958404-01, -02, -03, and -05, did not meet the method required minimum response factor for the calibration standards for dichlorodifluoromethane, acetone, bromochloromethane, 2-butanone, trichloroethene, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

The initial calibration verification standard has the percent deviation for dichlorodifluoromethane (33%D), chloromethane (36%D), bromomethane (65%D) above the 30% ICV criteria, but within overall method allowances.

The continuing calibration, associated with L1958404-01, -02, -03, and -05, did not meet the method required minimum response factor for acetone, 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane, and 1,4-dioxane.

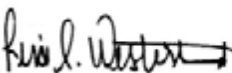
WG1320505-2: The continuing calibration verification standard has the percent deviation for dichlorodifluoromethane (29%D), vinyl chloride (32%D), bromomethane (29%), chloroethane (30%) and tert-butylbenzene (21%D) above the 20% CCV criteria, but within overall method allowances.

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Case Narrative (continued)

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Lisa Westerlind

Title: Technical Director/Representative

Date: 12/13/19

ORGANICS

VOLATILES

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-01 D
Client ID: PRE-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/13/19 09:29
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	35.	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	11	J	ug/l	25	8.0	50
Toluene	ND		ug/l	120	35.	50
Ethylbenzene	ND		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	820		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	13	J	ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-01 D
Client ID: PRE-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	5200		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	ND		ug/l	120	35.	50
o-Xylene	ND		ug/l	120	35.	50
Xylenes, Total	ND		ug/l	120	35.	50
cis-1,2-Dichloroethene	3300		ug/l	120	35.	50
1,2-Dichloroethene, Total	3300		ug/l	120	35.	50
Dibromomethane	ND		ug/l	250	50.	50
1,2,3-Trichloropropane	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	50.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
2,2-Dichloropropane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,3-Dichloropropane	ND		ug/l	120	35.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	120	35.	50
Bromobenzene	ND		ug/l	120	35.	50
n-Butylbenzene	ND		ug/l	120	35.	50
sec-Butylbenzene	ND		ug/l	120	35.	50
tert-Butylbenzene	ND		ug/l	120	35.	50
o-Chlorotoluene	ND		ug/l	120	35.	50
p-Chlorotoluene	ND		ug/l	120	35.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Hexachlorobutadiene	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
p-Isopropyltoluene	ND		ug/l	120	35.	50
Naphthalene	ND		ug/l	120	35.	50
n-Propylbenzene	ND		ug/l	120	35.	50



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-01 D
Client ID: PRE-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
1,3,5-Trimethylbenzene	ND		ug/l	120	35.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	35.	50
1,4-Dioxane	ND		ug/l	12000	3000	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-02 D
Client ID: PRIMARY-EFF_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:15
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/13/19 10:57
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	25	7.0	10
1,1-Dichloroethane	ND		ug/l	25	7.0	10
Chloroform	ND		ug/l	25	7.0	10
Carbon tetrachloride	ND		ug/l	5.0	1.3	10
1,2-Dichloropropane	ND		ug/l	10	1.4	10
Dibromochloromethane	ND		ug/l	5.0	1.5	10
1,1,2-Trichloroethane	ND		ug/l	15	5.0	10
Tetrachloroethene	ND		ug/l	5.0	1.8	10
Chlorobenzene	ND		ug/l	25	7.0	10
Trichlorofluoromethane	ND		ug/l	25	7.0	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
1,1,1-Trichloroethane	ND		ug/l	25	7.0	10
Bromodichloromethane	ND		ug/l	5.0	1.9	10
trans-1,3-Dichloropropene	ND		ug/l	5.0	1.6	10
cis-1,3-Dichloropropene	ND		ug/l	5.0	1.4	10
1,3-Dichloropropene, Total	ND		ug/l	5.0	1.4	10
1,1-Dichloropropene	ND		ug/l	25	7.0	10
Bromoform	ND		ug/l	20	6.5	10
1,1,2,2-Tetrachloroethane	ND		ug/l	5.0	1.7	10
Benzene	ND		ug/l	5.0	1.6	10
Toluene	ND		ug/l	25	7.0	10
Ethylbenzene	ND		ug/l	25	7.0	10
Chloromethane	ND		ug/l	25	7.0	10
Bromomethane	ND		ug/l	25	7.0	10
Vinyl chloride	2000		ug/l	10	0.71	10
Chloroethane	ND		ug/l	25	7.0	10
1,1-Dichloroethene	ND		ug/l	5.0	1.7	10
trans-1,2-Dichloroethene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-02 D
Client ID: PRIMARY-EFF_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:15
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	5.0	1.8	10
1,2-Dichlorobenzene	ND		ug/l	25	7.0	10
1,3-Dichlorobenzene	ND		ug/l	25	7.0	10
1,4-Dichlorobenzene	ND		ug/l	25	7.0	10
Methyl tert butyl ether	ND		ug/l	25	7.0	10
p/m-Xylene	ND		ug/l	25	7.0	10
o-Xylene	ND		ug/l	25	7.0	10
Xylenes, Total	ND		ug/l	25	7.0	10
cis-1,2-Dichloroethene	ND		ug/l	25	7.0	10
1,2-Dichloroethene, Total	ND		ug/l	25	7.0	10
Dibromomethane	ND		ug/l	50	10.	10
1,2,3-Trichloropropane	ND		ug/l	25	7.0	10
Styrene	ND		ug/l	25	7.0	10
Dichlorodifluoromethane	ND		ug/l	50	10.	10
Acetone	ND		ug/l	50	15.	10
Carbon disulfide	ND		ug/l	50	10.	10
2-Butanone	ND		ug/l	50	19.	10
Vinyl acetate	ND		ug/l	50	10.	10
4-Methyl-2-pentanone	ND		ug/l	50	10.	10
2-Hexanone	ND		ug/l	50	10.	10
Bromochloromethane	ND		ug/l	25	7.0	10
2,2-Dichloropropane	ND		ug/l	25	7.0	10
1,2-Dibromoethane	ND		ug/l	20	6.5	10
1,3-Dichloropropane	ND		ug/l	25	7.0	10
1,1,1,2-Tetrachloroethane	ND		ug/l	25	7.0	10
Bromobenzene	ND		ug/l	25	7.0	10
n-Butylbenzene	ND		ug/l	25	7.0	10
sec-Butylbenzene	ND		ug/l	25	7.0	10
tert-Butylbenzene	ND		ug/l	25	7.0	10
o-Chlorotoluene	ND		ug/l	25	7.0	10
p-Chlorotoluene	ND		ug/l	25	7.0	10
1,2-Dibromo-3-chloropropane	ND		ug/l	25	7.0	10
Hexachlorobutadiene	ND		ug/l	25	7.0	10
Isopropylbenzene	ND		ug/l	25	7.0	10
p-Isopropyltoluene	ND		ug/l	25	7.0	10
Naphthalene	ND		ug/l	25	7.0	10
n-Propylbenzene	ND		ug/l	25	7.0	10



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-02 D
Client ID: PRIMARY-EFF_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:15
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	25	7.0	10
1,2,4-Trichlorobenzene	ND		ug/l	25	7.0	10
1,3,5-Trimethylbenzene	ND		ug/l	25	7.0	10
1,2,4-Trimethylbenzene	ND		ug/l	25	7.0	10
1,4-Dioxane	ND		ug/l	2500	610	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-03
Client ID: POST-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/13/19 09:07
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	12		ug/l	1.0	0.07	1
Chloroethane	1.8	J	ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-03
Client ID: POST-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.34	J	ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.3	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-03
Client ID: POST-CARB_20191206
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 08:30
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 00:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 12/13/19 08:46
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.58	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 00:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	4.1		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	1.5	J	ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	1.5	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

SAMPLE RESULTS

Lab ID: L1958404-05
Client ID: TRIP BLANK
Sample Location: JAMESTOWN, NY

Date Collected: 12/06/19 00:00
Date Received: 12/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 12/13/19 08:24
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1320505-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 12/13/19 08:24
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1320505-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 12/13/19 08:24
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05 Batch: WG1320505-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1320505-3 WG1320505-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	93		96		70-130	3		20
Carbon tetrachloride	90		88		63-132	2		20
1,2-Dichloropropane	93		93		70-130	0		20
Dibromochloromethane	88		86		63-130	2		20
1,1,2-Trichloroethane	93		92		70-130	1		20
Tetrachloroethene	88		89		70-130	1		20
Chlorobenzene	91		90		75-130	1		20
Trichlorofluoromethane	110		110		62-150	0		20
1,2-Dichloroethane	92		94		70-130	2		20
1,1,1-Trichloroethane	94		95		67-130	1		20
Bromodichloromethane	92		92		67-130	0		20
trans-1,3-Dichloropropene	84		82		70-130	2		20
cis-1,3-Dichloropropene	84		86		70-130	2		20
1,1-Dichloropropene	97		98		70-130	1		20
Bromoform	82		80		54-136	2		20
1,1,2,2-Tetrachloroethane	95		90		67-130	5		20
Benzene	99		100		70-130	1		20
Toluene	93		91		70-130	2		20
Ethylbenzene	93		92		70-130	1		20
Chloromethane	120		120		64-130	0		20
Bromomethane	120		130		39-139	8		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1320505-3 WG1320505-4								
Vinyl chloride	120		130		55-140	8		20
Chloroethane	120		130		55-138	8		20
1,1-Dichloroethene	100		110		61-145	10		20
trans-1,2-Dichloroethene	96		98		70-130	2		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	96		92		70-130	4		20
1,3-Dichlorobenzene	97		93		70-130	4		20
1,4-Dichlorobenzene	97		92		70-130	5		20
Methyl tert butyl ether	86		89		63-130	3		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
cis-1,2-Dichloroethene	99		98		70-130	1		20
Dibromomethane	94		91		70-130	3		20
1,2,3-Trichloropropane	93		90		64-130	3		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	120		130		36-147	8		20
Acetone	90		85		58-148	6		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	87		90		63-138	3		20
Vinyl acetate	98		97		70-130	1		20
4-Methyl-2-pentanone	83		84		59-130	1		20
2-Hexanone	80		78		57-130	3		20
Bromochloromethane	98		97		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1320505-3 WG1320505-4								
2,2-Dichloropropane	90		89		63-133	1		20
1,2-Dibromoethane	92		88		70-130	4		20
1,3-Dichloropropane	92		92		70-130	0		20
1,1,1,2-Tetrachloroethane	85		88		64-130	3		20
Bromobenzene	93		88		70-130	6		20
n-Butylbenzene	110		100		53-136	10		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	80		78		70-130	3		20
o-Chlorotoluene	95		92		70-130	3		20
p-Chlorotoluene	98		94		70-130	4		20
1,2-Dibromo-3-chloropropane	88		83		41-144	6		20
Hexachlorobutadiene	96		89		63-130	8		20
Isopropylbenzene	94		92		70-130	2		20
p-Isopropyltoluene	99		95		70-130	4		20
Naphthalene	90		84		70-130	7		20
n-Propylbenzene	98		94		69-130	4		20
1,2,3-Trichlorobenzene	94		86		70-130	9		20
1,2,4-Trichlorobenzene	95		87		70-130	9		20
1,3,5-Trimethylbenzene	95		92		64-130	3		20
1,2,4-Trimethylbenzene	97		94		70-130	3		20
1,4-Dioxane	90		90		56-162	0		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** ESSEX/HOPE**Lab Number:** L1958404**Project Number:** DWJMS001.A.CS.EV.01**Report Date:** 12/13/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05 Batch: WG1320505-3 WG1320505-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		105		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		101		70-130

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1958404-01A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-01B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-01C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-02A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-02B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-02C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-03A	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-03B	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-03C	Vial HCl preserved split	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-04A	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04A1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04A2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04A3	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04B	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04B1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04B2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04B3	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04C	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04C1	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04C2	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-04C3	Vial HCl preserved	A	NA		2.4	Y	Absent		COMP-VOA()
L1958404-05A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)
L1958404-05B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260(14)

Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Serial_No:12131916:20
Lab Number: L1958404
Report Date: 12/13/19

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

Data Qualifiers

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: ESSEX/HOPE
Project Number: DWJMS001.A.CS.EV.01

Lab Number: L1958404
Report Date: 12/13/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

