NORTH SEA LANDFILL
1370 MAJORS PATH
SOUTHAMPTON, NEW YORK

2ND – SEMI-ANNUAL POST-CLOSURE GROUNDWATER MONITORING REPORT 2019

SUBMITTED TO:

New York State Department of Environmental Conservation
Division of Environmental Remediation
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Stony Brook, New York 11790

PREPARED FOR:

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1.0 INTRODUCTION

1.1 Purpose and Scope

P.W. Grosser Consulting Inc. (PWGC) has prepared the following post-closure groundwater monitoring report for the North Sea Landfill, Southampton, NY. This report is intended to satisfy the New York State Department of Environmental Conservation (NYSDEC) requirements for post-closure monitoring at the North Sea Landfill. The landfill is currently in post-closure and was removed from the United States Environmental Protection Agency (USEPA) Superfund National Priorities List (NPL) in 2005. The report provides a summary of the groundwater monitoring and results of groundwater and leachate samples collected during the Second Half of 2019.

1.2 Site Location and Description

North Sea Landfill (the Landfill) was initially constructed in 1963 for the disposal of solid waste, refuse and septic system waste. The Landfill consisted of three cells (Cell No. 1, Cell No. 2 and Cell No. 3), sludge lagoons, a leachate collection system and a gas monitoring system. Cell No. 1 is an inactive, unlined landfill that has been capped and closed. Cell No. 2 is an inactive, lined landfill with a leachate collection system that was capped and closed in 1990. Cell No. 3 is a 6.6 acre, inactive, lined landfill with a leachate collection system that was capped and closed in 1997. The sludge lagoons were decommissioned in 1986.

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2.0 GROUNDWATER MONITORING PLAN

Groundwater monitoring and sampling is performed in accordance with the USEPA approved Operation and Maintenance (O&M) Manual dated November 1994.

The groundwater monitoring plan for the site calls for the monitoring of both leachate and groundwater to confirm that the historic operation of the facility has not adversely impacted groundwater quality. The groundwater well network currently utilized for monitoring purposes at the Landfill consists of 20 groundwater monitoring wells that were installed as a part of the Remedial Investigation / Feasibility Study, the Cell No. 3 landfill expansion hydrogeologic investigation, and earlier monitoring activities.

2.1 Sampling Frequency

In accordance with the O&M Manual, groundwater monitoring well sampling was performed on a quarterly basis. In 2005, the USEPA and NYSDEC approved a reduction of the number of wells sampled and sampling frequency to semi-annual as detailed in the table below:

1st Half Semi-Annual Sampling (April)		2nd Half Semi-Annual Sampling (October)	
Analysis	**Sample Locations**	**Analysis**	**Sample Locations**
Baseline Parameters (6 NYCRR Part 360-2.11 (d)(6)	1A, 1B, 1C, 3A, 3B, 3C, 4A, 4B, 4C, 11A, 11B, 12A, & 12B	Routine Parameters (6 NYCRR Part 360-2.11 (d)(6))	1A, 1B, 1C, 3A, 3B, 3C, 4A, 4B, 4C, 6AR, 6B, 8, 9, 11A, 11B, 12A, 12B
		Baseline Parameters (6 NYCRR Part 360-2.11 (d)(6)) Metals Only	6AR, 6B, 11A, & 11B
Routine Parameters + Arsenic (6 NYCRR Part 360-2.11 (d)(6) Minus VOC Analysis	LEA-Primary & LEA-Secondary	Baseline Parameters (6 NYCRR Part 360-2.11 (d)(6)) VOCs Only	11A & 11B
		Routine Parameters + Arsenic (6 NYCRR Part 360-2.11 (d)(6)) Minus VOC Analysis	LEA-Primary & LEA-Secondary

Note: Filtered metals analysis run on samples with turbidity in excess of 50 nephelometric turbidity units (NTUs).

Appendix D includes list of analytes for 6 New York Codes, Rules and Regulations (NYCRR) Part 360-2.11 (d) (6).

2.2 Leachate Monitoring

The objectives of the leachate monitoring program are to adequately characterize and monitor the composition of:

1. Leachate in the primary leachate collection systems;
2. Liquids detected in the secondary liquids collection systems, prior to off-site treatment and disposal.

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The Town of Southampton monitors the leachate storage system and submits monthly status reports, which includes the monthly summary tables of leachate volumes consisting of the amount of leachate trucked, storage tank levels and the volume of leachate removed from the storage tank. Leachate quantity removals and allowable leakage rate (ALR) calculations will be discussed in the Annual Report.

2.3 Groundwater Monitoring

The groundwater monitoring well network for the Landfill consists of nine groundwater monitoring locations (MW-1A, B, C, MW-3A, B, C, MW-4A, B, C, MW-6AR, B, MW-7, MW-8, MW-9, MW-11A, B, and MW-12A, B) which are currently in use. Several of these locations are constructed with multiple wells which are screened at varying depths throughout the aquifer (A=shallow, B=intermediate, C=deep).

Seventeen groundwater monitoring wells, as well as the primary and secondary leachate collection systems were sampled on October 21 and 22, 2019 as part of the Second Half 2019 sampling event. Samples collected as part of the Second Half 2019 sampling event were delivered to Pace Analytical Laboratories of Melville, New York and analyzed for the routine parameters. In addition, four samples (MW-6AR, MW-6B, MW-11A, and MW-11B) were analyzed for baseline metals and two samples (MW-11A and MW-11B) were analyzed for baseline volatile organic compounds (VOCs). Turbid groundwater samples were also analyzed for filtered metals (MW-11B). The data collected in the field and laboratory are summarized on **Tables 1** through **4** and the laboratory reports are attached in **Appendix A**. Depth to water and groundwater elevation data are summarized on **Table 4** and a water table flow map is shown on **Figure 1**.

Analytical results from each monitoring well were compared to applicable standards and guidance values, as well as analytical results from the previous years. Compounds that exceed current NYSDEC groundwater standards or guidance values are indicated by shading on **Tables 1** through **3** and are discussed in the water quality section of this report.

2.4 Well Condition Report

During the Second Half 2019 sampling event, PWGC conducted an assessment of the monitoring wells. Well assessment checklists (**Appendix B**) were filled out appropriately in the field during the sampling event. The assessment checklist included well headspace readings, well conditions, and recommendations. The protective cover and well casing at grade of MW-11B was observed to be damaged and repairs are anticipated to be completed before the First Half 2020 sampling event. The J-plug for the well casing was observed to be missing from MW-6AR. Headspace readings were collected utilizing a photoionization detector (PID). No PID responses were observed. No other deficiencies with the well conditions were noted.

2.5 Sample Collection Procedures

Prior to collection of each sample, a minimum of three casing volumes were evacuated (purged) from the well using a Grundfos, submersible pump and temperature, specific conductivity, pH, dissolved oxygen, oxygen reduction potential (ORP) and turbidity measurements were collected and recorded. Groundwater sampling logs are included in **Appendix C**. Groundwater samples were collected using disposable polyethylene bailers and

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a dedicated polyethylene line. Primary and secondary leachate collection systems were also sampled using disposable polyethylene bailers and a dedicated polyethylene line.

Additional sample volume was collected from groundwater monitoring wells where turbidity could not be reduced below 50 NTUs for laboratory filtering of metals. This included groundwater monitoring well MW-11B.

2.6 Decontamination and Quality Assurance Quality Control Procedures

All non-disposable sampling equipment (i.e. submersible pump) were decontaminated prior to and between each well by using a distilled water and non-phosphate detergent wash followed by a distilled water rinse.

2.7 Groundwater Quality

During the Second Half 2019 (October) groundwater sampling event, samples from seventeen groundwater monitoring wells were collected and submitted for analysis of routine and/or baseline metals and VOC parameters. The inorganic portion of the analysis includes metals, nutrients, and the physical properties of the sample. Routine parameters include a condensed version of the baseline parameters. Routine metals are reduced to cadmium, calcium, iron, lead, magnesium, manganese, potassium, and sodium. In addition, VOCs, color and hexavalent chromium are not analyzed as part of the routine parameters. Specific conductivity, temperature, turbidity, and pH values were reported from field measurements. However, they are listed in **Table 1** and discussed in the inorganic water quality section below. The list of organic groundwater quality results (**Table 2**) is comprised of VOCs.

Groundwater quality as it relates to inorganic metal concentrations is evaluated by looking at the total metal concentrations for samples with turbidity values below 50 NTUs and dissolved metal concentrations with turbidity values above 50 NTUs.

The laboratory results are compared to NYSDEC's Class GA Groundwater Standards, 6NYCRR Part 703. Analytical results are discussed below. The locations of groundwater monitoring wells are illustrated on **Figure 1**. The wells are grouped into clusters consisting of varying depths (A=shallow, B=intermediate, C=deep).

2.7.1 Inorganic Water Quality Results – October 2019

Long Island groundwater generally has a low pH and is typically measured below the NYSDEC standard range of 6.5 to 8.5. Twelve of the seventeen samples had a measured pH level below 6.5. pH concentrations ranged from 4.75(MW-4A) to 6.83 (MW-4C).

Iron was detected above method detection limits in each of the seventeen groundwater samples. Iron concentrations ranged from 0.0285 mg/L (MW-3C) to 35.6 mg/L (MW-11A). Iron was detected in ten of the seventeen groundwater samples (MW-1A, MW-3A, MW-3B, MW-4A, MW-4B, MW-4C, MW-8, MW-9, MW-11A, and MW-12A) at a concentration exceeding the NYSDEC groundwater standard (0.3 mg/L).

Manganese was detected above method detection limits in fifteen of the seventeen groundwater samples. Manganese concentrations ranged from less than 0.01 mg/L to 5.40 mg/L (MW-11A). Manganese was detected in six of the seventeen groundwater samples

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(MW-1A, MW-3A, MW-3B, MW-4B, MW-11A, and MW-12A) at a concentration exceeding the NYSDEC groundwater standard (0.3 mg/L).

Sodium was detected above method detection limits in each of the seventeen groundwater samples. Sodium concentrations ranged from 7.82 mg/L (MW-6B) to 44.2 mg/L (MW-4C). Sodium was detected in three of the seventeen groundwater samples (MW-3A, MW-4B, and MW-4C) at a concentration exceeding the NYSDEC groundwater standard (20 mg/L).

Ammonia was detected above method detection limits in eight of the seventeen groundwater samples. Ammonia concentrations ranged from less than 0.1 mg/L to 2.1 mg/L (MW-4B). Ammonia was detected in one of the seventeen groundwater samples (MW-4B) at a concentration exceeding the NYSDEC groundwater standard (2.0 mg/L).

Phenols were detected above method detection limits in fifteen of the seventeen groundwater samples. Phenol concentrations ranged from less than 0.005 mg/L to 0.0176 mg/L (MW-9). Phenol was detected in fifteen of the seventeen groundwater samples (MW-1A, MW-1B, MW-1C, MW-3A, MW-3B, MW-3C, MW-4A, MW-4B, MW-4C, MW-6B, MW-9, MW-11A, MW-11B, MW-12A, and MW-12B) at a concentration exceeding the NYSDEC groundwater standard (0.001 mg/L).

2.7.2 Organic Water Quality Results – October 2019

Groundwater samples collected from two of the wells (MW-11A and MW-11B) were analyzed for VOCs as part of the Second Half 2019 sampling program (**Table 2**). Analytical results indicate that no VOCs were detected in the groundwater sample collected from MW-11A.

One VOC, Toluene, was detected in the groundwater sample collected from MW-11B at a concentration of 0.0554 mg/L, exceeding the NYSDEC groundwater standard (0.005 mg/L). The presence of Toluene has not been historically detected and will be monitored closely in future sampling events.

2.7.3 Well Cluster 4 & 11 Analysis

Monitoring wells MW-4A, MW-4B, and MW-4C are located down-gradient of the Landfill along the edge of Fish Cove Pond. These wells represent the farthest down-gradient wells that are used to monitor the Landfill. Historical monitoring has shown that the leading edge of the leachate plume is migrating into Fish Cove Pond. In addition, there is an upward groundwater flow gradient from MW-4C to MW-4B. Concentrations of Conductivity, Chloride, and total dissolved solids (TDS), have been increasing in MW-4C. The increasing trends observed in MW-4C may be attributed to a former salt storage area. The former salt storage area was located at the southwestern portion of the North Sea Landfill. A monitoring well was installed in this area during the Remedial Investigation and Feasibility Study (RI/FS) performed under the USEPA and NYSDEC oversite. This well exhibited similar water quality of elevated chlorides as that exhibited in MW-4C. This area was not included as an operable unit at the time of the RI/FS and Remedial actions. These increasing trends are not coupled with any significant increases in iron and manganese which would indicate the presence of leachate that is being broken down. Iron and manganese are prevalent in MW-4B where the plume has been documented and concentrations are consistently fluctuating. Iron and manganese levels in MW-4C are gradually increasing. A steady increase in Nitrate has been observed in MW-4A in past sampling events. This is likely attributed to the increase in

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development of the area up-gradient of this well by homes with onsite sanitary systems. Concentrations of Nitrate are lower in the onsite landfill wells with the exception of MW-1A, located adjacent to a compost storage area. Trend charts are included as **Figures 4** through **10** to depict historic trends in monitoring wells MW-4A, 4B, and 4C.

Monitoring wells MW-11A and MW-11B are located down-gradient of Cell 3. These wells have been under close observation since March 1993. A graph of several leachate indicators detected in samples collected from monitoring wells MW-11A and MW-11B since 1997 are shown on **Figures 2** and **3**. Detected concentrations of certain constituents were noted in MW-11A and MW-11B during this sampling event. A review of the trends shows that concentrations have generally decreased over time indicating that the plume continues to degrade over time. Slightly elevated concentrations of iron, manganese, and lead are still detected in these wells.

2.8 Groundwater Flow & Migration of Leachate Plume

Groundwater elevation data and laboratory analytical results are utilized to determine groundwater flow and to map the horizontal and vertical migration of the leachate plume. Depth to water and groundwater elevation data are shown on **Table 4**.

A groundwater contour map for October 2019 (**Figure 1**) was created with groundwater elevation data from seven water table monitoring wells (MW-1A, MW-3A, MW-4A, MW-7A, MW-8, MW-11A, and MW-12A). An evaluation of the water table elevation data indicates that groundwater flows from the landfill towards Fish Cove Pond. At Fish Cove Pond, an upward vertical flow component has been observed based upon head differential observed in the groundwater monitoring wells indicating groundwater is discharging into the pond.

Based upon historical groundwater sampling results and previous remedial investigations, the leachate plume migrates from the landfill, specifically Cell No. 1, and travels horizontally towards the northwest and discharges into Fish Cove Pond. The plume has been observed at its deepest point vertically at the MW-3B depth interval.

2.9 Leachate Quality

The October 2019 analytical data indicate that contaminant concentrations in the leachate detection system (secondary) are lower when compared to those of the leachate collection system (primary). Concentrations observed in both the primary and secondary leachate are higher when compared to concentrations detected during the April 2019 sampling event. Total precipitation was greater during the First Half of 2019 (28.69 inches), from October 2018 through April 2019, when compared to the Second Half of 2019 (25.73 inches), from May 2019 through October 2019. The analytical results for the primary and secondary leachate are shown on **Table 3** and the laboratory report is attached as part of **Appendix A**.

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3.0 DATA VALIDATION AND USABILITY REPORT

3.1 Data Validation

In accordance with the contract, five percent of the groundwater analytical results were validated by Premier Environmental Services, Merrick, New York. As part of the data validation process, all quality control (QC) issues were reviewed. A copy of the data validation and usability report is included in **Appendix A**. Compliance chart, re-submission communications, and the NYSDEC laboratory sample preparation and analysis summary forms are also included.

In summary, sample processing was primarily conducted with compliance to protocol requirements and adherence to quality criteria. Sample results are usable as reported or usable with minor qualification as estimated or edited to non-detection with the exception of Iodomethane which was rejected. These issues are discussed in the following analytical section. Although only 5% of the samples underwent full validation review, recommended qualifications below are stated to include all project samples as pertains to general quality issues, and where otherwise evident.

3.1.1 Data Completeness

Data packages were complete as received: no additional documentation was required.

3.1.2 Metals Analyses

Review was conducted for method compliance, holding times, calibration analysis, ICP CRDL standard, ICP interference check standard, matrix spike analysis, post digestion spike analysis, duplicate sample analysis, ICP serial dilution, blanks, laboratory control sample analysis, instrument QC data, compound identification, field duplicate sample analysis, and system performance and overall assessment to each procedure. All were found acceptable for the validated samples, unless noted specifically within this text.

Site specific matrix spike and matrix spike duplicate (MS/MSD) analysis was performed on sample MW-8 (Total Metals). Percent recovery of target analytes met QC criteria with the exception of Iron and Silver. These target compounds have been estimated "***UJ***" qualified in the sample chosen for review.

The ICP serial dilution analysis was performed for both Total and Dissolved metals. The site specific serial dilution analysis was performed on sample MW-11B8 for Dissolved metals. The recovery of reported analytes met QC criteria with the exception of Sodium. Sodium has been estimated ***"J"/"UJ"*** qualified in the sample chosen for review.

3.1.3 Wet Chemistry Analyses

Review was conducted for method compliance, holding times, calibration analysis, matrix spike analysis, duplicate sample analysis, blanks, laboratory control sample analysis, compound identification, field duplicate sample analysis, and system performance and overall assessment to each procedure. All were found acceptable for the validated samples, unless noted specifically within this text.

Blank analyses are assessed to determine the existence and magnitude of contamination problems. The Equipment Blank sample was free from contamination of target analytes with

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the exception of Total Recoverable Phenolics (TRP). TRP has been negated "***U***" qualified in the sample chosen for review due to blank contamination.

3.1.4 VOC Analyses

Review was conducted for method compliance, holding times, surrogates, matrix spike/spike duplicate analysis, blank spike analysis, blank contamination, GC/MS calibration, GC/MS Internal Standards Performance, GC/MS mass spectrometer tuning, field duplicate analysis, compound identification and overall assessment. All were found acceptable for the validated samples, unless noted specifically within this text.

All target analyte percent relative standard deviation (%RSD) criteria were met in the continuing calibration standard analysis associated with this data set with the exception of Acetone, Bromomethane, 2-Butanone, and Iodomethane. Acetone, Bromomethane, and 2-Butanone have been estimated "***J"/"UJ***" qualified. Iodomethane has been deemed unusable "***R***" qualified due to the high %RSD in the standard analysis.

3.2 Data Usability Report

According to the Data Usability report, the analytical data were compliant with established protocols and met the project data quality objectives (DQO) and are usable, with the appropriate qualifiers, to determine the presence, absence, and magnitude of environmental contamination in the samples collected from the site with the exception of Iodomethane. A copy of the Data Usability report is included in **Appendix A**.

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4.0 SUMMARY

Review of the data for the Second Half 2019 indicates that previously implemented remedial actions continue to be effective at minimizing potential site impacts. In brief, the leachate quality has remained similar and the groundwater quality with regards to the inorganic constituents has improved when compared to the previous reporting periods. The groundwater quality with regards to the organic constituents has remained below laboratory detection levels except for toluene. The presence of toluene has not been historically detected and will be closely monitored in future sampling events. Several inorganic compounds are sporadically detected in wells MW-3A, 3B, 4A, 4B, 4C, 9, 11A, 11B, 12A, and 12B above groundwater standards. Sample results are usable, with the appropriate qualifiers, to determine the presence, absence, and magnitude of environmental contamination in the samples collected from the site with the exception of Iodomethane.

Monitoring well cluster MW-4 has shown Nitrate and former salt storage impact. Nitrate concentrations in MW-4A have been trending upwards and are a potential result of development of the area upgradient. Conductivity, Chloride, and TDS concentrations have been trending upwards in MW-4C, indicating potential impact from the former salt storage area at the landfill.

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5.0 RECOMMENDATIONS

PWGC recommends that the post-closure monitoring and maintenance operations program be continued, and the groundwater and leachate sampling program be continued on a semi-annual basis.

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-1A																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.00336 B	PNA	0.0059 U	PNA	0.2 U	PNA	0.0576 J	PNA	0.0134 ***UJ***	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0033 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.0202 B	PNA	0.0768 B	PNA	0.0246 J	PNA	0.0239 J	PNA	0.0218 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.027 B	PNA	0.074 B	PNA	0.0291 J	PNA	0.0178 J	PNA	0.0324 ***J***	PNA	0.0917	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.00011 ***J***	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	18.2	63.5	51.8	76.6	18.2	60.5	8.44	55.6	17.7	63.9	76.4	63.4
Chromium as Cr	mg/L	0.05	0.0031 B	PNA	0.0011 U	PNA	0.01 U	PNA	0.0082 J	PNA	0.0016 U	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.00019 U	PNA	0.0006 U	PNA	0.05 U	PNA	0.0021 J	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.00076 U	PNA	0.0027 B	PNA	0.0019 J	PNA	0.0048 J	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0297 B	0.163	0.0371 B	0.0928 B	0.0645 J	0.399	0.527	0.0625	0.0109 U	0.0601	0.0261	0.742
Lead as Pb	mg/L	0.025	0.0052	0.0013 U	0.0022 U	0.0023 B	0.0027 J	0.005 U	0.0015 J	0.005 U	0.0013 U	0.005 UB	0.005 U	0.005 U
Magnesium	mg/L	35 #	7.54	25.4	25.4	32.9	7.73	23.8	3.280	22.100	7.25 ***J***	24.8	28.7	22.6
Manganese as Mn	mg/L	0.3	0.0099 B	0.0218	0.0075 B	0.008 B	0.055	0.258	0.290	0.028	0.005 ***U***	0.0196	0.01 U	0.217
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000056 U	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0012 B	PNA	0.0009 B	PNA	0.04 U	PNA	0.0042 J	PNA	0.0009 ***UJ***	PNA	0.04 U	PNA
Potassium	mg/L	NA	5.17	14.1	6.62	21.7	4.79 J	14.8	2.930 J	12.900	4 J	12.5	13.9	12.6
Selenium as Se	mg/L	0.01	0.0011 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0022 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 ***UJ***	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	11.2	14.7	20.4	17.4	10.7	15.2	8.470	13.400	11.1	15.2	15.4	18.6
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.00039 U	PNA	0.0009 B	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0162 B	PNA	0.0121 B	PNA	0.02 U	PNA	0.02 U	PNA	0.0022 ***UJ***	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	27.1	119	60.4	131 H	34.6	115	23.2	132	46.6	98.4	178	127
Chloride as Cl	mg/L	250	21.5	27.4	46.9	30.6	21.9	25	14.0	22.6	18.3	30.2	39.6	41.0
Sulfate as SO4	mg/L	250	41.3	119	139	193	35.4	100	8.9	85.8	37.2	125	120	106
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.038 J	0.5 U	0.5 U	0.50 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2 U	1 ***U***	2 U	2 U	4.1	2 U	2.0 U
COD	mg/L	NA	18.4	10 U	17.4	10 U	10 U	10 U	10 U	10 U	10 U	15.5	32.2	10.2
Color	units	NA	5 U	PNA	10	PNA	5 U	PNA	20	PNA	5 U	PNA	10	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	76	270	500	260	76	212	40	200	166	187	265	220
Ammonia as N	mg/L	2	0.11	0.1 U	0.18 ***U***	0.1	0.33	0.1 U	0.04 ***U***	0.1 U	0.018 J	0.10 U	0.1 U	0.10 U
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.050 U	0.05 U	0.050 U
Nitrate as N	mg/L	10	3.09	6.15	6.95	8.33 U	2.82	6.9	1.3	6.4	4	10.5	11	6.6
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.0062	0.0127	0.005 U	0.0564	0.005 U	0.0056	0.005 U	0.005 U	0.0118
Tot Dissolved Solids	mg/L	NA	107	369	377	457	125	328	73.0 ***J***	305.0	144	326	390	330
Tot. Kjeldahl Nitrogen	mg/L	NA	0.23	0.1 U	0.94	0.1 U	0.1 U	0.1 U	0.16	0.38	0.1 U	0.10 U	0.1 U	0.10 U
Tot Organic Carbon	mg/L	NA	1.7	32.8	5.3	5.21	1.6	3.40	0.82 ***J***	3.7 B	1.2	4.4	6.2	4.8
Turbidity	NTU	NA	0	0	0	1.04	10.9	30	0.0	2.8	5.4	5.1	0.0	3.9
Temperature	deg.C	NA	11.08	12.57	11.58	12.51	11.79	16.07	12.00	12.26	11.42	12.16	12.01	12.77
pH	units	6.5-8.5	5.77	6.14	6.08	6.24	5.93	6.16	5.90	6.09	5.54	5.61	6.73	6.29
Spec. Cond	umho/cm	NA	253	735	655	741	231	554	138	568	244	192	373	522

NOTES:

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J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

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Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-1B																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.0283 B	PNA	0.0059 U	PNA	0.0906 J	PNA	0.2 U	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0033 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.0103 B	PNA	0.0102 B	PNA	0.2 U	PNA	0.0097 J	PNA	0.0107 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0072 B	PNA	0.0081 B	PNA	0.0089 J	PNA	0.01 J	PNA	0.0132 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0002 J	0.0025 U	0.0025 U	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	4.07 B	4.37 B	3.77 B	4.45 B	3.93	4.62	3.97	4.46	4.29	4.74	4.44	3.13
Chromium as Cr	mg/L	0.05	0.0053 B	PNA	0.0038 B	PNA	0.0078 J	PNA	0.0029 J	PNA	0.0027 J	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.00019 U	PNA	0.0006 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.001 B	PNA	0.0012 B	PNA	0.0035 J	PNA	0.0026 J	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0261 B	0.0658 B	0.0223 E	0.0268 U	0.0488 J	0.1 U	0.1 U	0.02 U	0.0109 U	0.02 U	0.02 U	0.0528
Lead as Pb	mg/L	0.025	0.0051	0.0018 B	0.0022 U	0.0034	0.0023 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	1.74 B	1.83 B	1.6 B	1.99 B	1.68	2.04	1.830	1.94	1.98	2.16	1.85	1.25
Manganese as Mn	mg/L	0.3	0.0049 B	0.0029 B	0.0024 B	0.0016 BE	0.015 U	0.01 U	0.0013 J	0.01 U	0.0035 J	0.01 U	0.01 U	0.01 U
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000069 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0117 B	PNA	0.0102 B	PNA	0.0147 J	PNA	0.01 J	PNA	0.0139 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	0.954 B	2.19 B	1.89 B	0.898 B	0.615 J	5 U	5 U	5 U	0.83 U	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0011 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0022 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	7.5	7.71	8.54	9.32	7.78	8.53	7.86	8.44	8.42	9.75	9.18	9.04
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.00039 U	PNA	0.0007 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0232	PNA	0.0047 B	PNA	0.02 U	PNA	0.02 U	PNA	0.0012 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	10.4	12.1	971 D	12.5 H	10.4	12.5	10.6	10.8	11	13.4	11.4	5.4
Chloride as Cl	mg/L	250	9.99	10.5	11.4	9.54	9.68	12.8	8.8	11.2	9	16.3	14.5	15.4
Sulfate as SO4	mg/L	250	7.21	7.53	8.03	8.2	7.25	6.9	7.5	6.3	7.9	8.5	7.9	8.7
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.025 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2 U	1 J	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	38.9	10 U
Color	units	NA	5 U	PNA	10	PNA	5 U	PNA	5	PNA	5 U	PNA	5 U	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	18	20	20 D	22 D	19	17	18	18.7	15	14	17	8.0
Ammonia as N	mg/L	2	0.12 U	0.1 U	0.1 U	0.1 U	0.17	0.2	0.088 J	0.1 U	0.065 J	0.1 U	0.1 U	0.1 U
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.024 J	0.05 U	0.056	7.9	0.05 U	0.05 U
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.0079	0.005 U	0.0094	0.0783	0.005 U	0.0029 J	0.005 U	0.005 U	0.0115
Tot Dissolved Solids	mg/L	NA	48	39	54	52	38	67	42	38	59	61	26	59
Tot. Kjeldahl Nitrogen	mg/L	NA	0.37	0.1 U	0.18	0.1 U	0.1 U	0.36	0.1 U	0.1 U	0.1 U	0.1 U	0.42	0.1 U
Tot Organic Carbon	mg/L	NA	1 U	3.8	1 U	0.5 U	1 U	1 U	0.18 J	1 U	0.23 U	1 U	1 U	1 U
Turbidity	NTU	NA	1.1	0	0	0.32	3.22	0	0	0.7	3.2	0.0	0.0	0.0
Temperature	deg.C	NA	11.21	11.59	10.69	11.51	11.27	12.89	12.50	11.38	11.66	12.38	11.22	12.01
pH	units	6.5-8.5	6.46	6.26	6.05	5.95	6.56	6.43	6.18	6.54	6.17	6.31	5.87	5.89
Spec. Cond	umho/cm	NA	70	92	70	86	80	91	80	96	84	96	93	71

NOTES:

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-1C																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.0358 B	PNA	0.0059 U	PNA	0.2 U	PNA	0.2 U	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0033 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.01 B	PNA	0.0112 B	PNA	0.2 U	PNA	0.0092 J	PNA	0.0101 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0072 B	PNA	0.0081 B	PNA	0.0097 J	PNA	0.0115 J	PNA	0.0121 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	4.61 B	5.15	4.87 B	4.7 B	4.45	4.62	4.44	4.14	4.63	4.91	4.77	5.12
Chromium as Cr	mg/L	0.05	0.0049 B	PNA	0.0012 B	PNA	0.01 U	PNA	0.0041 J	PNA	0.0048 J	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.00019 U	PNA	0.0006 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.0008 B	PNA	0.0005 B	PNA	0.0022 J	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0492 B	0.998	0.0086 UE	0.0268 U	0.1 U	0.1 U	0.1 U	0.02 U	0.0301	0.02 U	0.02 U	0.084
Lead as Pb	mg/L	0.025	0.0042 B	0.0021 B	0.0022 U	0.0037	0.0028 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	2.28 B	2.58 B	2.43 B	2.32 B	2.21	2.39	2.38	2.17	2.45	2.51	2.42	2.41
Manganese as Mn	mg/L	0.3	0.0033 B	0.0263	0.0005 B	0.0008 BE	0.015 U	0.01 U	0.00079 J	0.01 U	0.0037 J	0.01 U	0.01 U	0.011
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000075 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0107 B	PNA	0.0048 B	PNA	0.0153 J	PNA	0.0248 J	PNA	0.0129 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	0.978 B	2.14 B	0.472 U	0.828 B	5 U	5 U	5 U	5 U	0.83 U	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0013 B	PNA	0.0038 U	PNA	0.01 U	PNA	0.0100 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0022 U	PNA	0.01 U	PNA	0.0100 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	8.24	8.31	8.34	8.78	7.99	7.27	7.77	7.48	7.83	7.93	8.23	8.62
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.00039 U	PNA	0.0007 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0256	PNA	0.0038 B	PNA	0.02 U	PNA	0.02 U	PNA	0.002 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	12.5	13.7	12.9	12.9 H	12.7	12	10.8	12	13.2	14.6	14	14.7
Chloride as Cl	mg/L	250	214	11.6	12.3	9.42	10	11	9.0	8.1	9.3	10.7	10.9	11.4
Sulfate as SO4	mg/L	250	152	8.62	10.5	8.35	8.34	8.4	8.2	8.1	9.3	10.9	10.6	10.6
Bromide	mg/L	2 #	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.023 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2.6	1 J	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	10 U	10 U	10 U	10 U	10 U	33.8	10 U	10 U	10 U	10 U	10 U	10 U
Color	units	NA	5 U	PNA	10 U	PNA	5 U	PNA	5	PNA	5 U	PNA	5 U	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	18	48	44	24	25	19	22	17.3	19	16	20	16
Ammonia as N	mg/L	2	0.1 U	0.1 U	0.11	0.1 U	0.14	22.9	0.046 J	0.13	0.11	0.10 U	0.10 U	0.10 U
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.35	0.43	0.42	0.33	0.24	0.22	0.19	0.17	0.24	0.25	0.26	0.37
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.005 U	0.013	0.0162	0.0396	0.005 U	0.0043 J	0.005 U	0.005 U	0.0161
Tot Dissolved Solids	mg/L	NA	31	36	53	49	45	63	50	48	57	45	49	97
Tot. Kjeldahl Nitrogen	mg/L	NA	0.26	0.1 U	0.2	0.1 U	0.1 U	18.7	0.1 U	0.11	0.1 U	0.64	0.1 U	0.1 U
Tot Organic Carbon	mg/L	NA	1 U	3.8	1 U	0.5 U	1 U	1 U	0.16 J	1 U	0.23 U	1 U	1 U	1 U
Turbidity	NTU	NA	0.30	18.60	0.00	0.57	6.37	0	0	1	2.2	0.0	0.0	0.0
Temperature	deg.C	NA	10.12	11.59	10.45	11.35	11.24	11.65	12.24	11.23	10.99	12.11	11.41	12.76
pH	units	6.5-8.5	6.15	6.14	5.97	6.18	6.52	6.26	6.07	6.02	5.89	6.10	6.28	6.56
Spec. Cond	umho/cm	NA	89	106	98	91	90	91	86	90	92	87	100	84

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Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-3A																					
			April 2014	October 2014	April 2015	October 2015	April 2016		October 2016		April 2017		October 2017		April 2018		October 2018	April 2019	October 2019
							Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered			
Aluminum as Al	mg/L	NA	0.0391 ***U***	PNA	0.0059 U	PNA	0.2 U	0.2 U	PNA	PNA	0.022 J	0.2 U	PNA	PNA	0.127 J	0.0327 J	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.0077 B	PNA	0.06 U	0.06 U	PNA	PNA	0.06 U	0.06 U	PNA	PNA	0.0089 J	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0033 U	PNA	0.0038 J	0.01 U	PNA	PNA	0.01 U	0.01 U	PNA	PNA	0.0068 U	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.055 B	PNA	0.0509 B	PNA	0.048 J	0.0377 J	PNA	PNA	0.0744 J	0.0579 J	PNA	PNA	0.107 J	0.0669 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	0.005 U	PNA	PNA	0.005 U	0.005 U	PNA	PNA	0.0006 U	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0291 B	PNA	0.0202 B	PNA	0.0366 J	0.0348 J	PNA	PNA	0.0211 J	0.0253 J	PNA	PNA	0.0331 J	0.0321 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0002 U	0.005 U	0.0025 U	0.0025 U	0.00027 J	0.00096 J	0.0025 U	0.0025 U	0.00006 U	0.000063 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	19.1	18	19.9	22.9	13.8	12.9	22	19.1	20.8	18.0	15.6	14.4	19.5	19.4	22.9	20.3	18.2
Chromium as Cr	mg/L	0.05	0.595	PNA	0.786	PNA	0.825	0.0063 J	PNA	PNA	1.660	0.0141	PNA	PNA	1.84	0.143	PNA	0.251	PNA
Cobalt	mg/L	NA	0.0024 B	PNA	0.0029 B	PNA	0.0015 J	0.05 U	PNA	PNA	0.0049 J	0.05 U	PNA	PNA	0.0084 J	0.00063 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.0164 B	PNA	0.0196 B	PNA	0.0225 J	0.0322	PNA	PNA	0.024 J	0.0078 J	PNA	PNA	0.0351	0.0097 J	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	0.1 U	PNA	PNA	0.01 U	PNA	PNA	PNA	0.0029 U	PNA	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	2.28	3.78	2.95 E	2.27	2.92	0.1 U	4.66	0.1 U	6.520	0.1 U	2.460	0.1 U	7.37	0.514	2.52	0.953	3.63
Lead as Pb	mg/L	0.025	0.0053	0.0013 U	0.0022 U	0.0024 B	0.001 J	0.002 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0024 J	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	4.74 B	4.57 B	5.06	6.42	3.68	3.44	6.34	5.53	5.51	5.01	4.88	4.36	5.82	5.65	6.77	6.5	5.77
Manganese as Mn	mg/L	0.3	0.255	0.2	0.211	0.113 E	0.144	0.0585	0.286	0.0611	0.359	0.0518	0.113	0.0419	1.18	0.0483	0.19	0.0914	0.39
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	0.0002 U	PNA	PNA	0.0002 U	0.0002 U	PNA	0.002 U	0.000068 J	0.0002 U	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0735	PNA	0.0962	PNA	0.114	0.08	PNA	PNA	0.132	0.0893	PNA	PNA	0.181	0.0541	PNA	0.0416	PNA
Potassium	mg/L	NA	6.58 ***J***	6.99	4.4 B	6.67	5.21	4.5 J	6.46	5.29	5.83	4.88 J	5.0 U	5.0 U	6.65	6.9	9.53	7.93	11.4
Selenium as Se	mg/L	0.01	0.0016 B	PNA	0.0038 U	PNA	0.01 U	0.01 U	PNA	PNA	0.01 U	0.01 U	PNA	PNA	0.0063 U	0.0062 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 ***UJ***	PNA	0.0022 U	PNA	0.01 U	0.01 U	PNA	PNA	0.01 U	0.01 U	PNA	PNA	0.0036 U	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	33.6	18.9	37.6	43.8	22.5	21	25	21	82.9	70.2	43.1	40.3	56.3	50.7	105	40.1	33
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	0.0038 U	PNA	0.01 U	0.01 U	PNA	PNA	0.01 U	0.01 U	PNA	PNA	0.0036 U	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.0019 B	PNA	0.0007 U	PNA	0.05 U	0.05 U	PNA	PNA	0.0023 J	0.05 U	PNA	PNA	0.0052 J	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0267	PNA	0.0154 B	PNA	0.02 U	0.02 U	PNA	PNA	0.02 U	0.0107 J	PNA	PNA	0.0026 J	0.0012 U	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	41	61.3	38.5	61.7	52	PNA	75.6	PNA	34.2	PNA	69.6	PNA	47.4	PNA	78	69.4	83.8
Chloride as Cl	mg/L	250	72.6	30.1	84.2	70.9	24	PNA	40.8	PNA	154	PNA	58	PNA	98.1	PNA	217	79.5	46.8
Sulfate as SO4	mg/L	250	5.58	10.7	5 U	73.7	7.5	PNA	12.6	PNA	8.7	PNA	5 U	PNA	5.6	PNA	9	5 U	9.4
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.02 J	PNA	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.021 J	PNA	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	PNA	2 U	PNA	1 J	PNA	2 U	PNA	2 U	PNA	2 U	2 U	4 U
COD	mg/L	NA	12.7	12.7	10 U	10 U	10 U	PNA	23.4	PNA	13	PNA	11.9	PNA	10 U	PNA	16.2	19	12.4
Color	units	NA	30	PNA	25	PNA	10	PNA	PNA	PNA	5	PNA	PNA	PNA	5 U	PNA	PNA	15	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	PNA	PNA	0.0098 J	PNA	PNA	PNA	0.00003 U	PNA	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	68	100	75	75	48	PNA	80	PNA	80	PNA	70	PNA	68	PNA	72	53.3	70
Ammonia as N	mg/L	2	0.22	0.1 U	0.31	0.1 U	0.29	PNA	0.24	PNA	0.1	PNA	0.1 UB	PNA	0.46	PNA	0.1 U	0.1 U	0.53
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	PNA	0.1 U	PNA	0.05 U	PNA	0.05 U	PNA	0.05 U	PNA	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	1.05	0.21	0.29	0.25	1.45	PNA	0.26	PNA	1.8	PNA	0.22	PNA	2	PNA	0.34	0.58	0.33
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.0087	0.005 U	PNA	0.0088	PNA	0.0026 J	PNA	0.005 U	PNA	0.0034 J	PNA	0.005 U	0.005 U	0.0099
Tot Dissolved Solids	mg/L	NA	158	100	174	195	106	PNA	152	PNA	317	PNA	165	PNA	266	PNA	367	186	209
Tot. Kjeldahl Nitrogen	mg/L	NA	0.67	0.1 U	0.54	0.13	0.5	PNA	0.26	PNA	0.34	PNA	0.37	PNA	0.83	PNA	0.23	0.58	1.3
Tot Organic Carbon	mg/L	NA	2.7	12.7	2.4	2.5	2.9	PNA	3.29	PNA	2.6 J	PNA	3.9	PNA	3	PNA	4.8	4.9	5.5
Turbidity	NTU	NA	11.5	26.8	11.5	38.5	24	PNA	117	PNA	105	PNA	104	PNA	86.6	PNA	32.0	12.8	36.7
Temperature	deg.C	NA	12.62	11.23	11.06	8.18	12.07	PNA	10.25	PNA	12.57	PNA	10.93	PNA	11.79	PNA	11.17	10.39	10.14
pH	units	6.5-8.5	6.28	6.49	6.16	6.09	6.44	PNA	6.27	PNA	6.09	PNA	6.41	PNA	5.79	PNA	6.66	6.47	6.55
Spec. Cond	umho/cm	NA	349	269	390	401	209	PNA	304	PNA	700	PNA	423	PNA	487	PNA	504	420	303

NOTES:

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-3B																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.0294 B	PNA	0.0059 U	PNA	0.2 U	PNA	0.2 U	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0058 B	PNA	0.0106	PNA	0.0082 J	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.039 B	PNA	0.043 B	PNA	0.0507 J	PNA	0.0347 J	PNA	0.0208 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.042 B	PNA	0.0409 B	PNA	0.0587 J	PNA	0.0409 J	PNA	0.0409 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0008 B	0.0002 U	0.0001 U	0.0007 J	0.0025 U	0.00029 J	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	11.8	9.43	12.3	15	14.4	12.6	12.9	11.7	8.64	14	14.4	18.9
Chromium as Cr	mg/L	0.05	0.0025 B	PNA	0.0055 B	PNA	0.01 U	PNA	0.01 U	PNA	0.0016 U	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.0056 B	PNA	0.0084 B	PNA	0.0076 J	PNA	0.0055 J	PNA	0.0035 J	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.003 B	PNA	0.0086 B	PNA	0.0029 J	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	14.3	16.2	18.1 E	18.8	16.9	11.8	12.1	9.97	6.69	9.99	8.71	8.57
Lead as Pb	mg/L	0.025	0.0023 B	0.013 U	0.0022 U	0.004	0.00091 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	4.1 B	3.33 B	4.32 B	5.78	5.25	4.34	4.31	3.98	3.08	4.95	5.15	6.81
Manganese as Mn	mg/L	0.3	4.15	4.89	4.56	5.01 E	3.41	3	3.79	2.95	2.6	3.7	2.92	2.44
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000063 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.003 B	PNA	0.003 B	PNA	0.0031 J	PNA	0.0031 J	PNA	0.0025 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	4.23 B	4.81 B	3.02 B	3.45 B	5.28	5 U	4.2 J	5.0 U	2.19 J	5 U	5 U	5.94
Selenium as Se	mg/L	0.01	0.0011 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0027 B	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	13	11.7	13.9	19.6	15.3	17.3	16.9	12.0	9.37	20.9	13.8	11.4
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	0.0038 U	PNA	0.0039 J	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.00039 U	PNA	0.0007 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0087 B	PNA	0.0047 B	PNA	0.02 U	PNA	0.0023 J	PNA	0.0016 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	55.5	61.2	55	74.8	76.5	55.6	44.4	47	37.2	48.3	59.4	77.7
Chloride as Cl	mg/L	250	17.1	19	22.5	27.8	19.9	26.9	14.7	14.7	11	49.9	22.5	20.1
Sulfate as SO4	mg/L	250	9.82	7.96	15.9	10.1	11.5	10.8	13.8	11	12.1	7.5	10.1	9.5
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J	0.5 U	0.067 J	0.5 U	0.038	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2 U	1 J	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	12.1	10.2	10 U	11.6	10 U	25.5	10.9	10 U	10 U	10 U	12.4	21.2
Color	units	NA	55	PNA	100	PNA	45	PNA	5	PNA	5 U	PNA	5	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	72	76	100	92	68	50	40	60	34	56	40	90
Ammonia as N	mg/L	2	2.54	5.98	2.54	1.7	2.78	2.8	0.65	1	0.39	0.28	0.3	0.3
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.031 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.25	0.74	0.37	0.15	0.43
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.0051	0.005 U	0.005 U	0.0021 J	0.005 U	0.00084 U	0.005 U	0.0074	0.0116
Tot Dissolved Solids	mg/L	NA	76	83	110	114	105	106	102	89	111	142	168	183
Tot. Kjeldahl Nitrogen	mg/L	NA	3.11	6.2	2.52	1.73	2.01	2.4	1.4	1.2	0.34	0.37	0.62	0.84
Tot Organic Carbon	mg/L	NA	2	14.3	1.8	3.39	1.9	2.33	1.8 J	1.4 B	0.45 J	3.9	3.2	6.8
Turbidity	NTU	NA	0	0	0	1.53	0	1.7	0.0	4.9	1.2	17.0	2.2	0.0
Temperature	deg.C	NA	11.36	10.92	11.44	9.54	11.46	11.23	12.85	11.52	11.61	11.49	11.70	8.61
pH	units	6.5-8.5	6.39	6.56	6.14	6.05	6.58	6.31	5.96	6.12	5.95	6.19	6.16	6.11
Spec. Cond	umho/cm	NA	244	308	262	277	276	261	220	220	156	199	246	281

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Aluminum as Al	mg/L	NA	PNA	0.0059 U	PNA	0.2 U	PNA	0.2 U	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	PNA	0.0033 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	PNA	0.0228 B	PNA	0.0201 J	PNA	0.0183 J	PNA	0.0185 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	PNA	0.0104 B	PNA	0.0128 J	PNA	0.0055 J	PNA	0.0124 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.0003 U	0.0002 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	10.1	10.2	9.36	9.11	8.31	8.63	7.35	8.06	8.68	8.95	8.8
Chromium as Cr	mg/L	0.05	PNA	0.0031 B	PNA	0.0058 J	PNA	0.0048 J	PNA	0.022	PNA	0.0146	PNA
Cobalt	mg/L	NA	PNA	0.0006 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	PNA	0.0007 B	PNA	0.0021 J	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0978 B	0.0295 BE	0.0268 U	0.1 U	0.1 U	0.0385 J	0.02 U	0.108	0.1	0.0862	0.0285
Lead as Pb	mg/L	0.025	0.0014 B	0.0022 U	0.0055	0.004 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	4.63 B	4.6 B	4.38 B	4.14	3.88	3.74	3.52	3.93	3.98	4.05	4.08
Manganese as Mn	mg/L	0.3	0.0153	0.01 B	0.0067 BE	0.0034 J	0.01 U	0.0039 J	0.01 U	0.0063 J	0.0167	0.01 U	0.01 U
Mercury as Hg	mg/L	0.0007	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000067 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	PNA	0.0027 B	PNA	0.04 U	PNA	0.0068 J	PNA	0.0046 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	1.32 B	0.472 U	0.937 B	0.786 J	5 U	0.874 J	5 U	0.841 J	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	PNA	0.0022 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	13.5	12.2	14.2	13.2	11.7	13.9	10.1	10.8	11	12.1	12.1
Thallium as Tl	mg/L	0.0005 #	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	PNA	0.0007 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0012 J	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	PNA	0.0048 B	PNA	0.02 U	PNA	0.02 U	PNA	0.0012 U	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	49.8	45.1	44	40	41.8	38.0	41.6	33	42.8	45	45.8
Chloride as Cl	mg/L	250	13.8	15.4	13.4	11.9	12.7	10.6	9.5	10.7	12.6	12.4	13
Sulfate as SO4	mg/L	250	5 U	5 U	5 U	3.24 J	5 U	3 J	5 U	3.2 J	5 U	5 U	5 U
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.05 J	0.5 U	0.062 J	0.5 U	0.056 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	1 J	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	10 U	10 U	10 U	10 U	19.2	6.8 J	10 U	10 U	10 U	10 U	10 U
Color	units	NA	PNA	5	PNA	5 U	PNA	5 U	PNA	5 U	PNA	5	PNA
Chromium hex as Cr	mg/L	0.05	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	100	40	40	38	35	35	33	32	33	24	23.3
Ammonia as N	mg/L	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.16	0.1 UB	0.023 J	0.1 U	0.1 U	0.1 U
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.1 U	0.16	0.18	0.17	0.17	0.2	0.16	0.21	0.17	0.18	0.19
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.0058	0.005 U	0.0428	0.005 U	0.005 U	0.0038 J	0.005 U	0.005 U	0.0121
Tot Dissolved Solids	mg/L	NA	75	71	81	61	135	63	41	102	65	80	102
Tot. Kjeldahl Nitrogen	mg/L	NA	0.1 U	0.2	1 U	0.1 U	0.12	0.046 J	0.1 U	0.1 U	0.1 U	0.14	0.1 U
Tot Organic Carbon	mg/L	NA	11.6	1 U	0.509	1 U	1.10	0.36 J	1 UB	0.24 J	1 U	1 U	1 U
Turbidity	NTU	NA	0	0	0.8	2.2	0.1	0	3.8	1.9	4.6	0.0	0.0
Temperature	deg.C	NA	12.04	11.35	11.4	11.77	11.98	12.75	11.76	11.79	11.82	11.86	10.75
pH	units	6.5-8.5	6.66	6.32	6.37	6.82	6.36	6.75	6.61	6.19	7.01	6.64	6.71
Spec. Cond	umho/cm	NA	176	137	133	130	133	130	131	127	127	142	126

NOTES:

(1) = NYSDEC, Class GA Groundwater Standards

Bold indicates update due to data validation.

= Guidance value, no standard exists.

NA = Not available.

PNA = parameter not analyzed for.

B - Analyte was detected in the associated method blank.

H - Received / analyzed outside of analytical holding time

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R - Data Validation Qualifier - Rejected.

U - Indicates the compound was analyzed for, but not detected.

U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - Data Validation Qualifier - 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.

Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-4A																	
			April 2014	October 2014		April 2015		October 2015		April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
				Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered								
Aluminum as Al	mg/L	NA	0.253	PNA	PNA	0.271	0.211	PNA	PNA	0.219	PNA	0.242	PNA	0.187 J	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	PNA	0.003 U	0.003 U	PNA	PNA	0.06 U	PNA	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	PNA	0.0033 U	0.0033 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.183 B	PNA	PNA	0.158 B	0.144 B	PNA	PNA	0.17 J	PNA	0.128 J	PNA	0.123 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.0006 B	PNA	PNA	0.0003 B	0.0004 B	PNA	PNA	0.0004 J	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0271 B	PNA	PNA	0.0273 B	0.0268 B	PNA	PNA	0.0315 J	PNA	0.0402 J	PNA	0.0488 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.0002 B	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0002 B	0.0005 B	0.0004 J	0.0025 U	0.00036 J	0.0025 U	0.00015 J	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	11.3	11.6	12.2	10.6	10.7 ***J***	14.3	13.3	11.7	12.5	10.1	10.9	10.4	8.33	7.7	9.03
Chromium as Cr	mg/L	0.05	0.0042 B	PNA	PNA	0.0218	0.001 U	PNA	PNA	0.01 U	PNA	0.0067 J	PNA	0.0039 J	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.00019 U	PNA	PNA	0.0006 U	0.0006 U	PNA	PNA	0.05 U	PNA	0.05 U	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.00076 U	PNA	PNA	0.0022 B	0.0014 B	PNA	PNA	0.0023 J	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	PNA	0.01 U	PNA	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0796 B	0.127	0.0714 B	0.257 ***J***	0.018 J	0.0268 U	0.0268 U	0.1 U	0.112	0.129	1.69	0.0583	0.0302	0.02 U	2.14
Lead as Pb	mg/L	0.025	0.0038 B	0.002 B	0.0016 B	0.0022 U	0.0022 U	0.0044	0.0044 N	0.0028 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	3.87 B	3.76 B	3.81 B	3.61 B	3.66 ***J***	4.58 B	4.34 BE	3.85	4.46	3.60	4.24	3.82	3.17	2.96	3.19
Manganese as Mn	mg/L	0.3	0.113	0.086	0.0846	0.122	0.104 ***J***	0.119 E	0.101	0.142	0.105	0.128	0.219	0.0702	0.0244	0.0225	0.224
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	PNA	0.0001 U	0.0001 U	PNA	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000066 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0051 B	PNA	PNA	0.0044 B	0.0035 B	PNA	PNA	0.005 J	PNA	0.004 J	PNA	0.0031 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	3.87 B	4.44 B	4.75 B	3.04 B	2.66 B	3.89 B	2.75 B	4.01 J	5 U	3.34 J	5 U	3.45 J	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0011 U	PNA	PNA	0.0038 U	0.0038 ***UJ***	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	PNA	0.0022 U	0.0022 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	23	19.3	20.7	25.4	26.3 ***J***	23.7	22.8	27	22.1	31.6	25.9	29.8	24.4	25	19.2
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	PNA	0.0038 U	0.0038 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.00039 U	PNA	PNA	0.0007 U	0.0007 U	PNA	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.017 B	PNA	PNA	0.0118 B	0.0132 ***U***	PNA	PNA	0.0069 J	PNA	0.0052 J	PNA	0.006 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	6.5	18.4	PNA	6.4	PNA	8.55	PNA	3.5	4.9	4.0	50.4	6.4 ***J***	12.7	7	4.8
Chloride as Cl	mg/L	250	41.5	33	PNA	49.1	PNA	44.5	PNA	46.5	41.3	47.0	46.6	42.9	39	49.4	37.1
Sulfate as SO4	mg/L	250	11.1	14.7	PNA	17.8	PNA	10.5	PNA	13.7	12.2	16.6	11.4	14.4	8.5	16.7	19.5
Bromide	mg/L	2 #	0.5 U	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.02 J	0.5 U	0.03 J	0.5 U	0.027 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	PNA	2 U	PNA	2 U	PNA	2 U	2 U	1 J	2 U	2 U	2 U	2 U	4 U
COD	mg/L	NA	10 U	10 U	PNA	10 U	PNA	10 U	PNA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Color	units	NA	5 U	PNA	PNA	5 U	PNA	PNA	PNA	5 U	PNA	5	PNA	5 U	PNA	5 U	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	PNA	0.02 U	PNA	PNA	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	40	64	PNA	40	PNA	56	PNA	42	45	40	88	41	29	23.3	34
Ammonia as N	mg/L	2	0.1	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.2	0.1 U	0.099 J	0.1 U	0.073 ***U***	0.1 U	0.1 U	0.2
Nitrite as N	mg/L	NA	0.1 U	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	8.25	4.72	PNA	4.6	PNA	9.05	PNA	7.53 D	8.9	5.6	0.29	0.46	7.2	1.4	3.6
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	PNA	0.005 U	PNA	0.008	PNA	0.005 U	0.0068	0.005 U	0.005 U	0.0043 ***UJ***	0.005 U	0.005 U	0.0161
Tot Dissolved Solids	mg/L	NA	142	121	PNA	115	PNA	146	PNA	128	127	137	120	166	117	97	126
Tot. Kjeldahl Nitrogen	mg/L	NA	0.18	0.1 U	PNA	0.1 U	PNA	1 U	PNA	0.1 U	0.1 U	0.1 U	0.41	0.1 U	0.1 U	0.01 U	0.1 U
Tot Organic Carbon	mg/L	NA	1 U	5.3	PNA	0.1 U	PNA	0.958	PNA	1 U	1.00 U	0.84 J	1 U	0.66 J	1 U	1 U	1.8
Turbidity	NTU	NA	1.1	0	PNA	0	PNA	0.29	PNA	2.14	0.2	0	22.9	1.4	14.88	0.0	48.2
Temperature	deg.C	NA	10.41	12.88	PNA	10.57	PNA	12.97	PNA	12.34	13.46	11.63	13.31	10.78	13.49	10.46	12.91
pH	units	6.5-8.5	5.61	5.54	PNA	5.07	PNA	5.32	PNA	4.86	5.16	4.93	5.22	4.89	5.4	5.26	4.75
Spec. Cond	umho/cm	NA	244	255	PNA	221	PNA	230	PNA	257	251	270	272	278	296	232	171

NOTES:

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Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-4B																	
			April 2014	October 2014		April 2015		October 2015		April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
				Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered								
Aluminum as Al	mg/L	NA	0.0511 B	PNA	PNA	0.0059 U	0.024 B	PNA	PNA	0.2 U	PNA	0.2 U	PNA	0.0137 J	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	PNA	0.003 U	0.003 U	PNA	PNA	0.06 U	PNA	0.06 U	PNA	0.0055 J	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0024 B	PNA	PNA	0.0049 B	0.0034 B	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.0921 B	PNA	PNA	0.0728 B	0.0595 B	PNA	PNA	0.0578 J	PNA	0.0403 J	PNA	0.0589 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	PNA	0.001 U	0.0002 B	PNA	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0779 B	PNA	PNA	0.0714 B	0.0634 B	PNA	PNA	0.0703 J	PNA	0.0582	PNA	0.0713	PNA	0.0569	PNA
Cadmium as Cd	mg/L	0.005	0.0002 B	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0001 U	0.0001 U	0.0004 J	0.0025 U	0.00013 J	0.0025 U	0.00006 U	2.5 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	19.8	20.7	22	20.9	18.8	21.7	19.8	20.8	19.6	18.7	16.9	15.6	15.4	13.8	14.4
Chromium as Cr	mg/L	0.05	0.0254	PNA	PNA	0.0021 B	0.0011 U	PNA	PNA	0.01 ***UJ***	PNA	0.01 U	PNA	0.0055 J	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.0041 B	PNA	PNA	0.0037 B	0.0034 B	PNA	PNA	0.0041 J	PNA	0.0024 J	PNA	0.0046 J	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.0037 B	PNA	PNA	0.0046 B	0.0016 B	PNA	PNA	0.0021 ***U***	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	PNA	0.01 U	PNA	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	11.5	0.133	0.0432 B	8.06	1.29	8.37	1.05	7.67	7.66	1.28	3.89	9.32	10.6	4.8	5.43
Lead as Pb	mg/L	0.025	0.0028 B	0.0014 B	0.0021 B	0.0022 U	0.0022 U	0.0055	0.0042 N	0.0029 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	9.62	10.7	11	10.3	9.49	11.2	10.3 E	10.3	9.83	9.47	8.31	7.35	7.5	6.9	7.32
Manganese as Mn	mg/L	0.3	1.64	0.215	0.204	1.45	1.22	1.62	1.34	1.14	1.19	0.343	0.633	1.08	1.27	0.71	0.959
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	PNA	0.0001 U	0.0001 U	PNA	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000067 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0052 B	PNA	PNA	0.0037 B	0.0035 B	PNA	PNA	0.0033 J	PNA	0.0041 J	PNA	0.0034 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	5.97	1.88 B	1.73 B	3.91 B	3.19 B	3.98 B	2.69 B	3.25 J	5 U	2.04 J	5 U	3.74 J	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0011 U	PNA	PNA	0.0038 U	0.0038 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	PNA	0.0022 U	0.0022 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	21.6	19.5	21.5	20.4	18.9	21.9	21.7	19.8 ***J***	18.3	18.1	16.6	17.8	16.7	23	26
Thallium as Tl	mg/L	0.0005 #	0.0014 B	PNA	PNA	0.0038 U	0.0038 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.0017 B	PNA	PNA	0.0007 U	0.0007 U	PNA	PNA	0.05 U	PNA	0.05 U	PNA	0.0008 U	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0174 B	PNA	PNA	0.006 B	0.123 B	PNA	PNA	0.02 U	PNA	0.02 U	PNA	0.0022 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	107	106	PNA	93.6	PNA	92.6	PNA	101	93	72.4	91.4	68.6	79.6	77.8	68.6
Chloride as Cl	mg/L	250	23	20.7	PNA	28.3	PNA	35.5	PNA	21.1	27.3	15.2	22.4	19.2	20.4	30.4	43.4
Sulfate as SO4	mg/L	250	11.3	6.76	PNA	12.7	PNA	10.4	PNA	11.1 ***J***	10.7	9.9	10.3	14.7	15.2	10.4	14.9
Bromide	mg/L	2 #	0.5 U	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.1 J	0.5 U	0.077 J	0.5 U	0.09 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	PNA	2 U	PNA	2 U	PNA	2 U	2 U	1 J	2 U	2 U	4 U	2 U	2 U
COD	mg/L	NA	11.4	10 U	PNA	10 U	PNA	10 U	PNA	10 U	10.9	8.8 J	10 U	10 U	10 U	10 U	10 U
Color	units	NA	100	PNA	PNA	75	PNA	PNA	PNA	15	PNA	25	PNA	5 U	PNA	6	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	PNA	0.02 U	PNA	PNA	PNA	0.02 ***UJ***	PNA	0.02 U	PNA	0.015 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	92	100	PNA	140	PNA	120	PNA	86	86	85	74	70	60	50	66.7
Ammonia as N	mg/L	2	5.32	0.1 U	PNA	2.98	PNA	1.92	PNA	1.7	2.1	0.34	2.3	2.5	2.8	1.4	2.1
Nitrite as N	mg/L	NA	0.10 U	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.11	0.22	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	0.052	0.11	0.069	0.13	0.11	0.16	0.21
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	PNA	0.005 U	PNA	0.0059	PNA	0.005 U	0.0115	0.005 U	0.005 U	0.0029 J	0.005 U	0.005 U	0.014
Tot Dissolved Solids	mg/L	NA	154	133	PNA	140	PNA	144	PNA	144	152	133	137	161	114	144	216
Tot. Kjeldahl Nitrogen	mg/L	NA	5.95	0.1 U	PNA	3.05	PNA	1.64	PNA	1.27 ***J***	1.7	0.83	2.5	2.7	3	1.3	2.4
Tot Organic Carbon	mg/L	NA	3	25.7	PNA	2.1	PNA	2.01	PNA	1.8	1.87	1.3	1.5	1.6	1.9	1.3	1.4
Turbidity	NTU	NA	0	0	PNA	0	PNA	0.37	PNA	8.37	0	0	2.7	2.2	0.0	0.0	0.0
Temperature	deg.C	NA	11.86	12.95	PNA	12.14	PNA	12.91	PNA	14.34	13.02	12.75	12.73	12.04	12.55	12.1	12.48
pH	units	6.5-8.5	6.6	6.55	PNA	6.19	PNA	6.66	PNA	6.32	6.6	6.51	6.41	6.31	6.4	6.58	6.29
Spec. Cond	umho/cm	NA	359	314	PNA	292	PNA	310	PNA	290	314	250	283	281	285	270	252

NOTES:

(1) = NYSDEC, Class GA Groundwater Standards

Bold indicates update due to data validation.

= Guidance value, no standard exists.

NA = Not available.

PNA = parameter not analyzed for.

B - Analyte was detected in the associated method blank.

H - Received / analyzed outside of analytical holding time

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R - Data Validation Qualifier - Rejected.

U - Indicates the compound was analyzed for, but not detected.

U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - Data Validation Qualifier - 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.

Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-4C															
			April 2014	October 2014		April 2015		October 2015		April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
				Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered								
Aluminum as Al	mg/L	NA	0.0354 B	PNA	PNA	0.0059 U	0.132	PNA	PNA	0.20 U	PNA	0.20 U	PNA	0.0134 U	PNA	0.20 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	PNA	0.0069 B	0.003 U	PNA	PNA	0.060 U	PNA	0.060 U	PNA	0.0052 J	PNA	0.060 U	PNA
Arsenic as As	mg/L	0.025	0.0046 B	PNA	PNA	0.0033 U	0.0033 U	PNA	PNA	0.010 U	PNA	0.010 U	PNA	0.0068 U	PNA	0.010 U	PNA
Barium	mg/L	1	0.0504 B	PNA	PNA	0.0468 B	0.0424 B	PNA	PNA	0.0519 J	PNA	0.0532 J	PNA	0.0491 J	PNA	0.20 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	PNA	0.0001 U	0.0001 U	PNA	PNA	0.0050 U	PNA	0.0050 U	PNA	0.0006 U	PNA	0.0050 U	PNA
Boron as B	mg/L	1	0.0083 B	PNA	PNA	0.0069 B	0.0077 B	PNA	PNA	0.0116 J	PNA	0.050 U	PNA	0.0011 J	PNA	0.050 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0003 U	0.0002 U	0.0002 U	0.0001 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.00006 U	2.5 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	26.2	30.1	31.9 *J*	27.0	25.0	29.1	27.8	29.7	30.4	28.0	30.4	25.3	25.8	24.6	25.3
Chromium as Cr	mg/L	0.05	1.31	PNA	PNA	0.184	0.0018 B	PNA	PNA	0.396	PNA	0.300	PNA	0.564	PNA	0.367	PNA
Cobalt	mg/L	NA	0.0228 B	PNA	PNA	0.0049 B	0.0016 B	PNA	PNA	0.0077 J	PNA	0.0122 J	PNA	0.0099 J	PNA	0.050 U	PNA
Copper as Cu	mg/L	0.2	0.0225 B	PNA	PNA	0.0027 B	0.0004 U	PNA	PNA	0.0053 J	PNA	0.025 U	PNA	0.0104 J	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.010 U	PNA	PNA	0.010 U	PNA	PNA	PNA	0.010 U	PNA	0.010 U	PNA	0.0029 U	PNA	0.010 U	PNA
Iron as Fe	mg/L	0.3	3.97	0.873	0.0853 *J*	0.715	0.0423 B	1.50	0.0268 U	1.68	0.734	1.50	1.41	2.15	4.16	1.45	2.64
Lead as Pb	mg/L	0.025	0.0097	0.0016 *J*	0.0024 B	0.0022 U	0.0022 B	0.0054	0.0049 N	0.0036 J	0.0050 U	0.0050 U	0.0050 U	0.0013 U	0.0050 U	0.0050 U	0.0050 U
Magnesium	mg/L	35 #	11.9	13.4	14.1 *J*	11.9	11.5	13.3	12.8 E	13.3	13.8	12.5	13.9	11.7	11.7	11.1	11.4
Manganese as Mn	mg/L	0.3	0.154	0.0436	0.0362 *J*	0.0407	0.0336	0.0662 E	0.0307	0.0561	0.0368	0.0789	0.0479	0.070	0.108	0.0417	0.0933
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	PNA	0.0001 U	0.0001 U	PNA	PNA	0.0002 U	PNA	0.0002 U	PNA	0.00007 J	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.359	PNA	PNA	0.273	0.233	PNA	PNA	0.349	PNA	0.426	PNA	0.274	PNA	0.288	PNA
Potassium	mg/L	NA	1.60 B	1.95 B	1.96 B	1.09 B	0.691 B	1.50 B	0.562 B	1.40 J	5.00 U	1.75 J	5.00 U	1.51 J	5.00 U	5.00 U	5.00 U
Selenium as Se	mg/L	0.01	0.0011 U	PNA	PNA	0.0038 U	0.0038 U	PNA	PNA	0.010 U	PNA	0.010 U	PNA	0.0063 U	PNA	0.010 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	PNA	0.0022 U	0.0022 U	PNA	PNA	0.010 U	PNA	0.010 U	PNA	0.0036 U	PNA	0.010 U	PNA
Sodium as Na	mg/L	20	28.7	36.1	37.3 *J*	28.8	27.3	32.7	32.9	34.2	39.3	39.3	44.6	34.1	37.4	39.7	44.2
Thallium as Tl	mg/L	0.0005 #	0.0013 U	PNA	PNA	0.0038 U	0.0038 U	PNA	PNA	0.010 U	PNA	0.010 U	PNA	0.0036 U	PNA	0.010 U	PNA
Vanadium	mg/L	NA	0.0033 B	PNA	PNA	0.0007 U	0.0007 U	PNA	PNA	0.050 U	PNA	0.00083 J	PNA	0.0017 J	PNA	0.050 U	PNA
Zinc as Zn	mg/L	2 #	0.0178 B	PNA	PNA	0.0057 B	0.0139 B	PNA	PNA	0.020 U	PNA	0.020 U	PNA	0.0015 J	PNA	0.020 U	PNA
Alkalinity tot CaCo3	mg/L	NA	33.9	38.0	PNA	38.5	PNA	45.0	PNA	41.9	44.0	34.2	47.4	43.0	46.6	45.3	44.2
Chloride as Cl	mg/L	250	100	135	PNA	107 D	PNA	113	PNA	99.0	140	106	125	101	122	125	134
Sulfate as SO4	mg/L	250	5.00 U	5.00 U	PNA	5.00 U	PNA	67.6	PNA	3.67 J	5.00 U	4.20 J	5.00 U	4.60 J	5.90	5.20	6.60
Bromide	mg/L	2 #	0.50 U	0.50 U	PNA	0.50 U	PNA	0.50 U	PNA	0.08 J	0.50 U	0.075 J	0.50 U	0.072 J	0.50 U	0.50 U	0.50 U
BOD5	mg/L	NA	2.0 U	2.0 U	PNA	2.0 U	PNA	2.0 U	PNA	2.0 U	2.0 U	1.0 J	2.0 U	10.0 U	4.0 U	2.0 U	2.0 U
COD	mg/L	NA	10.0 U	10.0 U	PNA	10.0 U	PNA	10.0 U	PNA	10.0 U	19.2	21.3	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Color	units	NA	5.0 U	PNA	PNA	15.0	PNA	PNA	PNA	5.0	PNA	25.0	PNA	5.0 U	PNA	30.0	PNA
Chromium hex as Cr	mg/L	0.05	0.020 U	PNA	PNA	0.020 U	PNA	PNA	PNA	0.020 U	PNA	0.020 U	PNA	0.015 U	PNA	0.020 U	PNA
Hardness as CaC03	mg/L	NA	108	160	PNA	120	PNA	120	PNA	114	120	170	120	110	96.0	80.0	90.0
Ammonia as N	mg/L	2	0.15	0.10 U	PNA	0.10 U	PNA	0.10 U	PNA	0.12	0.10	0.13	0.10 U	0.021 J	0.10 U	0.10 U	0.10 U
Nitrite as N	mg/L	NA	0.10 U	0.10 U	PNA	0.10 U	PNA	0.10 U	PNA	0.10 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Nitrate as N	mg/L	10	0.10 U	0.10 U	PNA	0.10 U	PNA	0.10 U	PNA	0.10 U	0.050 U	0.044 J	0.050 U	0.076	0.062	0.050 U	0.050 U
Phenols as Phenol	mg/L	0.001	0.0050 U	0.0050 U	PNA	0.0050 U	PNA	0.0050 U	PNA	0.0050 U	0.0088	0.0010 J	0.0050 U	0.0020 J	0.0050 U	0.0050 U	0.0114
Tot Dissolved Solids	mg/L	NA	298	337	PNA	258	PNA	227	PNA	239	305	309	230	307	234	266	300
Tot. Kjeldahl Nitrogen	mg/L	NA	0.29	0.10 U	PNA	0.18	PNA	0.10 U	PNA	0.10 U	0.10 U	0.13	0.17	0.10 U	0.10 U	0.30	0.10 U
Tot Organic Carbon	mg/L	NA	1.0 U	9.6	PNA	1.0 U	PNA	0.50 U	PNA	1.0 U	1.0 U	0.25 J	1.0 U	0.00023 U	1.0 U	1.0 U	1.0 U
Turbidity	NTU	NA	1.5	0	PNA	0	PNA	10.1	PNA	13.6	0.8	0	8.3	18.3	5.6	8.4	12.5
Temperature	deg.C	NA	11.54	12.73	PNA	11.88	PNA	12.68	PNA	14.7	12.97	13.61	12.67	12.14	13.22	12.16	12.65
pH	units	6.5-8.5	7.95	6.97	PNA	6.57	PNA	6.59	PNA	7.01	6.94	6.84	6.85	6.7	6.74	6.87	6.83
Spec. Cond	umho/cm	NA	311	1	PNA	383	PNA	430	PNA	408	546	479	566	437	543	485	412

NOTES:

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Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND [1]	MW-6A						MW-6B					
			October 2014	October 2015	October 2016	October 2017	October 2018	October 2019	October 2014	October 2015	October 2016	October 2017	October 2018	October 2019
Aluminum as Al	mg/L	NA	0.0543 B	0.0166 B	0.2 U	0.2 U	0.2 U	0.2 U	0.0921 B	0.0076 B	0.2 U	0.2 U	0.2 U	0.2 U
Antimony as Sb	mg/L	0.003 #	0.0044 B	0.0006 U	0.06 U	0.06 U	0.06 U	0.06 U	0.004 B	0.0006 U	0.06 U	0.06 U	0.06 U	0.06 U
Arsenic as As	mg/L	0.025	0.0009 U	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0009 U	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/L	1	0.056 B	0.058 B	0.2 U	0.2 U	0.2 U	0.2 U	0.0124 B	0.0127 B	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium as Be	mg/L	0.003	0.0002 U	0.0002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.005 U	0.005 U
Boron as B	mg/L	1	0.0182 B	0.0171 B	0.05 U	0.05 U	0.05 U	0.05 U	0.0105 B	0.0089 B	0.05 U	0.05 U	0.05 U	0.05 U
Cadmium as Cd	mg/L	0.005	0.0003 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0003 U	0.0001 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	19.3	20.5	24.1	7.93	6.51	8.69	3.47 B	3.87 B	3.92	3.98	4.42	4.54
Chromium as Cr	mg/L	0.05	0.0017 B	0.002 B	0.01 U	0.01 U	0.01 U	0.01 U	0.0254	0.0046 B	0.01 U	0.01 U	0.01 U	0.01
Cobalt	mg/L	NA	0.0002 U	0.0003 B	0.05 U	0.05 U	0.05 U	0.05 U	0.0002 U	0.0004 B	0.05 U	0.05 U	0.05 U	0.05 U
Copper as Cu	mg/L	0.2	0.0011 B	0.0007 B	0.025 U	0.025 U	0.025 U	0.025 U	0.001 B	0.0005 U	0.025 U	0.025 U	0.025 U	0.025 U
Cyanide as CN	mg/L	0.2	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA
Iron as Fe	mg/L	0.3	0.128	0.0297 B	0.237	0.0201	0.0361	0.261	0.282	0.0412 B	0.1 U	0.0254	0.108	0.100
Lead as Pb	mg/L	0.025	0.0013 U	0.0046	0.005 U	0.0005 U	0.005 U	0.005 U	0.0013 U	0.0036	0.005 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	7.54	8.12	9.87	3.38	2.73	4.34	1.9 B	2.24 B	2.27	2.32	2.54	2.65
Manganese as Mn	mg/L	0.3	0.0136 B	0.0072 B	0.0287	0.01 U	0.01 U	0.0405	0.0093 B	0.0053 B	0.01 U	0.01 U	0.01 U	0.02
Mercury as Hg	mg/L	0.0007	0.0001 U	0.0001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0001 U	0.0001 U	0.0002 U	0.0002 UB	0.0002 U	0.0002 U
Nickel as Ni	mg/L	0.1	0.0008 B	0.003 B	0.04 U	0.04 U	0.04 U	0.04 U	0.0272 B	0.0278 B	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	mg/L	NA	2.86 B	1.46 B	5 U	5 U	5 U	5 U	2.12 B	0.745 B	5 U	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0014 U	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0014 U	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver as Ag	mg/L	0.05	0.0007 U	0.0024 B	0.01 U	0.01 U	0.01 U	0.01 U	0.0007 U	0.0013 B	0.01 U	0.01 U	0.01 U	0.01 U
Sodium as Na	mg/L	20	9.16	11.3	10.7 ***J***	6.52	7.68	8.60	7.5	8.97	11.7	8.21	7.80	7.82
Thallium as Tl	mg/L	0.0005 #	0.001 U	0.0019 U	0.01 U	0.01 U	0.01 U	0.01 U	0.001 U	0.0019 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	mg/L	NA	0.0007 U	0.0028 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0007 U	0.0028 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc as Zn	mg/L	2 #	0.0086 B	0.0051 B	0.02 U	0.02 U	0.02 U	0.02 U	0.0062 B	0.0041 B	0.02 U	0.02 UB	0.02 U	0.02 U
Alkalinity tot CaCo3	mg/L	NA	66.8	63.2	78.4	23.6	16.3	29.9	10.7	12.8	12.6	11	12.2	13
Chloride as Cl	mg/L	250	12	13.2	14.5	10.3	16.2	17	10.9	11.1	11.5	9.8	12.9	13.2
Sulfate as SO4	mg/L	250	10.9	11.3	12	6.4	8.2	10.2	7.53	7.08	7.2	6.9	9	9.7
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Color	units	NA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA
Chromium hex as Cr	mg/L	0.05	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA	PNA
Hardness as CaC03	mg/L	NA	120	80	84	PNA	23	36.7	48	24	18	PNA	16	17.5
Ammonia as N	mg/L	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.14	0.1	0.1 U	0.1 U
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.05 ***UJ***	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	1.74	2.25	1.6 ***J***	0.091	0.38	0.79	0.1 U	0.14	1.4	0.36	0.36	0.42
Phenols as Phenol	mg/L	0.001	0.005 U	0.0101	0.0052	0.0005 U	0.0054	0.005 U	0.005 U	0.005 U	0.0104	0.005 U	0.005 U	0.013
Tot Dissolved Solids	mg/L	NA	107	92	147 ***J***	52	62	76	39	23	63	43	38	142
Tot. Kjeldahl Nitrogen	mg/L	NA	0.1 U	1 U	0.1 U	0.2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.3	0.1 U	0.1 U
Tot Organic Carbon	mg/L	NA	16.4	0.672	1 U	1 U	1 U	1 U	2.8	0.596	1 U	1 U	1 U	1 U
Turbidity	NTU	NA	1.6	12.3	105	9	23	10.5	3.9	0.71	0	3.5	2.6	0
Temperature	deg.C	NA	12.18	12.11	12.4	12.02	12.04	12.39	11.36	11.4	11.96	11.41	12.25	12.00
pH	units	6.5-8.5	5.86	5.73	5.70	5.83	5.96	5.55	6.29	6.27	5.81	5.94	5.89	5.60
Spec. Cond	umho/cm	NA	230	201	253	114	112	124	87	76	89	94	112	84

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J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R - Data Validation Qualifier - Rejected.

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Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-8											
			October 2014		October 2015		October 2016		October 2017		October 2018		October 2019	
Aluminum as Al	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Antimony as Sb	mg/L	0.003 #	PNA		PNA		PNA		PNA		PNA		PNA	
Arsenic as As	mg/L	0.025	PNA		PNA		PNA		PNA		PNA		PNA	
Barium	mg/L	1	PNA		PNA		PNA		PNA		PNA		PNA	
Beryllium as Be	mg/L	0.003	PNA		PNA		PNA		PNA		PNA		PNA	
Boron as B	mg/L	1	PNA		PNA		PNA		PNA		PNA		PNA	
Cadmium as Cd	mg/L	0.005	0.0003	U	0.0009	B	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Calcium as Ca	mg/L	NA	8.57		10.7		13.9		10.5		13.3		16	
Chromium as Cr	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Cobalt	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Copper as Cu	mg/L	0.2	PNA		PNA		PNA		PNA		PNA		PNA	
Cyanide as CN	mg/L	0.2	PNA		PNA		PNA		PNA		PNA		PNA	
Iron as Fe	mg/L	0.3	2.15		0.516		0.702		0.421		0.14		10.3	
Lead as Pb	mg/L	0.025	0.0013	U	0.005		0.005	U	0.005	U	0.005	U	0.005	U
Magnesium	mg/L	35 #	3.43	B	4.53	B	6.11		4.47		5.11		6.74	
Manganese as Mn	mg/L	0.3	0.0771		0.0361	E	0.0288		0.014		0.0128		0.126	
Mercury as Hg	mg/L	0.0007	PNA		PNA		PNA		PNA		PNA		PNA	
Nickel as Ni	mg/L	0.1	PNA		PNA		PNA		PNA		PNA		PNA	
Potassium	mg/L	NA	2.47	B	1.03	B	5	U	5	U	5	U	5	U
Selenium as Se	mg/L	0.01	PNA		PNA		PNA		PNA		PNA		PNA	
Silver as Ag	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Sodium as Na	mg/L	20	7.44		9.01		9.79		8.44		8.37		8.85	
Thallium as Tl	mg/L	0.0005 #	PNA		PNA		PNA		PNA		PNA		PNA	
Vanadium	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Zinc as Zn	mg/L	2 #	PNA		PNA		PNA		PNA		PNA		PNA	
Alkalinity tot CaCo3	mg/L	NA	24.9		30.9	H	47.7		37		45.7		52	
Chloride as Cl	mg/L	250	10.6		10.6		13.8		11.4		13.1		13.8	
Sulfate as SO4	mg/L	250	8.68		7.85		8.2		7.7		10		13.4	
Bromide	mg/L	2 #	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BOD5	mg/L	NA	2	U	2	U	2	U	2	U	2	U	4	U
COD	mg/L	NA	10	U	10	U	10	U	11.9		11.4		12.4	
Color	units	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Chromium hex as Cr	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Hardness as CaC03	mg/L	NA	48		52		56		50		48		80	
Ammonia as N	mg/L	2	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nitrite as N	mg/L	NA	0.1	U	0.1	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrate as N	mg/L	10	0.78		1.25		0.2		1.2		0.71		0.65	***J***
Phenols as Phenol	mg/L	0.001	0.005	U	0.005	U	0.0057		0.005	U	0.005	U	0.005	U
Tot Dissolved Solids	mg/L	NA	39		83		100		79		78		103	
Tot. Kjeldahl Nitrogen	mg/L	NA	0.1		0.2		0.1	U	0.14		0.1	U	0.1	U
Tot Organic Carbon	mg/L	NA	6.7		0.581		1	U	1	UB	1	U	1.3	
Turbidity	NTU	NA	75.0		31.2		13.1		25.1		29.9		42.8	
Temperature	deg.C	NA	11.68		11.94		11.85		11.85		12.11		12.14	
pH	units	6.5-8.5	6.06		5.53		5.61		5.55		5.61		5.86	
Spec. Cond	umho/cm	NA	123		139		179		151		148		156	

NOTES:

(1) = NYSDEC, Class GA Groundwater Standards

Bold indicates update due to data validation.

= Guidance value, no standard exists.

NA = Not available.

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B - Analyte was detected in the associated method blank.

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J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-9											
			October 2014		October 2015		October 2016		October 2017		October 2018		October 2019	
Aluminum as Al	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Antimony as Sb	mg/L	0.003 #	PNA		PNA		PNA		PNA		PNA		PNA	
Arsenic as As	mg/L	0.025	PNA		PNA		PNA		PNA		PNA		PNA	
Barium	mg/L	1	PNA		PNA		PNA		PNA		PNA		PNA	
Beryllium as Be	mg/L	0.003	PNA		PNA		PNA		PNA		PNA		PNA	
Boron as B	mg/L	1	PNA		PNA		PNA		PNA		PNA		PNA	
Cadmium as Cd	mg/L	0.005	0.0003	U	0.0001	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Calcium as Ca	mg/L	NA	7.5		4.63	B	5.96		5.24		8.99		7.43	
Chromium as Cr	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Cobalt	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Copper as Cu	mg/L	0.2	PNA		PNA		PNA		PNA		PNA		PNA	
Cyanide as CN	mg/L	0.2	PNA		PNA		PNA		PNA		PNA		PNA	
Iron as Fe	mg/L	0.3	1.37		0.394		1.31		0.188		1.4		1.16	
Lead as Pb	mg/L	0.025	0.0013	U	0.0046		0.005	U	0.005	U	0.005	U	0.005	U
Magnesium	mg/L	35 #	3.72	B	2.4	B	3.13		2.74		8.83		2.94	
Manganese as Mn	mg/L	0.3	0.0269		0.0163	E	0.0359		0.011		0.0776		0.0986	
Mercury as Hg	mg/L	0.0007	PNA		PNA		PNA		PNA		PNA		PNA	
Nickel as Ni	mg/L	0.1	PNA		PNA		PNA		PNA		PNA		PNA	
Potassium	mg/L	NA	2.65	B	0.96	B	5	U	5	U	5	U	5	U
Selenium as Se	mg/L	0.01	PNA		PNA		PNA		PNA		PNA		PNA	
Silver as Ag	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Sodium as Na	mg/L	20	8.72		8.67		13.4		10.2		11.1		8.71	
Thallium as Tl	mg/L	0.0005 #	PNA		PNA		PNA		PNA		PNA		PNA	
Vanadium	mg/L	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Zinc as Zn	mg/L	2 #	PNA		PNA		PNA		PNA		PNA		PNA	
Alkalinity tot CaCo3	mg/L	NA	25.8		11.9	H	16.6		19		52.6		14	
Chloride as Cl	mg/L	250	12.5		10.7		19.8		17.9		17.5		18.7	
Sulfate as SO4	mg/L	250	8.89		6.82		7.4		5.8		8.6		9.0	
Bromide	mg/L	2 #	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BOD5	mg/L	NA	2	U	2	U	2	U	2	U	2	U	2	U
COD	mg/L	NA	10	U	10	U	21.3		10	U	10	U	10	U
Color	units	NA	PNA		PNA		PNA		PNA		PNA		PNA	
Chromium hex as Cr	mg/L	0.05	PNA		PNA		PNA		PNA		PNA		PNA	
Hardness as CaC03	mg/L	NA	76		44		27		22		40		28	
Ammonia as N	mg/L	2	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nitrite as N	mg/L	NA	0.1	U	0.1	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrate as N	mg/L	10	0.43		0.23		0.12		0.18		0.81		0.24	
Phenols as Phenol	mg/L	0.001	0.005	U	0.005	U	0.0068		0.005	U	0.005	U	0.0176	
Tot Dissolved Solids	mg/L	NA	50		55		65		61		70		74	
Tot. Kjeldahl Nitrogen	mg/L	NA	0.1	U	0.1	U	0.1	U	0.14		0.1	U	0.1	U
Tot Organic Carbon	mg/L	NA	4.2		0.5	U	1	U	1	UB	1	U	1	U
Turbidity	NTU	NA	11.6		8.18		35.2		5.5		0.0		42.8	
Temperature	deg.C	NA	12.74		13.03		13.02		12.73		12.88		12.82	
pH	units	6.5-8.5	5.37		5.58		5.51		5.21		5.27		6.14	
Spec. Cond	umho/cm	NA	133		90		123		122		126		92	

NOTES:

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-11A																									
			April 2014		October 2014		April 2015		October 2015		April 2016		October 2016	April 2017		October 2017		April 2018		October 2018		April 2019		October 2019
			Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered		Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	
Aluminum as Al	mg/L	NA	0.0329 B	0.0224 ***U***	0.153 B	0.0276 B	0.0059 U	0.0952 B	0.0179 B	0.0145 B	0.2 U	0.2 U	0.2 U	1.01	0.2 U	0.2 U	0.2 U	0.0975 J	0.0239 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Antimony as Sb	mg/L	0.003 #	0.0019 U	0.0019 U	0.001 U	0.0010 U	0.003 U	0.003 U	0.0059 B	0.0006 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.003 U	0.003 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Arsenic as As	mg/L	0.025	0.0021 B	0.0011 U	0.0568	0.0009 U	0.0079 B	0.0033 U	0.0022 U	0.0022 U	0.01 U	0.01 U	0.0115	0.0759	0.01 U	0.0188 U	0.01 U	0.0068 U	0.0068 U	0.01 U	0.01 U	0.0651	0.01 U	0.01 U
Barium	mg/L	1	0.089 B	0.0714 B	1.77	0.0767 B	0.267	0.0686 B	0.236	0.1340 B	0.24	0.0694 J	0.301	1.1	0.0416 J	1.03	0.2 U	0.0891 J	0.0717 J	0.2 U	0.2 U	0.721	0.2 U	0.2 U
Beryllium as Be	mg/L	0.003	0.00014 U	0.00014 U	0.0002 U	0.00020 U	0.0001 U	0.0005 B	0.0002 U	0.00050 B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0006 U	0.0006 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Boron as B	mg/L	1	0.0304 B	0.0360 B	0.0495 B	0.0404 B	0.0323 B	0.0399 B	0.0376 B	0.0387 B	0.0512 J	0.0551 J	0.05 U	0.0387 J	0.0378 J	0.05 U	0.05 U	0.0324 J	0.0288 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Cadmium as Cd	mg/L	0.005	0.0004 B	0.00020 B	0.113	0.00030 U	0.0025 B	0.0005 B	0.0001 U	0.00060 B	0.0035	0.0002 J	0.0025 U	0.0278	0.000063 J	0.0121 U	0.0025 U	0.00006 U	0.000063 U	0.0025 U	0.0025 U	0.0048	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	25.6	24.4	66.1	57.4	37.5	36.6 E	44.6	41.4	47.7	46.5	54.5	56.6	35.5	60.5	43.1	25.3	25.7	36.3	34.2 ***J***	49.4	32.9	36.5
Chromium as Cr	mg/L	0.05	0.002 B	0.0011 U	0.103	0.0027 B	0.0411	0.0011 U	0.0091 B	0.0005 U	0.01 U	0.01 U	0.01 U	0.0418 J	0.01 U	0.1 U	0.01 U	0.003 J	0.0016 U	0.01 U	0.01 U	0.136	0.01 U	0.01 U
Cobalt	mg/L	NA	0.0384 B	0.0338 B	0.0312 B	0.0011 B	0.0234 B	0.0119 B	0.0144 B	0.0099 B	0.0127 J	0.0058 J	0.05 U	0.0183 J	0.05 U	0.05 U	0.05 U	0.0237 J	0.0216 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper as Cu	mg/L	0.2	0.0052 B	0.0014 B	0.069	0.0039 B	0.0562	0.0019 B	0.0253	0.0528 *	0.0317	0.0203 J	0.0532	0.0707	0.0179 J	0.25 U	0.025 U	0.0067 J	0.0025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Cyanide as CN	mg/L	0.2	0.01 U	PNA	PNA	PNA	0.01 U	PNA	PNA	PNA	0.01 U	PNA	PNA	0.01 U	PNA	PNA	PNA	0.0029 U	PNA	PNA	PNA	0.01 U	PNA	PNA
Iron as Fe	mg/L	0.3	13.4	0.1460	1,020	2.4	117 E	0.0508 B	54.1	0.0268 U	63	0.0747 J	96.5	775	0.1 U	539	0.1 U	11.3	0.127	26.3 ***J***	0.243 ***J***	306	0.326	35.6
Lead as Pb	mg/L	0.025	0.0041 B	0.0149	0.13 U	0.0013 U	0.0022 U	0.0033	0.0065	0.0040 N	0.0017 J	0.0029 J	0.005 U	0.0193	0.005 U	0.0052	0.005 U	0.0024 J	0.0013 U	0.005 U	0.005 U	0.0095	0.005 U	0.005 U
Magnesium	mg/L	35 #	9.44	9.03	14.5	15.20	10.5	11.4 E	16.9	16.00 E	15.7	16.0	19.0	11.2	9.92	16.6	14.4	9.07	8.93	13	12.5	12.6	10.8	12.7
Manganese as Mn	mg/L	0.3	1.08	0.871	70.9	1.13	5.14	1.32 E	3.98 E	2.49	4.12	2.13	3.55	35.9	0.0346	15.2	1.49	1.32	1.13	1.93	1.26	24.6	1.56	5.40
Mercury as Hg	mg/L	0.0007	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 UN	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	PNA	0.0002 U	0.000079 J	0.0002 U	0.0002 U	0.0002 U	0.00024	0.0002 U	0.0002 U
Nickel as Ni	mg/L	0.1	0.0198 B	0.0215 B	0.0138 B	0.0038 B	0.0038 B	0.008 B	0.0051 B	0.0079 B	0.0036 J	0.0066 J	0.04 U	0.04 U	0.007 J	0.04 U	0.04 U	0.0136 J	0.023 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	mg/L	NA	3.67 B	3.85 B	5.5	4.88 B	4.12 B	3.71 B	6.43	5.10	4.95 J	4.37 J	7.06	14.3	3.48 J	10.2	5.0 U	2.77 J	2.99 J	5.0 U	5 U	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0011 U	0.0026 B	0.32 B	0.0014 B	0.0038 U	0.0038 U	0.0022 U	0.0022 UN	0.01 U	0.0072 J	0.01 U	0.0085 J	0.01 U	0.01 U	0.01 U	0.0063 U	0.0062 U	0.01 U	0.01 U	0.01 U	0.01 u	0.01 U
Silver as Ag	mg/L	0.05	0.00043 U	0.00043 U	0.0151	0.00070 U	0.0137	0.0022 U	0.0104	0.00200 BN	0.0064 J	0.01 U	0.01 U	0.01 U	0.01 U	0.0525	0.01 U	0.0036 U	0.0036 U	0.01 ***UJ***	0.01 U	0.01 U	0.01 U	0.01 U
Sodium as Na	mg/L	20	8.54	8.34	9.16	9.25	10.8	11.4 E	10.3	9.29	13.9	13.7	12.2	18.7	9.95	11	9.81	9	8.74	10.2	10.5 ***J***	10.4	9.7	8.96
Thallium as Tl	mg/L	0.0005 #	0.0013 U	0.0013 U	0.0252	0.0010 U	0.0038 U	0.0038 U	0.0149	0.0086 B	0.0053 J	0.01 U	0.01 U	0.0438 J	0.01 U	0.0254	0.01 U	0.0036 U	0.0036 U	0.01 U	0.01 U	0.0261	0.01 U	0.01 U
Vanadium	mg/L	NA	0.00039 U	0.00039 U	0.0007 U	0.0007 U	0.0007 U	0.0007 U	0.0028 U	0.0028 U	0.05 U	0.05 U	0.05 U	0.0206 J	0.05 U	0.05 U	0.05 U	0.0008 U	0.00083 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc as Zn	mg/L	2 #	0.0217	0.0117 B	0.178	0.0498	0.0463	0.0172 E	0.0497	0.0391 *	0.023	0.0065 J	0.025	0.0664	0.0508	0.112	0.02 U	0.039	0.0173 J	0.0367	0.02 U	0.0254	0.02 U	0.02 U
Alkalinity tot CaCo3	mg/L	NA	96.8	PNA	234	PNA	120	PNA	170 H	PNA	168	PNA	205	135	PNA	195 ***J***	PNA	87.2	PNA	138	PNA	131	PNA	141
Chloride as Cl	mg/L	250	12.4	PNA	13.5	PNA	14.5	PNA	11.2	PNA	13.8	PNA	12.1	14.2	PNA	11.3	PNA	14.8	PNA	13.9	PNA	16.7	PNA	14.3
Sulfate as SO4	mg/L	250	7.03	PNA	27.2	PNA	10.3	PNA	6.1	PNA	18.5	PNA	5.2	12.2	PNA	6.6	PNA	23.9	PNA	9.7	PNA	18.8	PNA	14
Bromide	mg/L	2 #	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.5 U	PNA	0.5 U	0.037 J	PNA	0.5 U	PNA	0.032 J	PNA	0.5 U	PNA	0.5 U	PNA	0.5 U
BOD5	mg/L	NA	8 S	PNA	13	PNA	2 U	PNA	2 U	PNA	4 U	PNA	2 U	2.3 J	PNA	4 U	PNA	2 U	PNA	4 U	PNA	4 U	PNA	4 U
COD	mg/L	NA	10 U	PNA	24.2	PNA	10 U	PNA	10 U	PNA	10 U	PNA	17.2	85.8	PNA	30.9	PNA	10 U	PNA	10 U	PNA	27.8	PNA	10.2
Color	units	NA	10	PNA	PNA	PNA	45	PNA	PNA	PNA	5 U	PNA	PNA	300	PNA	PNA	PNA	40	PNA	PNA	PNA	5 U	PNA	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	PNA	PNA	0.02 U	PNA	PNA	PNA	0.2 U	PNA	PNA	0.02 U	PNA	PNA	PNA	0.003 U	PNA	PNA	PNA	0.02 U	PNA	PNA
Hardness as CaC03	mg/L	NA	164	PNA	500	PNA	150	PNA	60 DH	PNA	136	PNA	240	150	PNA	133	PNA	PNA	PNA	120	PNA	150	PNA	200
Ammonia as N	mg/L	2	0.23	PNA	0.53	PNA	0.25	PNA	0.97	PNA	0.71	PNA	0.39	0.54	PNA	0.69 ***U***	PNA	0.19	PNA	0.28	PNA	0.15	PNA	1
Nitrite as N	mg/L	NA	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	PNA	0.1 U	0.05 U	PNA	0.5 U	PNA	0.05 U	PNA	0.51	PNA	0.05 U	PNA	0.05 U
Nitrate as N	mg/L	10	0.11	PNA	0.19	PNA	0.24	PNA	0.1	PNA	0.25	PNA	1.1	0.50	PNA	0.25	PNA	0.33	PNA	0.51	PNA	0.39	PNA	0.11
Phenols as Phenol	mg/L	0.001	0.005 U	PNA	0.005 U	PNA	0.005 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0057	0.0062 J	PNA	0.005 U	PNA	0.0038 J	PNA	0.005 U	PNA	0.0084	PNA	0.0054
Tot Dissolved Solids	mg/L	NA	137	PNA	170	PNA	167	PNA	215	PNA	224	PNA	210	186	PNA	222	PNA	152	PNA	173	PNA	240	PNA	171
Tot. Kjeldahl Nitrogen	mg/L	NA	0.63	PNA	1.18	PNA	0.62	PNA	0.85	PNA	0.73	PNA	0.64	2.7	PNA	1.5 ***J***	PNA	0.16	PNA	0.43	PNA	0.86	PNA	0.99
Tot Organic Carbon	mg/L	NA	1.4	PNA	39.8	PNA	3.8	PNA	3.36	PNA	6.3	PNA	3.81	13.8	PNA	20.2	PNA	1.9	PNA	2.9	PNA	4.2	PNA	3
Turbidity	NTU	NA	23.6	PNA	>1,000	PNA	541	PNA	935	PNA	1000	PNA	1000	>1,000	PNA	>1,000	PNA	573	PNA	198	PNA	298	PNA	35.2
Temperature	deg.C	NA	12.39	PNA	13.55	PNA	12.66	PNA	13.73	PNA	13.11	PNA	13.63	13.76	PNA	13.31	PNA	12.91	PNA	14.00	PNA	12.70	PNA	13.05
pH	units	6.5-8.5	5.94	PNA	6.04	PNA	6.27	PNA	6.11	PNA	6.62	PNA	6.33	6.47	PNA	6.13	PNA	5.7	PNA	6.15	PNA	6.06	PNA	6.09
Spec. Cond	umho/cm	NA	279	PNA	398	PNA	329	PNA	420	PNA	447	PNA	489	325	PNA	453	PNA	267	PNA	470	PNA	356	PNA	315

NOTES:

(1) = NYSDEC, Class GA Groundwater Standards

Bold indicates update due to data validation.

= Guidance value, no standard exists.

NA = Not available.

PNA = parameter not analyzed for.

B - Analyte was detected in the associated method blank.

H - Received / analyzed outside of analytical holding time

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R - Data Validation Qualifier - Rejected.

U - Indicates the compound was analyzed for, but not detected.

U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - Data Validation Qualifier - 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.

Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-11B																	
			April 2014	October 2014	April 2015	October 2015		April 2016	October 2016	April 2017		October 2017		April 2018	October 2018	April 2019		October 2019	
						Unfiltered	Filtered			Unfiltered	Filtered	Unfiltered	Filtered			Unfiltered	Filtered	Unfiltered	Filtered
Aluminum as Al	mg/L	NA	0.0339	1.11	0.425	0.466	0.0057 U	0.253	0.575	0.902	0.2 U	0.994	0.2 U	0.312	0.2 U	7.78	0.2 U	3.54	0.2 U
Antimony as Sb	mg/L	0.003 #	0.0019 U	0.0033 B	0.003 U	0.0006 U	0.002 B	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.003 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 ***UJ***
Arsenic as As	mg/L	0.025	0.0011 U	0.0009 U	0.0033 U	0.0022 U	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0068 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/L	1	0.026 B	0.019 B	0.0157 B	0.0183 B	0.0125 B	0.0169 J	0.2 U	0.026 J	0.0078 J	0.2 U	0.2 U	0.0155 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Beryllium as Be	mg/L	0.003	0.00014 U	0.0002 U	0.0001 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0006 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Boron as B	mg/L	1	0.0101 B	0.0128 B	0.0117 B	0.0137 B	0.012 B	0.0125 J	0.05 U	0.0186 J	0.0198 J	0.05 U	0.05 U	0.0133 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0001 U	0.0002 J	0.0025 U	0.000099 J	0.000081 J	0.0025 U	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	11.1	7.87	8.61	10.1	9.27	7.23	16.8	13.6	10.0	7.43	6.95	6.83	6.95	30.3	22.4	16.8	13.5
Chromium as Cr	mg/L	0.05	0.0069 B	0.0134	0.0076 B	0.0092 B	0.0006 B	0.0046 J	0.016	0.017 U	0.01 U	0.01 U	0.01 U	0.0082 J	0.01 U	0.0198	0.01 U	0.019	0.01 U
Cobalt	mg/L	NA	0.0002 B	0.0004 B	0.0006 U	0.0004 B	0.0003 B	0.0004 J	0.05 U	0.00088 J	0.05 U	0.05 U	0.05 U	0.0006 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Copper as Cu	mg/L	0.2	0.0045 B	0.0052 B	0.0055 B	0.0052 B***J***	0.026 ***J***	0.0051 J	0.025 U	0.0073 J	0.004 J	0.025 U	0.025 U	0.0025 U	0.025 U	0.0322	0.025 U	0.025 U	0.025 U
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	PNA	0.01 U	PNA	0.01 U	PNA	PNA	PNA	0.0029 U	PNA	0.01 U	PNA	PNA	PNA
Iron as Fe	mg/L	0.3	3.65	5.53	3.97 E	3.98	0.0268 U	1.96	10.2	9.95	0.1 U	14.6	0.1 U	3.4	2.17	14.4	0.241	11.6 ***J***	0.0325
Lead as Pb	mg/L	0.025	0.0072	0.0034	0.005	0.0091	0.0032 ***J***	0.0048 J	0.005 U	0.0063	0.005 U	0.0065	0.005 U	0.0014 J	0.005 U	0.0413	0.005 U	0.0195	0.005 U
Magnesium	mg/L	35 #	4.46 B	3.22 B	3.08 B	4.04 B	3.58 ***J***	3.02	5.23	4.64	3.42	2.9	2.47	2.99	3.16	7.7	4.01	6.21	4.15
Manganese as Mn	mg/L	0.3	0.156	0.167	0.131	0.125 E***J***	0.0275	0.0414	0.271	0.345	0.0076 J	0.603	0.01 U	0.0676	0.057	0.5	0.13	0.369	0.181
Mercury as Hg	mg/L	0.0007	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 ***J***	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 UB	0.000073 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel as Ni	mg/L	0.1	0.0034 B	0.005 B	0.0031 B	0.0049 B	0.0076 B	0.04 U	0.04 U	0.0099 J	0.0019 J	0.04 U	0.04 U	0.0034 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Potassium	mg/L	NA	1.71 B	2.37 B	0.874 B	1.57 B	0.417 B	1.09 J	5.0 U	1.65 J	1.24 J	5.0 U	5.0 U	1.12 J	5 U	5 U	5 U	5 U	5 U
Selenium as Se	mg/L	0.01	0.0011 U	0.0014 U	0.0038 U	0.0022 U	0.0022 ***J***	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0063 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver as Ag	mg/L	0.05	0.00043 U	0.0007 U	0.0022 U	0.0033 B	0.0011 ***J***	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0036 U	0.01 U	0.01 U	0.01 U	0.01 ***UJ***	0.01 ***UJ***
Sodium as Na	mg/L	20	11.5	8.78	7.89	10.2	9.04	8.74	12.3	8.3	7.63	8.21	7.04	8.77	8.68	10.4	9.36	10.5	10.3 ***J***
Thallium as Tl	mg/L	0.0005 #	0.0013 U	0.001 U	0.0038 U	0.0019 U	0.0019 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0036 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	mg/L	NA	0.0017 B	0.0027 B	0.0012 B	0.0028 U	0.0028 U	0.05 U	0.05 U	0.0023 J	0.05 U	0.05 U	0.05 U	0.0008 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Zinc as Zn	mg/L	2 #	0.0218	0.0177 B	0.0102 B	0.0111 B	0.0107 ***J***	0.005 J	0.02 U	0.0089 J	0.02 U	0.02 U	0.02 U	0.0062 J	0.02 U	0.0774	0.02 U	0.0394	0.02 U
Alkalinity tot CaCo3	mg/L	NA	30.8	22.3	23.2	31.4 H***J***	PNA	18.2	60.9	43.6	PNA	26.8	PNA	21.8	26.6	59.6	PNA	40.4	PNA
Chloride as Cl	mg/L	250	12.8	11.3	12.2	9.87	PNA	11	10.9	9.3	PNA	8.8	PNA	11.4	12.1	14	PNA	13.9	PNA
Sulfate as SO4	mg/L	250	14.9	12.7	9.39	9.44	PNA	9.27	6.5	7.1	PNA	7.2	PNA	8.9	12.5	19.9	PNA	20	PNA
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	PNA	0.03 J	0.5 U	0.029 J	PNA	0.5 U	PNA	0.032 J	0.5 U	0.5 U	PNA	0.5 U	PNA
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	PNA	2 U	2 U	4 U	PNA	4 U	PNA	2 U	4 U	6.7 U	PNA	4 U	PNA
COD	mg/L	NA	10 U	10 U	10 U	10 U	PNA	10 U	10 U	8.8 J	PNA	18.2	PNA	10 U	10 U	266	PNA	165	PNA
Color	units	NA	10	PNA	35	PNA	PNA	5	PNA	50	PNA	PNA	PNA	5 U	PNA	5	PNA	PNA	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	PNA	0.02 U	PNA	0.02 U	PNA	PNA	PNA	0.003 U	PNA	0.02 U	PNA	PNA	PNA
Hardness as CaC03	mg/L	NA	48	84	48	48	PNA	31	64	58	PNA	32	PNA	30	30	90	PNA	70	PNA
Ammonia as N	mg/L	2	0.13	0.1 U	0.1 U	0.1 U	PNA	0.1 U	0.1 U	0.14	PNA	0.1 UB	PNA	0.021 J	0.1 U	0.14	PNA	0.87	PNA
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 ***UJ***	PNA	0.1 U	0.05 U	0.05 U	PNA	0.05 U	PNA	0.05 U	0.05 U	0.05 U	PNA	0.05 U	PNA
Nitrate as N	mg/L	10	0.43	0.25	0.25	0.44	PNA	0.19	0.82	0.41	PNA	0.29	PNA	0.3	0.5	0.72	PNA	0.69 ***J***	PNA
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.005 U	PNA	0.005 U	0.0099	0.0135	PNA	0.005 U	PNA	0.0043 J	0.0064	0.039	PNA	0.0116	PNA
Tot Dissolved Solids	mg/L	NA	86	30	73	81	PNA	47	108	75	PNA	57	PNA	83	58	121	PNA	94	PNA
Tot. Kjeldahl Nitrogen	mg/L	NA	0.57	0.23	0.26	0.1 ***UJ***	PNA	0.1 U	0.32	0.41	PNA	0.43	PNA	0.11	0.1 U	0.58	PNA	0.59	PNA
Tot Organic Carbon	mg/L	NA	1 U	5.9	0.1 U	0.927	PNA	1 U	1.92	1.7 J	PNA	1.7 B	PNA	0.59 J	1 U	23.9	PNA	16.7	PNA
Turbidity	NTU	NA	19.5	34.3	11.1	42.8	PNA	40.6	41.3	136	PNA	115	PNA	34.4	26.5	1,000	PNA	587	PNA
Temperature	deg.C	NA	11.5	12.7	11.85	12.94	PNA	13.22	13.1	13.42	PNA	12.7	PNA	12.02	12.85	12.22	PNA	12.42	PNA
pH	units	6.5-8.5	6.28	6.24	6.25	6.25	PNA	6.19	6.24	6.2	PNA	6.4	PNA	5.79	6.24	6.57	PNA	6.62	PNA
Spec. Cond	umho/cm	NA	191	128	123	140	PNA	101	220	160	PNA	129	PNA	109	144	183	PNA	156	PNA

NOTES:
(1) = NYSDEC, Class GA Groundwater Standards
Bold indicates update due to data validation.
# = Guidance value, no standard exists.
NA = Not available.
PNA = parameter not analyzed for.
B - Analyte was detected in the associated method blank.
H - Received / analyzed outside of analytical holding time
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R - Data Validation Qualifier - Rejected.
U - Indicates the compound was analyzed for, but not detected.
U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ - Data Validation Qualifier - 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.
Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-12A																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017 Unfiltered	April 2017 Filtered	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.0616 B	PNA	0.369	PNA	0.022 J	PNA	0.0449 J	0.2 U	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	0.06 U	PNA	0.003 U	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0097 B	PNA	0.01 U	PNA	0.01 U	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.0432 B	PNA	0.0514 B	PNA	0.0522 J	PNA	0.0290 J	0.0238 J	PNA	0.0442 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0539 B	PNA	0.0488 B	PNA	0.0776 J	PNA	0.0407 J	0.0389 J	PNA	0.0541	PNA	0.068	PNA
Cadmium as Cd	mg/L	0.005	0.0002 B	0.0004 B	0.0003 B	0.0002 B	0.0002 J	0.0025 U	0.0025 U	0.00064 J	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	24.4	15.5	21.1	32	30.4	13	15.1	13.8	22.2	20.4	25.3	23.8	29.1
Chromium as Cr	mg/L	0.05	0.0047 B	PNA	0.0092 B	PNA	0.01 U	PNA	0.0021 J	0.01 U	PNA	0.0016 U	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.0064 B	PNA	0.0062 B	PNA	0.0046 J	PNA	0.0046 J	0.0025 J	PNA	0.006 J	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.0026 B	PNA	0.0098 B	PNA	0.0035 J	PNA	0.0027 J	0.0078 J	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	3.26	9.63	8.95 E	3.06	0.769	5.83	1.56	0.1 U	18.7	1.48	2.56	1.42	4.1
Lead as Pb	mg/L	0.025	0.0024 B	0.0013 U	0.0022 U	0.0038	0.0024 J	0.005 U	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	6.18	4.18 B	5.69	9	8.45	3.4	4.24	3.68	6.15	6.08	7.78	7.25	8.07
Manganese as Mn	mg/L	0.3	4.16	1.22	2.69	3.06 E	3.51	1.76	2.69	2.23	3.37	1.98	2.54	1.5	2.27
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	0.0002 U	PNA	0.000056 U	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0104 B	PNA	0.0139 B	PNA	0.0065 J	PNA	0.0055 J	0.0071 J	PNA	0.0035 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	5.8	5.39	5.25	7.56	7.44	5 U	3.98 J	3.8 J	6.46	7.74	5.66	9.37	9.11
Selenium as Se	mg/L	0.01	0.0011 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0022 U	PNA	0.01 U	PNA	0.01 U	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	11.3	8.43	9.47	15.3	12.4	8.2	8.65	8.25	9.02	13.3	11.9	13.9	11.7
Thallium as Tl	mg/L	0.0005 #	0.0014 B	PNA	0.0038 U	PNA	0.0048 J	PNA	0.0041 J	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.0029 B	PNA	0.0092 B	PNA	0.05 U	PNA	0.0013 J	0.05 U	PNA	0.0012 J	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0329	PNA	0.0107 B	PNA	0.0038 J	PNA	0.0012 J	0.0083 J	PNA	0.0049 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	76	45.8	60.7	106 H	104	44.5	47	PNA	80	59.4	79.7	88.3	114
Chloride as Cl	mg/L	250	13.9	12	14.1	15.1	15.1	11.2	11.0	PNA	11.5	15.7	16.8	17.3	17.1
Sulfate as SO4	mg/L	250	20.7	14.5	22.4	23.3	22.2	11.2	14.5	PNA	16	32	31.2	32.4	26.8
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.057 J	PNA	0.5 U	0.13 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 U	2 U	2 U	2 U	2 U	2 U	1 J	PNA	11.3	2 U	2 U	2 U	2 U
COD	mg/L	NA	10 U	10 U	10 U	10 U	10 U	10 U	8.8 J	PNA	14	10 U	10 U	10 U	10 U
Color	units	NA	10	PNA	65	PNA	10	PNA	125	PNA	PNA	15	PNA	5	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	PNA	0.003 U	PNA	0.01 U	PNA
Hardness as CaC03	mg/L	NA	100	130	110	180	108	54	66	PNA	88.0	PNA	66.7	66.7	110
Ammonia as N	mg/L	2	1.24	1.63	2.73	3.43	4.18	1.7	0.31	PNA	2.9	2.8	0.53	3.2	6.1
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1	0.1 U	0.1 U	0.1 U	0.05 U	PNA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.72	1.93	0.5	0.97	0.81	0.6	0.52	PNA	0.23	0.46	0.75	0.48	0.16
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.005 U	0.0111	0.0057	0.0135	PNA	0.005 U	0.0051	0.005 U	0.005 U	0.0144
Tot Dissolved Solids	mg/L	NA	141	105	132	168	157	95	93	PNA	107	136	136	146	157
Tot. Kjeldahl Nitrogen	mg/L	NA	1.84	2.45	2.73	3.41	3.4	1.4	0.93	PNA	3.3	2.7	0.72	3.8	7.6
Tot Organic Carbon	mg/L	NA	1.7	10.5	1.9	2	2.4	1.16	1.2 J	PNA	1.9	1.6	2.2	1.6	2.4
Turbidity	NTU	NA	16.9	40.3	47.2	44.3	5.12	38.9	571	PNA	106	43	5.2	11.7	27.5
Temperature	deg.C	NA	11.17	12.7	11.83	12.5	12.12	12.7	9.48	PNA	12.55	11.94	13.21	12.26	12.63
pH	units	6.5-8.5	6.03	6.04	6.13	5.81	6.3	6.17	5.55	PNA	6.36	6.1	6.39	6.44	6.14
Spec. Cond	umho/cm	NA	263	201	268	342	329	170	200	PNA	261	280	275	314	306

NOTES:

(1) = NYSDEC, Class GA Groundwater Standards

Bold indicates update due to data validation.

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B - Analyte was detected in the associated method blank.

H - Received / analyzed outside of analytical holding time

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R - Data Validation Qualifier - Rejected.

U - Indicates the compound was analyzed for, but not detected.

U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - Data Validation Qualifier - 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.

Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 1
INORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

ANALYTICAL PARAMETERS	UNITS	GW STND (1)	MW-12B																	
			April 2014	October 2014	April 2015	October 2015	April 2016	October 2016	April 2017	October 2017	April 2018	October 2018	April 2019	October 2019
Aluminum as Al	mg/L	NA	0.0402 B	PNA	0.0059 U	PNA	0.2 U	PNA	0.0136 J	PNA	0.0134 U	PNA	0.2 U	PNA
Antimony as Sb	mg/L	0.003 #	0.0019 U	PNA	0.003 U	PNA	0.06 U	PNA	0.06 U	PNA	0.0035 J	PNA	0.06 U	PNA
Arsenic as As	mg/L	0.025	0.0011 U	PNA	0.0033 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0068 U	PNA	0.01 U	PNA
Barium	mg/L	1	0.0694 B	PNA	0.0482 B	PNA	0.0582 J	PNA	0.017 J	PNA	0.0119 J	PNA	0.2 U	PNA
Beryllium as Be	mg/L	0.003	0.00014 U	PNA	0.0001 U	PNA	0.005 U	PNA	0.005 U	PNA	0.0006 U	PNA	0.005 U	PNA
Boron as B	mg/L	1	0.0689 B	PNA	0.0725 B	PNA	0.0863 J	PNA	0.0328 J	PNA	0.0133 J	PNA	0.05 U	PNA
Cadmium as Cd	mg/L	0.005	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0002 J	0.0025 U	0.0025 U	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	mg/L	NA	28.5	30.6	20.2	22.4	34.9	27.4	11.3	19.5	10	9.35	11.7	34.4
Chromium as Cr	mg/L	0.05	0.0017 B	PNA	0.0011 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0016 U	PNA	0.01 U	PNA
Cobalt	mg/L	NA	0.0006 B	PNA	0.0006 U	PNA	0.05 U	PNA	0.05 U	PNA	0.0006 U	PNA	0.05 U	PNA
Copper as Cu	mg/L	0.2	0.0021 B	PNA	0.0026 B	PNA	0.0027 J	PNA	0.025 U	PNA	0.0025 U	PNA	0.025 U	PNA
Cyanide as CN	mg/L	0.2	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0029 U	PNA	0.01 U	PNA
Iron as Fe	mg/L	0.3	0.0922 B	0.177	0.0856 BE	0.0268 U	0.1 U	0.1 U	0.0393 J	0.02 U	0.0109 U	0.0232	0.02 U	0.0499
Lead as Pb	mg/L	0.025	0.0036 B	0.0013 U	0.0022 U	0.0041	0.0033 J	0.005 U	0.005 U	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium	mg/L	35 #	8.86	8.38	5.85	6.32	10.6	8.06	3.92	5.89	4.3	3.7	6.34	14
Manganese as Mn	mg/L	0.3	0.981	1.68	0.934	0.872 E	0.235	0.675	0.0937	0.01 U	0.0086 J	0.01 U	0.01 U	0.0256
Mercury as Hg	mg/L	0.0007	0.0001 U	PNA	0.0001 U	PNA	0.0002 U	PNA	0.0002 U	PNA	0.000056 U	PNA	0.0002 U	PNA
Nickel as Ni	mg/L	0.1	0.0146 B	PNA	0.0105 B	PNA	0.0099 J	PNA	0.0026 J	PNA	0.0018 J	PNA	0.04 U	PNA
Potassium	mg/L	NA	6.37	10.3	4.7 B	9.54	4.93 J	8.27	2.62 J	5.14	1.64 J	5 U	5 U	6.99
Selenium as Se	mg/L	0.01	0.0011 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0063 U	PNA	0.01 U	PNA
Silver as Ag	mg/L	0.05	0.00043 U	PNA	0.0022 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Sodium as Na	mg/L	20	13.5	12.9	11.1	14.3	18.1	15	8.93	12.1	9.23	8.15	10.8	19.9
Thallium as Tl	mg/L	0.0005 #	0.0001 U	PNA	0.0038 U	PNA	0.01 U	PNA	0.01 U	PNA	0.0036 U	PNA	0.01 U	PNA
Vanadium	mg/L	NA	0.0013 B	PNA	0.0007 U	PNA	0.05 U	PNA	0.05 U	PNA	0.00092 J	PNA	0.05 U	PNA
Zinc as Zn	mg/L	2 #	0.0176 B	PNA	0.0083 B	PNA	0.02 U	PNA	0.02 U	PNA	0.0016 J	PNA	0.02 U	PNA
Alkalinity tot CaCo3	mg/L	NA	78.9	103	50.7	65.4 H	92.6	88.2	24.6	56.6	25.2	24.6	45.6	114
Chloride as Cl	mg/L	250	17.5	16.8	16.5	15.3	22	20.5	11.3	15.8	13.4	13.8	16.1	28
Sulfate as SO4	mg/L	250	36	32.5	29	28.5	44.5	39.2	14.0	26.5	9.7	12.1	11.3	49.3
Bromide	mg/L	2 #	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 J	0.5 U	0.03 J	0.5 U	0.5 U	0.5 U
BOD5	mg/L	NA	2 ***UJ***	2 U	2 U	2 U	2 U	2 U	1 J	2 U	2 U	2 U	2 U	2 U
COD	mg/L	NA	10.8	10 U	10 U	10 U	10 U	10 U	8.8 J	10 U	10 U	10 U	10 U	12.4
Color	units	NA	5 U	PNA	10	PNA	5 U	PNA	10	PNA	5 U	PNA	5	PNA
Chromium hex as Cr	mg/L	0.05	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.02 U	PNA	0.003 U	PNA	0.02 U	PNA
Hardness as CaC03	mg/L	NA	100	200	110	85	121	92	45	60	PNA	34	44	127
Ammonia as N	mg/L	2	1	3.16	1.47	2.19	0.3	4.8	0.063 J	1.1	0.068 J	0.1 U	0.1 U	1.8
Nitrite as N	mg/L	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrate as N	mg/L	10	0.89	0.8	2.09	1.0	0.27	0.06	1.2	1.2	0.75	1.3	0.97	0.41
Phenols as Phenol	mg/L	0.001	0.005 U	0.005 U	0.005 U	0.005 U	0.0067	0.0099	0.0375	0.006	0.006	0.005 U	0.005 U	0.0109
Tot Dissolved Solids	mg/L	NA	173	161	142	142	189	157	86	150	85	70	84	238
Tot. Kjeldahl Nitrogen	mg/L	NA	1.46	3.24	2.32	2.1	0.26	2.1	0.1 U	1.5	0.1 U	0.1 U	0.33	2.9
Tot Organic Carbon	mg/L	NA	1.7	26.8	1.3	1.48	2.8	2.04	0.54 J	1.4	0.23 U	1 U	1 U	3
Turbidity	NTU	NA	0.4	1.4	0	0.13	0	0	0	13.8	0.2	8	0.2	0.0
Temperature	deg.C	NA	10.9	12.16	11.54	12.17	12	12.4	12.87	12.05	11.83	12.85	11.84	12.57
pH	units	6.5-8.5	6.24	6.2	6.27	5.64	6.24	6.04	5.76	5.81	6.00	5.76	6.26	6.26
Spec. Cond	umho/cm	NA	312	381	264	280	370	332	129	261	140	25	180	30

NOTES:

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TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL
TABLE 2
ORGANIC GROUNDWATER QUALITY RESULTS
OCTOBER 2019

Parameters	Units	GW Standard (1)	MW-11A		MW-11B	
1,1,1,2-Tetrachloroethane	mg/L	0.005	0.0050	U	0.0050	U
1,1,1-Trichloroethane	mg/L	0.005	0.0050	U	0.0050	U
1,1,2,2-Tetrachloroethane	mg/L	0.005	0.0050	U	0.0050	U
1,1,2-Trichloroethane	mg/L	0.001	0.0050	U	0.0050	U
1,1-Dichloroethane	mg/L	0.005	0.0050	U	0.0050	U
1,1-Dichloroethene	mg/L	0.005	0.0050	U	0.0050	U
1,2-Dibromo-3-chloropropane	mg/L	0.0004	0.0050	U	0.0050	U
1,2-Dibromoethane	mg/L	NA	0.0050	U	0.0050	U
1,2-Dichlorobenzene	mg/L	0.003	0.0050	U	0.0050	U
1,2-Dichloroethane	mg/L	0.005	0.0050	U	0.0050	U
1,2-Dichloropropane	mg/L	0.001	0.0050	U	0.0050	U
1,4-Dichlorobenzene	mg/L	0.003	0.0050	U	0.0050	U
2-Butanone	mg/L	0.005	0.0050	U	0.0050	***UJ***
2-Hexanone	mg/L	NA	0.0050	U	0.0050	***UJ***
4-Methyl-2-pentanone	mg/L	0.005	0.0050	U	0.0050	U
Acetone	mg/L	NA	0.0050	U	0.0050	U
Acrylonitrile	mg/L	0.005	0.0050	U	0.0050	***UJ***
Benzene	mg/L	0.001	0.0050	U	0.0050	U
Bromochloromethane	mg/L	0.005	0.0050	U	0.0050	U
Bromodichloromethane	mg/L	NA	0.0050	U	0.0050	U
Bromoform	mg/L	NA	0.0050	U	0.0050	U
Bromomethane	mg/L	0.005	0.0050	U	0.0050	***UJ***
Carbon disulfide	mg/L	NA	0.0050	U	0.0050	U
Carbon tetrachloride	mg/L	0.005	0.0050	U	0.0050	U
Chlorobenzene	mg/L	0.005	0.0050	U	0.0050	U
Chloroethane	mg/L	0.005	0.0050	U	0.0050	U
Chloroform	mg/L	0.007	0.0050	U	0.0050	U
Chloromethane	mg/L	NA	0.0050	U	0.0050	U
cis-1,2-Dichloroethene	mg/L	0.005	0.0050	U	0.0050	U
cis-1,3-Dichloropropene	mg/L	0.0004	0.0050	U	0.0050	U
Dibromochloromethane	mg/L	0.005	0.0050	U	0.0050	U
Dibromomethane	mg/L	0.005	0.0050	U	0.0050	U
Ethylbenzene	mg/L	0.005	0.0050	U	0.0050	U
Iodomethane	mg/L	NA	0.0050	U	0.0050	***R***
Methylene chloride	mg/L	0.005	0.0050	U	0.0050	U
Styrene	mg/L	0.005	0.0050	U	0.0050	U
Tetrachloroethene	mg/L	0.005	0.0050	U	0.0050	U
Toluene	mg/L	0.005	0.0050	U	0.0554	
trans-1,2-Dichloroethene	mg/L	0.005	0.0050	U	0.0050	U
trans-1,3-Dichloropropene	mg/L	0.0004	0.0050	U	0.0050	U
trans-1,4-Dichloro-2-butene	mg/L	0.005	0.0050	U	0.0050	U
Trichloroethene	mg/L	0.005	0.0050	U	0.0050	U
Trichlorofluoromethane	mg/L	0.005	0.0050	U	0.0050	U
Vinyl acetate	mg/L	0.005	0.0050	U	0.0050	U
Vinyl chloride	mg/L	0.002	0.0050	U	0.0050	***UJ***
Xylene (total)	mg/L	0.005	0.0050	U	0.0050	U

NOTES:

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TOWN OF SOUTHAMPTON

NORTH SEA LANDFILL

TABLE 3

LEACHATE QUALITY RESULTS

October 2019

Analytical Parameter	Leachate Collection (Primary)											
Units mg/L	**April 2014**	**October 2014**	**April 2015**	**October 2015**	**April 2016**	**October 2016**	**April 2017**	**October 2017**	**April 2018**	**October 2018**	**April 2019**	**October 2019**
Arsenic as As	0.00011 U	0.134 B	0.0033 U	0.0022 U	0.01 U	0.0144	0.01 U	0.01 U	0.0068 U	0.01 U	0.01 U	0.01 U
Cadmium as Cd	0.00011 U	0.252	0.0002 U	0.0001 U	0.0009 J	0.0025 U	0.00021 J	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	52.6	374	54.1	73.8	51	106	60.2	84.8	38.0	59.3	78.8	107
Iron as Fe	13.8	6,260	13 E	171	12.8	45.1	29.9	47.9	11.3	17.0	34.6	1.0
Lead as Pb	0.0019 U	1.3 U	0.0022 U	0.0194	0.0019 J	0.005 U	0.0014 J	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium as Mg	10.2	41.5 B	11.3	14.1	10.6	36.3	8.93	27	5.37	13.3	12.0	19.6
Manganese as Mn	1.26	23.2	2.27	3.15 E	1.82	2.23	2.2	2.03	0.966	1.78	2.28	0.85
Potassium as K	29.8	152	34.2	45.2	34.1	180	18	134	7.22	48.0	33.1	87.2
Sodium as Na	58.6	397	81	104	77.7	472	37.9	352	9.39	122	76	225
Alkalinity total CaCO3	380	1,740	409	490 H	428	1,250	231	995	110	583	512	793
BOD5	13	127	2 U	15	11	23.1	5	20.9	4.0 U	28.6 U	13.3 U	8.9
COD	33	522	68	180	66.2	510	60.9	425	15.5	136	74.2	231
Chloride as Cl	78.4	495	90	92.1	78	609	42.5	446	11	170	99.1	332
Hardness as CaCO3	310	1,800	240	250	160	410	204	200	116	180	200	320
Ammonia as N	60.7	315	69.2	82.1	67.7	394	9.5	280	3	86.2	57.9	83.7
Nitrite as N	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.16	0.05 U	0.056	0.067	0.05 U	0.05 U	1.4
Nitrate as N	0.38	0.1 U	0.59	0.47	0.97	12.3	0.036 J	0.22	1	0.19	0.074	12
Bromide	0.5 U	2.44	0.5 U	0.5 U	0.5 U	3	0.18 J	1.8	0.034 J	0.91	0.05 U	1.7
Total Recoverable Phenolics	0.0055	0.0076	0.0101	0.0151	0.0167	0.0183	0.0282	0.0213	0.0137	0.0110	0.0064	0.0148
Sulfate as SO4	12.8	44.3	11.1	11.6	12.3	45.6	52.2	24.2	3.7 J	8.1	5 U	44.7
Total Dissolved Solids	400	1,770	424	542	396	1,970	363	1,610	191	658	440	648
Total Organic Carbon	37.3	530 ***J***	23.9	36.9	22.3	146	12.2	130	8.6	44.5	22	69
Total Kjeldahl Nitorgen	60.5	340	63.9	75.7	54.1	323	23.6	305	3.8	99.8	54.3	127
Turbidity NTU	50.5	>1,000	14.4	186	152	>50	88.5	130	85.6	92.0	>50	>50

Analytical Parameter	Leachate Detection (Secondary)											
Units mg/L	**April 2014**	**October 2014**	**April 2015**	**October 2015**	**April 2016**	**October 2016**	**April 2017**	**October 2017**	**April 2018**	**October 2018**	**April 2019**	**October 2019**
Arsenic as As	0.0013 B	0.0009 U	0.0034 B	0.0022 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0068 U	0.01 U	0.01 U	0.01 U
Cadmium as Cd	0.00011 U	0.0003 U	0.0002 U	0.0001 U	0.0025 U	0.0025 U	0.00022 J	0.0025 U	0.00006 U	0.0025 U	0.0025 U	0.0025 U
Calcium as Ca	63.6	98.9	56.2	92	57.3	118	73	70.6	53.1	76.8	76.1	84.4
Iron as Fe	2.32	0.351	0.424 E	1.53	0.829	1.3	32.4	0.407	1.17	1.62	2.88	2.0
Lead as Pb	0.0104	0.0013 U	0.0058	0.0443	0.0025 J	0.005 U	0.0015 J	0.005 U	0.0013 U	0.005 U	0.005 U	0.005 U
Magnesium as Mg	9	11.7	9.94	15	10.1	29.2	12.6	9.66	5.64	11.60	12.00	13.9
Manganese as Mn	1.22	0.261	0.322	0.588 E	0.164	0.765	8.16	1.82	2.75	1.07	3.33	0.23
Potassium as K	22	29.6	35.6	48.8	33.8	151	31.9	30.2	9.81	34.40	31.70	48.2
Sodium as Na	14.6	33.2	87.1	90.2	76.3	380	62.2	47.4	17.4	77.8	70.1	75
Alkalinity total CaCO3	164	259	199	389 H	209	930	381	427	195	460	483	368
BOD5	7 S	22	44	12	8	14.7	11.6	5.2	4 U	71.2	7.4	9.0
COD	97.2	94.7	61.7	93.5	48.4	281	117	54.2	13.4	84.9	78.6	125
Chloride as Cl	33.4	57.9	98.8	94.2	73.8	350	71.7	45.9	22.2	90	87	113
Hardness as CaCO3	200	750	220	400	172	420	320	230	150	230	180	240
Ammonia as N	0.8	15.9	42	28.2	14.6	94.1	16.0	20.7	8.8	43.0	51.0	32.3
Nitrite as N	0.1	0.14	0.63	0.22	1.27	0.05 U	0.0058 J	0.064	0.05 U	0.05 U	0.05 U	0.81
Nitrate as N	0.58	3.97	9.18	4.55	13.3	0.05 U	0.066	5.3	0.36	2.8	0.29	8.2
Bromide	0.5 U	0.5 U	0.5 U	0.56	0.5 U	2.3	0.32 J	0.5 U	0.1 J	0.57	0.5 U	0.5 U
Total Recoverable Phenolics	0.0087	0.0066	0.0085	0.0115	0.0050 U	0.0308	0.0135	0.0083	6	0.0115	0.0151	0.0050 U
Sulfate as SO4	16.8	26.1	14.7	30.4	11.5	34.3	6.4	8.2	6.3	19.8	6.9	58.7
Total Dissolved Solids	299	474	476	627	442	1,510	472	431	237	554	472	634
Total Organic Carbon	47.6	36.3	28,5	33.5	23.2	79.6	30.0	19.5	6	29.3	24.2	41.9
Total Kjeldahl Nitorgen	3.3	17.9	42.5	26.7	14.1	95.6	40.6	27.2	8	58	55.7	43.5
Turbidity NTU	34.4	6.4	0.0	43.5	237	>50	28.6	8.94	NM	6.0	0.0	0.0

NOTES:

Bold indicates update due to data validation.

B - Analyte was detected in the associated method blank.

H - Received / analyzed outside of analytical holding time

E - Serial dilution is not within acceptance criteria or the reported value is estimated because of the presence of interference.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

J - Data Validation Qualifier - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U - Indicates the compound was analyzed for, but not detected.

U -Data Validation Qualifier - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - Data Validation Qualifier - 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.

Highlighted text denotes concentrations exceeding the NYSDEC, Class GA Groundwater Quality Standard or Guidance Value

TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL

TABLE 4

GROUNDWATER ELEVATIONS
OCTOBER 2019

Monitoring Well Number	* Casing Elevation	April 2014		October 2014		April 2015		October 2015		April 2016		October 2016		April 2017		October 2017		April 2018		October 2018		April 2019		October 2019	
		DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE
MW-1A	113.87	104.58	9.29	105.50	8.37	104.10	9.77	105.12	8.75	104.79	9.08	105.28	8.59	105.42	8.45	105.28	8.59	104.37	9.50	104.72	9.15	102.40	11.47	103.10	10.77
MW-1B	115.09	105.78	9.31	106.50	8.59	105.32	9.77	106.10	8.99	106.02	9.07	106.70	8.39	106.60	8.49	106.50	8.59	105.70	9.39	108.80	6.29	103.57	11.52	104.30	10.79
MW-1C	114.99	106.36	8.63	106.91	8.08	105.92	9.07	107.00	7.99	106.56	8.43	107.43	7.56	106.95	8.04	106.28	8.71	106.10	8.89	106.88	8.11	104.45	10.54	105.60	9.39
MW-2	74.8	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
MW-3A	55.3	47.51	7.79	48.67	6.63	49.20	6.10	48.49	6.81	47.96	7.34	48.93	6.37	47.99	7.31	48.88	6.42	47.50	7.80	48.43	6.87	46.56	8.74	47.35	7.95
MW-3B	51.9	44.25	7.65	45.15	6.75	44.23	7.67	45.20	6.70	44.68	7.22	46.02	5.88	45.03	6.87	45.47	6.43	44.20	7.70	44.96	6.94	45.24	6.66	44.00	7.90
MW-3C	51.4	NM	--	44.88	6.52	43.98	7.42	44.85	6.55	44.24	7.16	45.17	6.23	44.46	6.94	45.07	6.33	43.78	7.62	44.40	7.00	44.98	6.42	44.80	6.60
MW-4A	16	13.31	2.69	13.34	2.66	13.81	2.19	13.28	2.72	13.74	2.26	13.75	2.25	13.04	2.96	13.99	2.01	13.40	2.60	12.75	3.25	13.58	2.42	13.30	2.70
MW-4B	16.1	13.45	2.65	13.57	2.53	14.00	2.10	13.57	2.53	13.36	2.74	14.09	2.01	13.40	2.70	14.15	1.95	13.60	2.50	12.74	3.36	13.49	2.61	13.54	2.56
MW-4C	16	9.31	6.69	9.73	6.27	9.29	6.71	9.90	6.10	9.89	6.11	10.24	5.76	9.68	6.32	10.31	5.69	9.80	6.20	9.51	6.49	8.57	7.43	9.12	6.88
MW-5A	74.27	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
MW-5B	75.25	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
MW-5C	74.33	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
MW-6A	NS	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
MW-6AR	100.72	89.89	10.83	92.37	8.35	91.65	9.07	93.81	6.91	92.16	8.56	92.26	8.46	92.61	8.11	92.89	7.83	91.81	8.91	93.71	7.01	88.85	11.87	90.70	10.02
MW-6B	103.46	94.29	9.17	94.52	8.94	93.93	9.53	94.79	8.67	93.72	9.74	95.80	7.66	94.99	8.47	95.20	8.26	94.12	9.34	94.46	9.00	92.19	11.27	93.20	10.26
MW-7A	92.83	83.89	8.94	84.25	8.58	83.99	8.84	83.92	8.91	83.63	9.20	84.40	8.43	84.88	7.95	84.98	7.85	83.15	9.68	83.55	9.28	81.50	11.33	82.43	10.40
MW-7B	92.72	83.83	8.89	85.14	7.58	83.40	9.32	84.21	8.51	83.76	8.96	84.91	7.81	84.45	8.27	84.67	8.05	83.54	9.18	83.70	9.02	81.68	11.04	82.50	10.22
MW-7C	93.31	83.61	9.70	84.96	8.35	85.01	8.30	86.00	7.31	85.13	8.18	88.33	4.98	85.64	7.67	86.20	7.11	84.69	8.62	84.08	9.23	83.51	9.80	83.81	9.50
MW-8	86.02	76.88	9.14	78.00	8.02	76.98	9.04	77.38	8.64	77.18	8.84	77.99	8.03	77.71	8.31	77.76	8.26	76.75	9.27	77.13	8.89	74.97	11.05	76.80	9.22
MW-9	82.56	73.79	8.77	74.96	7.60	74.10	8.46	74.41	8.15	74.04	8.52	74.89	7.67	74.58	7.98	74.73	7.83	73.60	8.96	74.10	8.46	72.00	10.56	73.90	8.66
MW-11A	80.78	72.75	8.03	73.41	7.37	72.77	8.01	73.84	6.94	73.50	7.28	73.38	7.40	73.68	7.10	73.69	7.09	73.40	7.38	74.00	6.78	71.19	9.59	71.40	9.38
MW-11B	78.32	73.51	4.81	74.12	4.20	73.27	5.05	74.25	4.07	73.84	4.48	74.84	3.48	74.35	3.97	74.56	3.76	73.38	4.94	74.10	4.22	66.88	11.44	68.80	9.52
MW-12A	87.95	79.73	8.22	80.58	7.37	80.66	7.29	80.54	7.41	80.21	7.74	81.12	6.83	80.60	7.35	81.88	6.07	79.66	8.29	80.40	7.55	78.57	9.38	79.20	8.75
MW-12B	88.28	80.34	7.94	81.17	7.11	80.22	8.06	81.14	7.14	80.81	7.47	81.64	6.64	81.21	7.07	81.47	6.81	80.20	8.08	80.12	8.16	79.36	8.92	78.00	10.28

NOTES:
* = SURVEYED TO MEAN SEA LEVEL
GWE = GROUNDWATER ELEVATION
DTW = DEPTH TO WATER
NM = NOT MONITORED
NS = NOT SURVEYED

FIGURES

P.W. GROSSER CONSULTING, INC.
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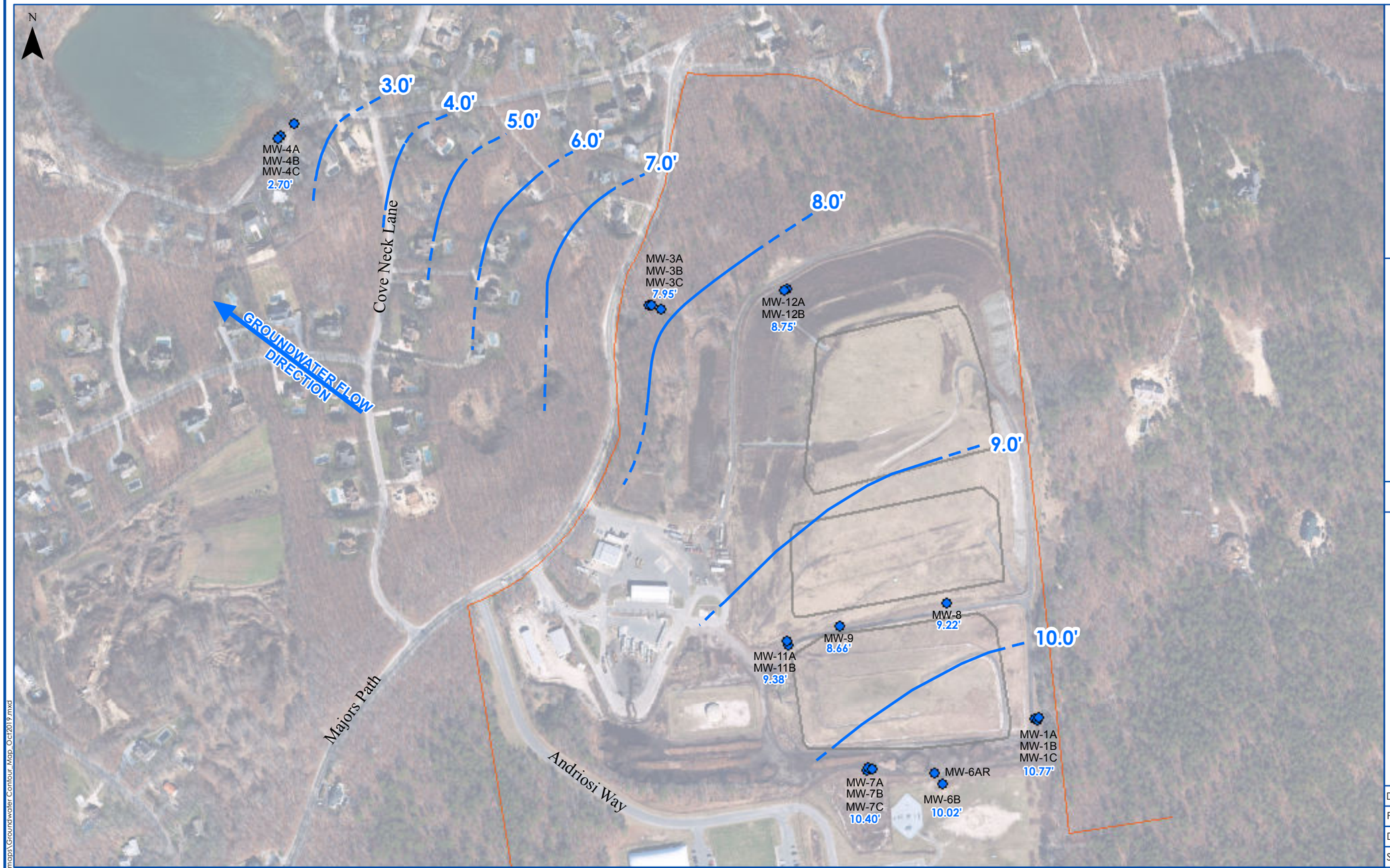

Cells
Landfill Boundary
Groundwater Monitoring Well

Groundwater Contour

Actual
Inferred

SITE PLAN - OCTOBER 2019

NORTH SEA LANDFILL
SOUTHAMPTON, NY

0 500 1,000 1,500 2,000 Feet

PWGC
CLIENT DRIVEN SOLUTIONS

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pwgc.info@pwgrosser.com

TOWN OF SOUTHAMPTON
1370 MAJORS PATH
SOUTHAMPTON, NY 11968
OCTOBER 2019

DRAWING INFORMATION:

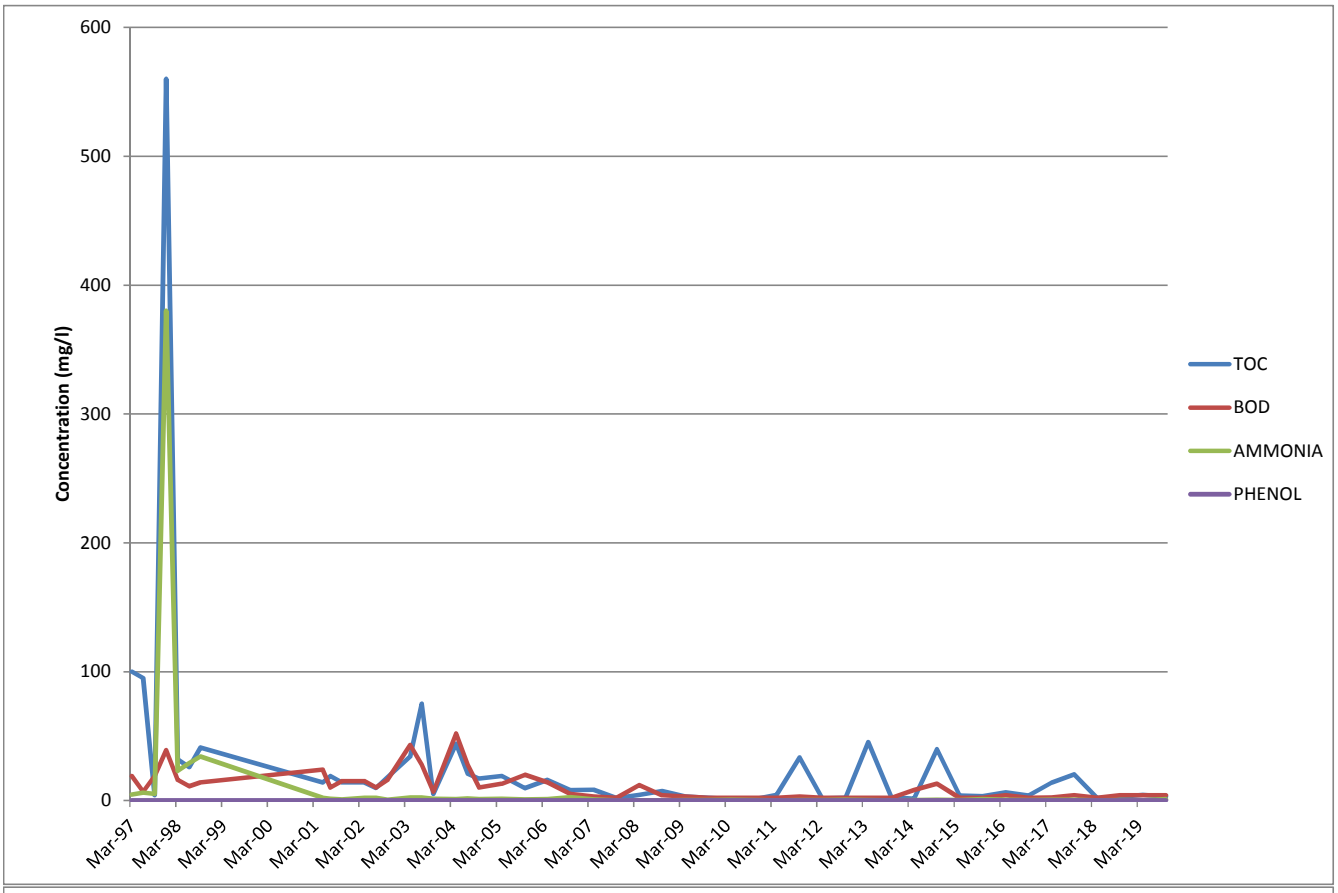
Project:	SHP1901	Designed by:	AJL
Date:	12/12/2019	Drawn by:	TS
Scale:	AS SHOWN	Approved by:	DE

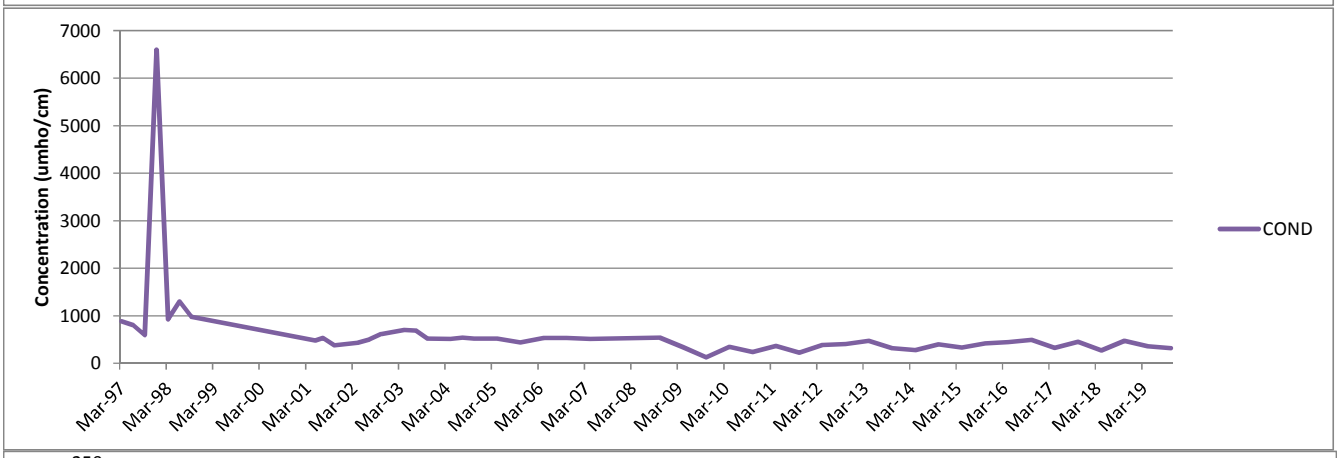
FIGURE NO:

1

Document Path: W:\Projects\S-Z\SHP\1901\mxds\Groundwater Contour_Map_Oct2019.mxd

Figure 2
Monitoring Well 11A
(1997 - 2019)





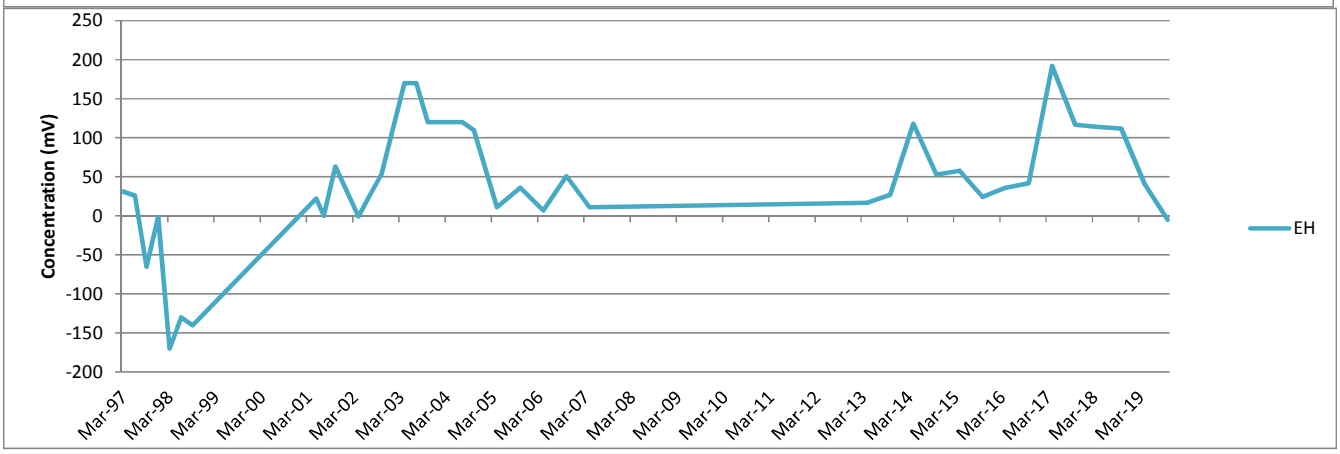


Figure 3
Monitoring Well 11B
(1997 - 2019)

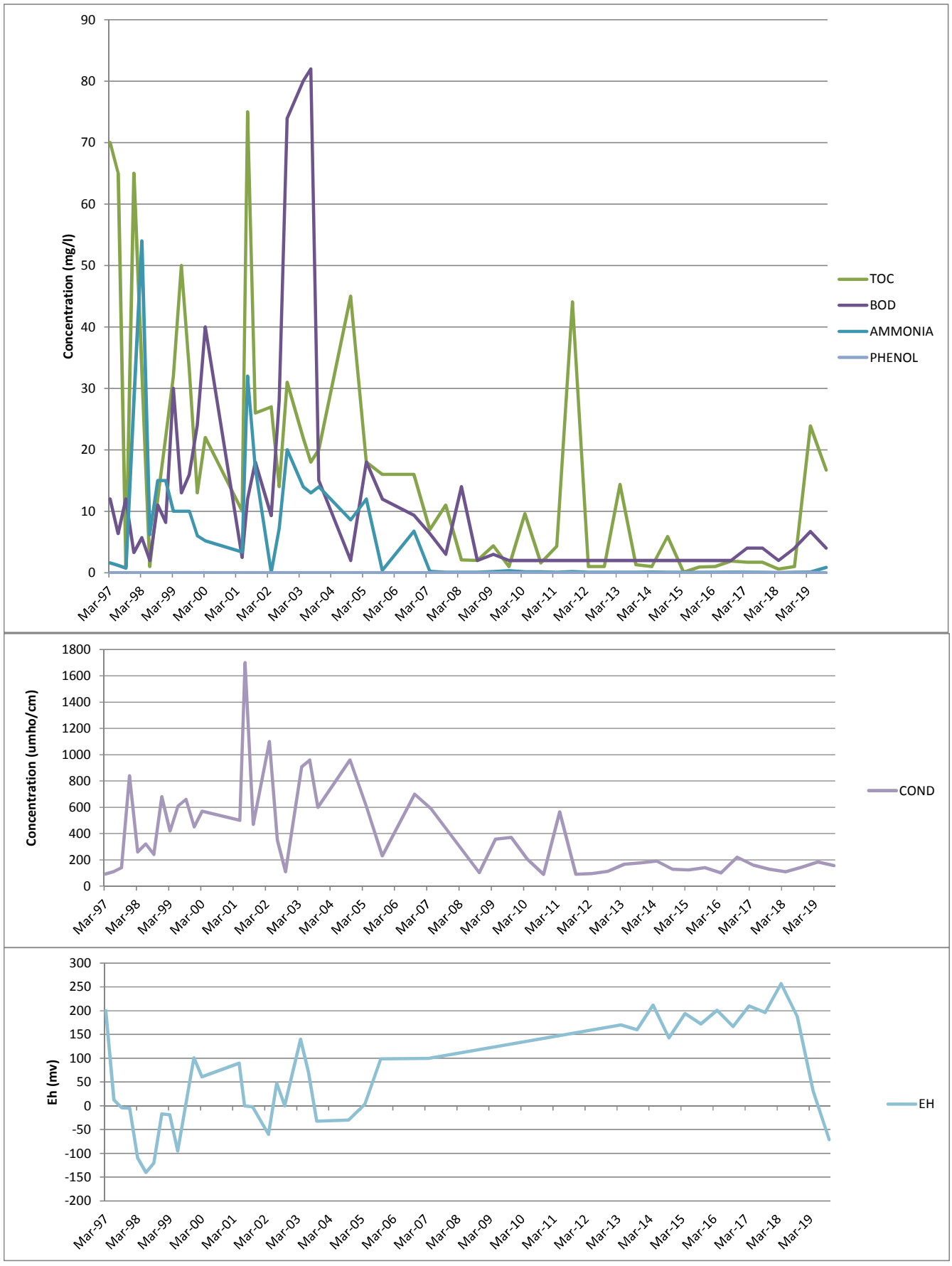


Figure 4
Monitoring Well Cluster 4
Ammonia Trends
(1993 - 2019)

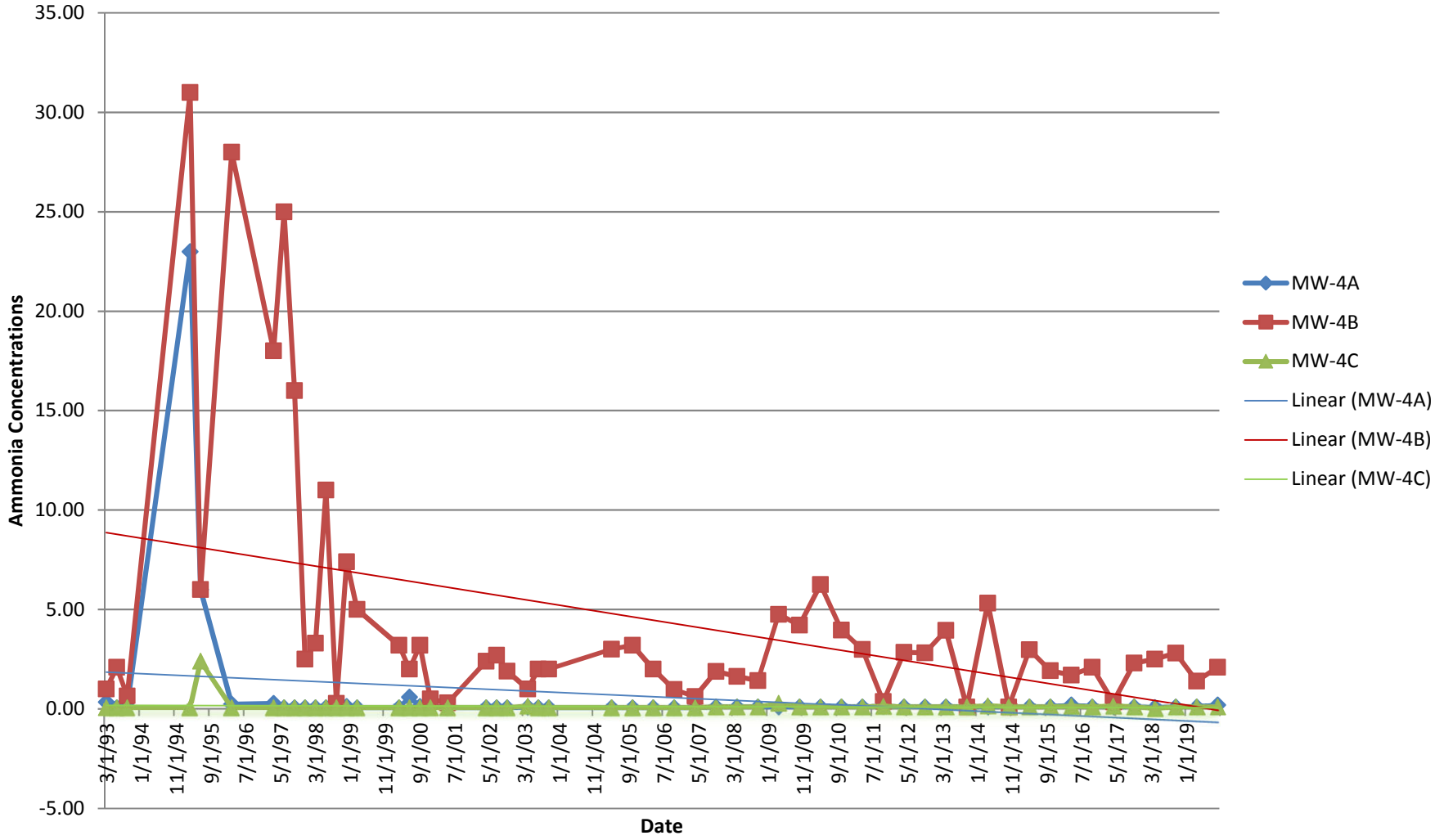


Figure 5
Monitoring Well Cluster 4
Chloride Trends
(1995 - 2019)

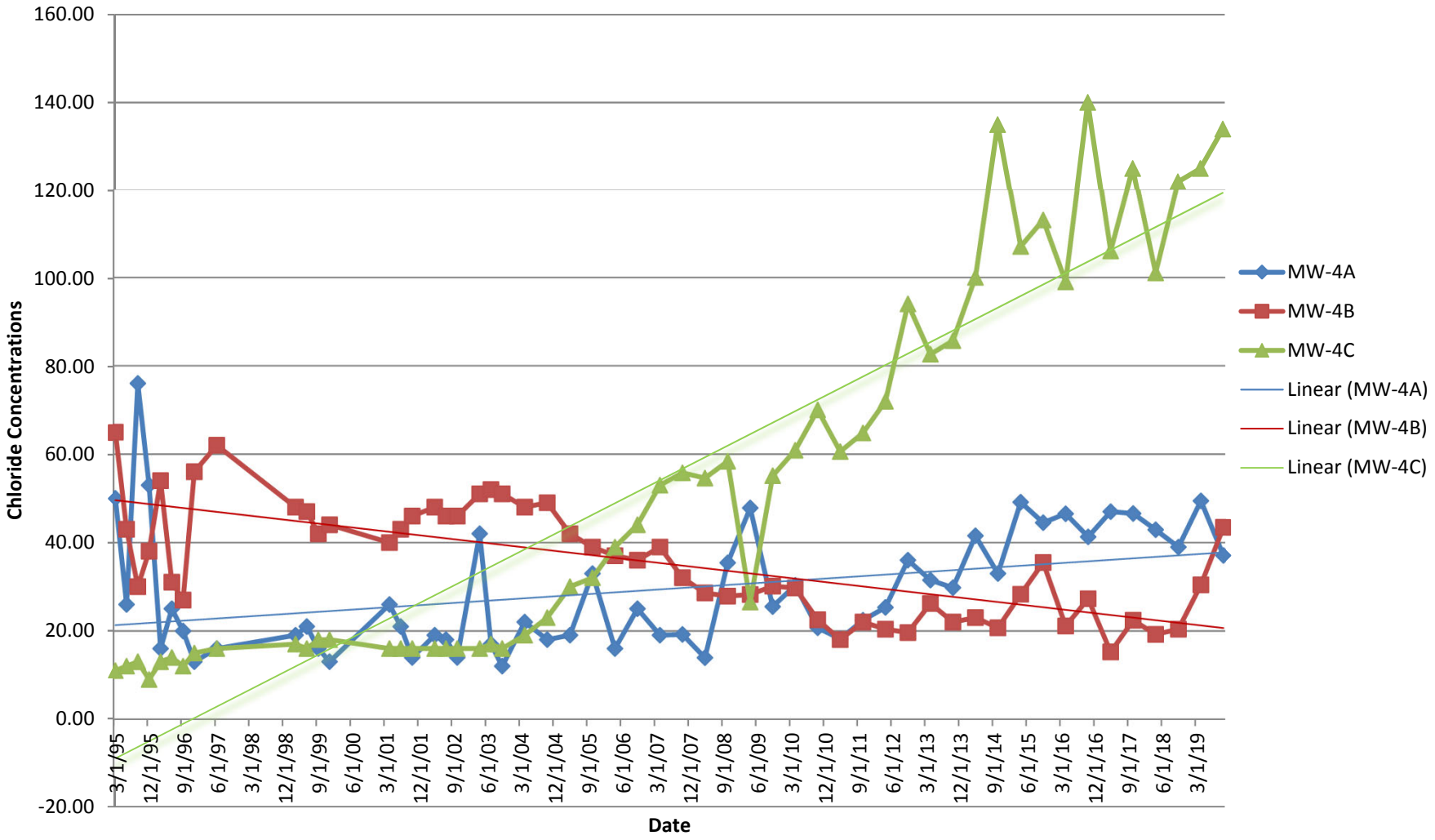


Figure 6
Monitoring Well Cluster 4
Conductivity Trends
(1995 - 2019)

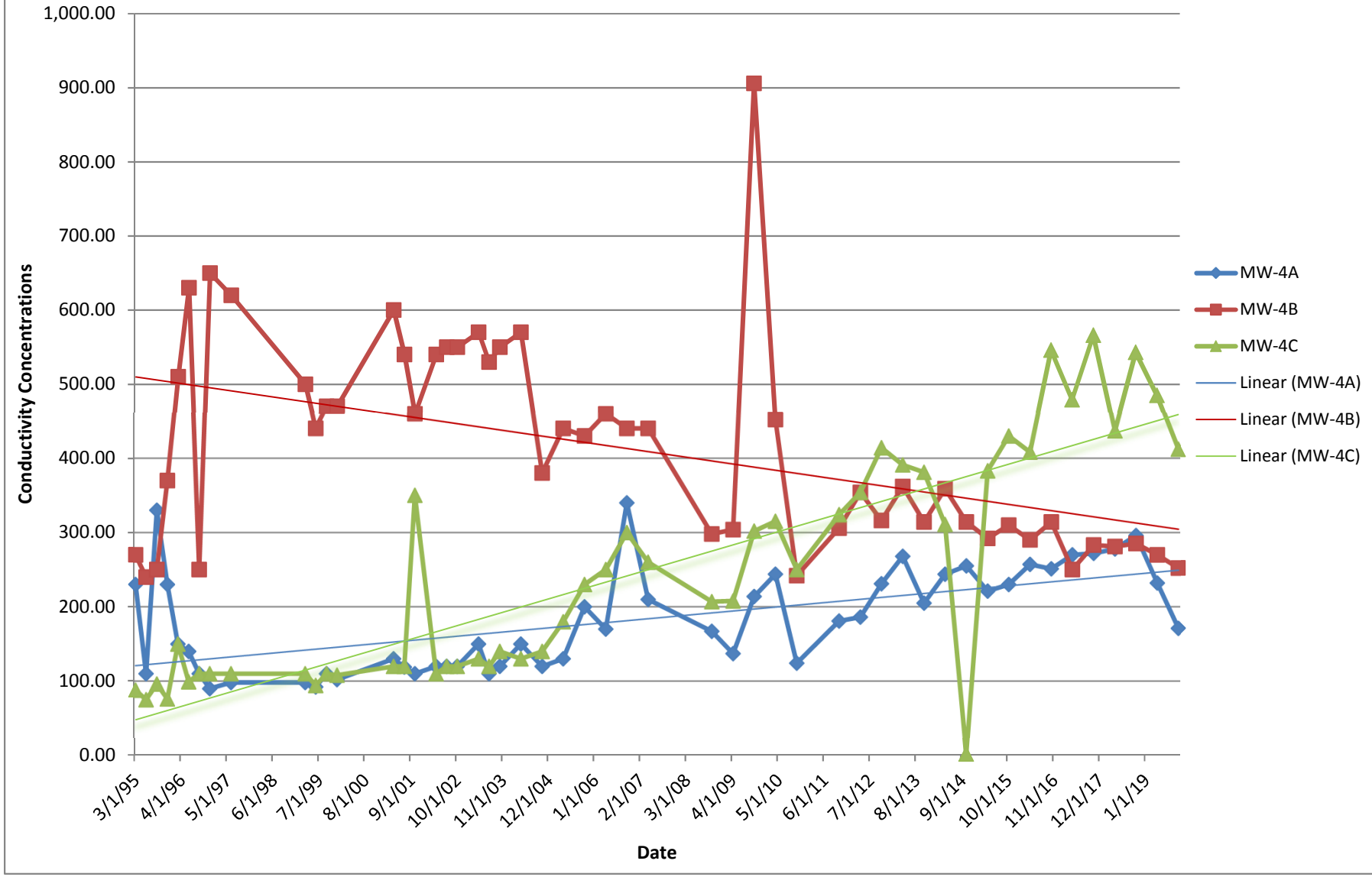


Figure 7
Monitoring Well Cluster 4
Iron Trends
(1993 - 2019)

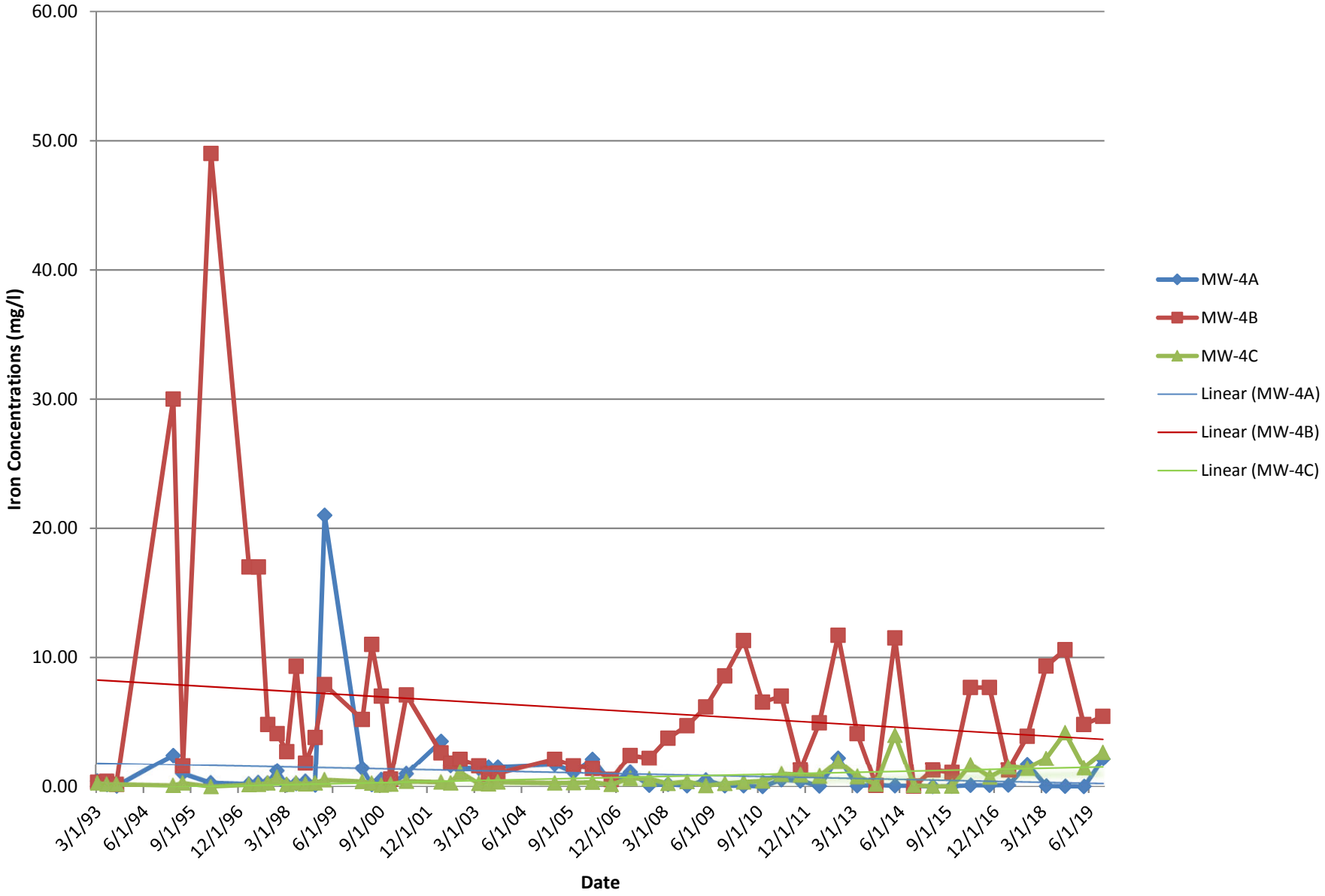


Figure 8
Monitoring Well Cluster 4
Manganese Trends
(1995 - 2019)

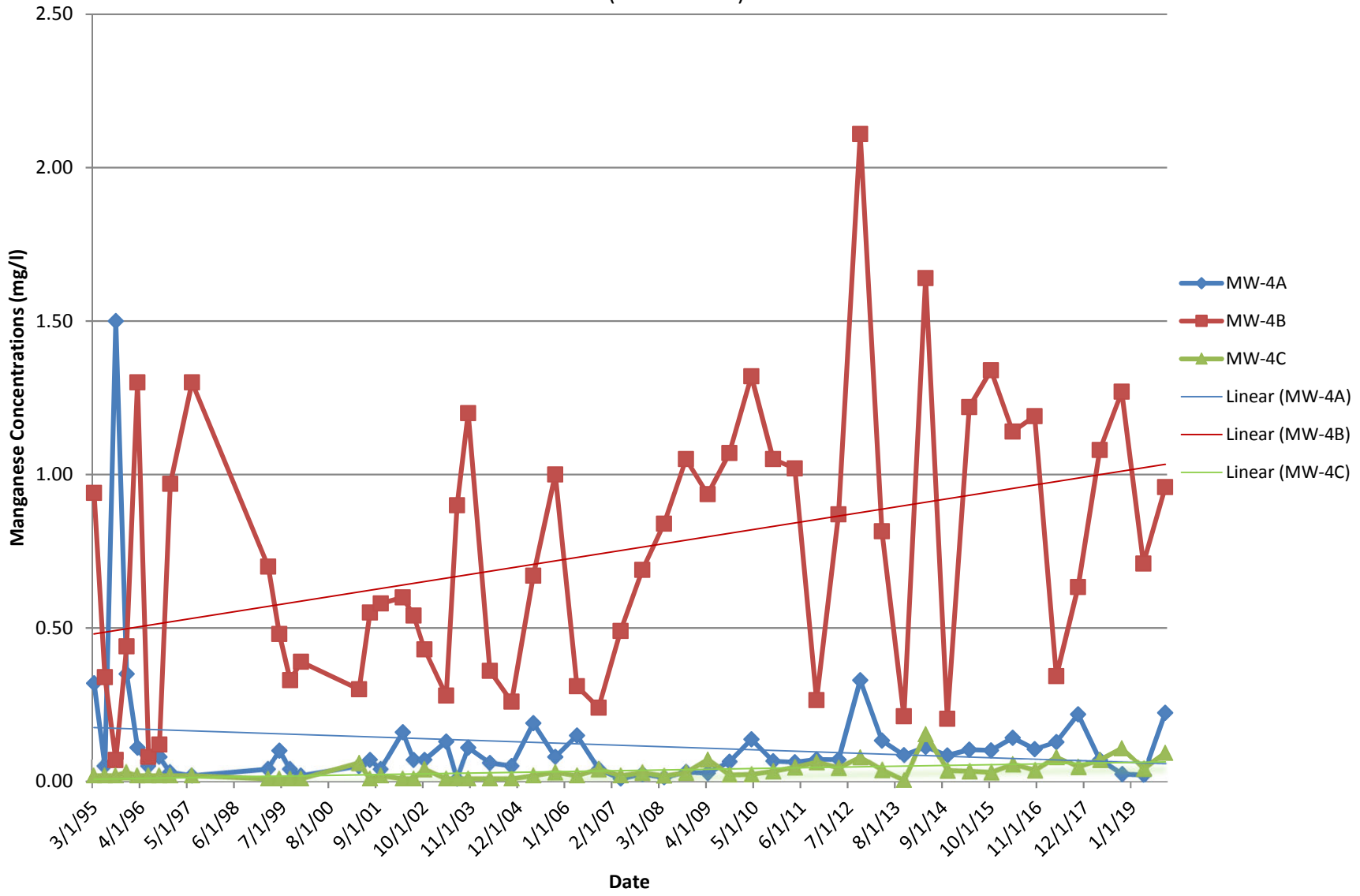


Figure 9
Monitoring Well Cluster 4
Nitrate Trends
(1993 - 2019)

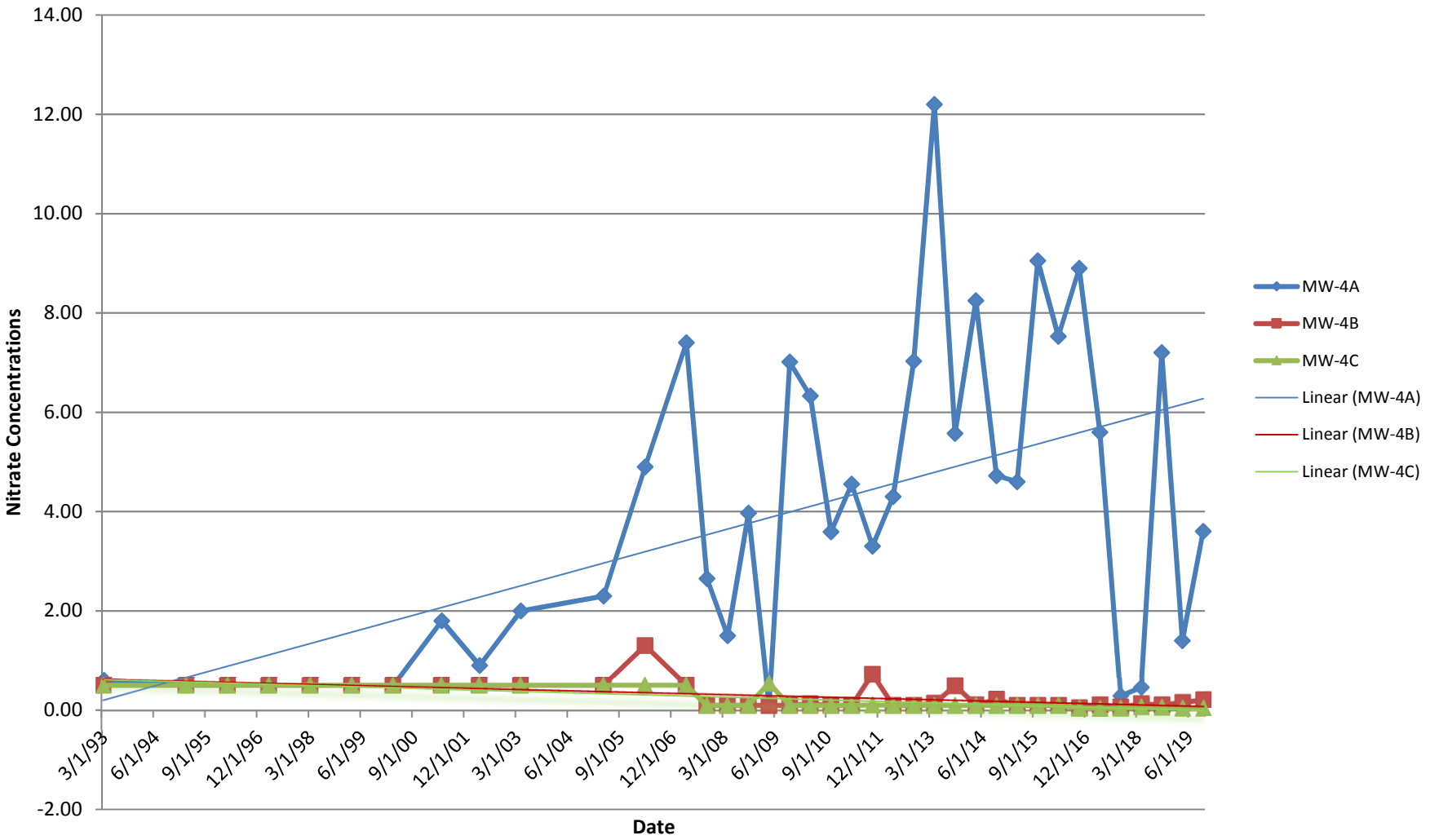
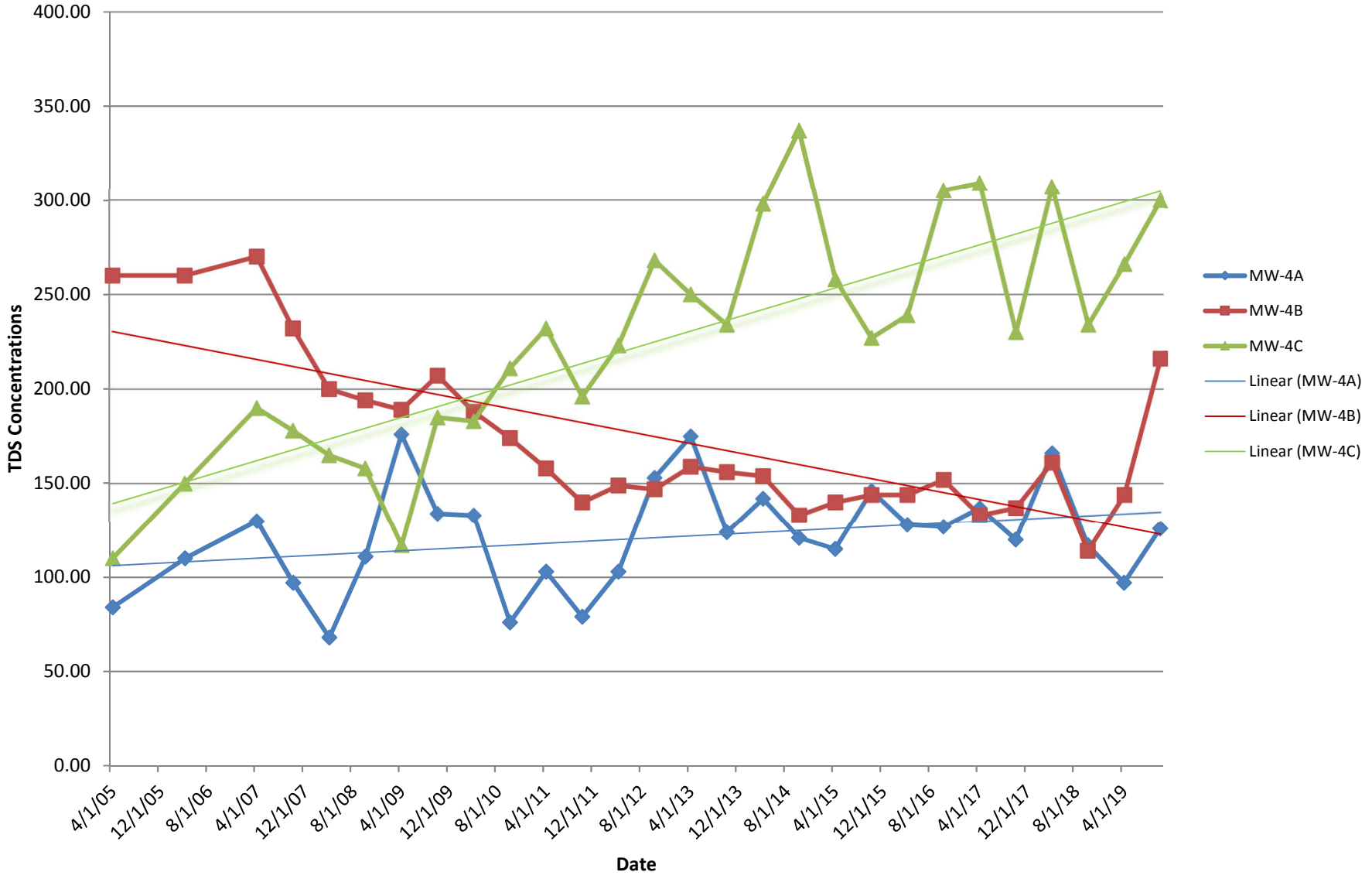


Figure 10
Monitoring Well Cluster 4
Total Dissolved Solids Trends
(2005 - 2019)



APPENDIX A
LABORATORY ANALYTICAL REPORTS/DATA VALIDATION & USABILITY REPORT

P.W. GROSSER CONSULTING, INC.
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Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

November 06, 2019

Christine Fetten
Town of Southampton
116 Hampton Road
Waste Management Division
Southampton, NY 11968

RE: Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Dear Christine Fetten:
Enclosed are the analytical results for sample(s) received by the laboratory between October 22, 2019 and October 23, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Jennifer Aracri
jennifer.aracri@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Kaitlyn Crosby, P.W. Grosser Engineer & Hydrogeologist
Derek Ersbak, P.W. Grosser Consulting
Amanda Lauth, PW Grosser

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

CERTIFICATIONS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Long Island Certification IDs

575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 6010C**
Description: 6010 MET ICP
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 6010C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 135967

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 650717)
  - Aluminum
  - Iron
  - Silver

QC Batch: 136635

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109826001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 653733)
  - Calcium
  - Iron

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 6010C**
Description: 6010 MET ICP, Dissolved
Client: Town of Southampton
Date: November 06, 2019

General Information:
2 samples were analyzed for EPA 6010C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 136159

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 651776)
  - Antimony, Dissolved
  - Silver, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 7470A**
Description: 7470 Mercury
Client: Town of Southampton
Date: November 06, 2019

General Information:
4 samples were analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 7470A**
Description: 7470 Mercury, Dissolved
Client: Town of Southampton
Date: November 06, 2019

General Information:
1 sample was analyzed for EPA 7470A. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 8260C/5030C**
Description: 8260C Volatile Organics
Client: Town of Southampton
Date: November 06, 2019

General Information:
4 samples were analyzed for EPA 8260C/5030C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

QC Batch: 135589

IC: The initial calibration for this compound was outside of method control limits. The result is estimated.

- 11A (Lab ID: 70109260005)
  - Acetone
- 11B (Lab ID: 70109260006)
  - Acetone
- BLANK (Lab ID: 648736)
  - Acetone
- DUP (Lab ID: 649102)
  - Acetone
- LCS (Lab ID: 648737)
  - Acetone
- STORAGE BLANK (Lab ID: 70109260013)
  - Acetone
- TRIP BLANK (Lab ID: 70109260012)
  - Acetone

IL: This analyte exceeded secondary source verification criteria low for the initial calibration. The reported results should be considered an estimated value.

- 11A (Lab ID: 70109260005)
  - 2-Butanone (MEK)
- 11B (Lab ID: 70109260006)
  - 2-Butanone (MEK)
- BLANK (Lab ID: 648736)
  - 2-Butanone (MEK)
- DUP (Lab ID: 649102)
  - 2-Butanone (MEK)
- LCS (Lab ID: 648737)
  - 2-Butanone (MEK)
- STORAGE BLANK (Lab ID: 70109260013)
  - 2-Butanone (MEK)
- TRIP BLANK (Lab ID: 70109260012)
  - 2-Butanone (MEK)

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 8260C/5030C**
Description: 8260C Volatile Organics
Client: Town of Southampton
Date: November 06, 2019

QC Batch: 135589

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 648737)
  - Acetone
  - Bromomethane
  - Iodomethane

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- 11A (Lab ID: 70109260005)
  - 2-Butanone (MEK)
- 11B (Lab ID: 70109260006)
  - 2-Butanone (MEK)
- BLANK (Lab ID: 648736)
  - 2-Butanone (MEK)
- DUP (Lab ID: 649102)
  - 2-Butanone (MEK)
- STORAGE BLANK (Lab ID: 70109260013)
  - 2-Butanone (MEK)
- TRIP BLANK (Lab ID: 70109260012)
  - 2-Butanone (MEK)

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 135589

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 648737)
  - Iodomethane

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 8260**
Description: TIC MSV Water
Client: Town of Southampton
Date: November 06, 2019

General Information:
4 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 2320B**
Description: 2320B Alkalinity
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 2320B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 2340C**
Description: 2340C Hardness, Total
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 2340C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 2540C**
Description: 2540C Total Dissolved Solids
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 135871

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 650338)
  - Total Dissolved Solids

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 410.4**
Description: 410.4 COD
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 5210B**
Description: 5210B BOD, 5 day
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 5210B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with SM22 5210B with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 351.2**
Description: 351.2 Total Kjeldahl Nitrogen
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 351.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 351.2 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 137115

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109807002,70110012001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 656261)
  - Nitrogen, Kjeldahl, Total

QC Batch: 137116

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260008,70109385002

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 656267)
  - Nitrogen, Kjeldahl, Total
- MS (Lab ID: 656269)
  - Nitrogen, Kjeldahl, Total

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- DUP (Lab ID: 70109260004)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 135456

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260001,70109260008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 648280)
  - Nitrate-Nitrite (as N)

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
- MS (Lab ID: 648282)
  - Nitrate-Nitrite (as N)

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 135450

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260008,70109301001

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 648259)
  - Nitrite as N

QC Batch: 135655

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109471001,70109472001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 649241)
  - Nitrite as N
- MS (Lab ID: 649243)
  - Nitrite as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **EPA 420.1**
Description: Phenolics, Total Recoverable
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for EPA 420.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 420.1 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 136531

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109826004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 653288)
  - Phenolics, Total Recoverable

QC Batch: 136946

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 70109260008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 655497)
  - Phenolics, Total Recoverable

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 136531

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 653289)
  - Phenolics, Total Recoverable

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 4500 NH3 H**
Description: 4500 Ammonia Water
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 4500 NH3 H. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Method: **SM22 5310B**
Description: 5310B TOC as NPOC
Client: Town of Southampton
Date: November 06, 2019

General Information:
21 samples were analyzed for SM22 5310B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1A **Lab ID: 70109260001** Collected: 10/21/19 13:15 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:40	7440-43-9	
Calcium	**63400**	ug/L	200	1	10/25/19 10:19	10/28/19 14:40	7440-70-2	
Iron	**742**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:40	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:40	7439-92-1	
Magnesium	**22600**	ug/L	200	1	10/25/19 10:19	10/28/19 14:40	7439-95-4	
Manganese	**217**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:40	7439-96-5	
Potassium	**12600**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:40	7440-09-7	
Sodium	**18600**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:40	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**127**	mg/L	1.0	1		10/24/19 19:06		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**220**	mg/L	5.0	1		11/05/19 17:28		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**330**	mg/L	20.0	1		10/24/19 09:54		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**10.2**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:38		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:04	10/27/19 09:28		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/26/19 03:38	24959-67-9	
Chloride	**41.0**	mg/L	2.0	1		10/26/19 03:38	16887-00-6	
Sulfate	**106**	mg/L	25.0	5		10/26/19 04:28	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:16	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**6.6**	mg/L	0.50	10		10/23/19 03:12	14797-55-8	
Nitrate-Nitrite (as N)	**6.6**	mg/L	0.50	10		10/23/19 03:12	7727-37-9	M6
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:06	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.8**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:25		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:37	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1A **Lab ID: 70109260001** Collected: 10/21/19 13:15 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**4.8**	mg/L	1.0	1		10/31/19 18:05	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1B **Lab ID: 70109260002** Collected: 10/21/19 13:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:43	7440-43-9	
Calcium	**3130**	ug/L	200	1	10/25/19 10:19	10/28/19 14:43	7440-70-2	
Iron	**52.8**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:43	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:43	7439-92-1	
Magnesium	**1250**	ug/L	200	1	10/25/19 10:19	10/28/19 14:43	7439-95-4	
Manganese	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:43	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:43	7440-09-7	
Sodium	**9040**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:43	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**5.4**	mg/L	1.0	1		10/24/19 19:11		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**8.0**	mg/L	5.0	1		11/05/19 17:30		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**59.0**	mg/L	10.0	1		10/24/19 09:56		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:39		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:04	10/27/19 09:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/26/19 04:45	24959-67-9	
Chloride	**15.4**	mg/L	2.0	1		10/26/19 04:45	16887-00-6	
Sulfate	**8.7**	mg/L	5.0	1		10/26/19 04:45	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:17	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**<0.050**	mg/L	0.050	1		10/23/19 03:18	14797-55-8	
Nitrate-Nitrite (as N)	**<0.050**	mg/L	0.050	1		10/23/19 03:18	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:07	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.5**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:26		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:38	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1B **Lab ID: 70109260002** Collected: 10/21/19 13:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 18:16	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1C **Lab ID: 70109260003** Collected: 10/21/19 12:35 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:45	7440-43-9	
Calcium	**5120**	ug/L	200	1	10/25/19 10:19	10/28/19 14:45	7440-70-2	
Iron	**84.0**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:45	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:45	7439-92-1	
Magnesium	**2410**	ug/L	200	1	10/25/19 10:19	10/28/19 14:45	7439-95-4	
Manganese	**11.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:45	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:45	7440-09-7	
Sodium	**8620**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:45	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**14.7**	mg/L	1.0	1		10/24/19 19:17		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**16.0**	mg/L	5.0	1		11/05/19 18:59		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**97.0**	mg/L	10.0	1		10/24/19 09:56		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:39		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:04	10/27/19 09:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/26/19 05:02	24959-67-9	
Chloride	**11.4**	mg/L	2.0	1		10/26/19 05:02	16887-00-6	
Sulfate	**10.6**	mg/L	5.0	1		10/26/19 05:02	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:18	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.37**	mg/L	0.050	1		10/23/19 03:19	14797-55-8	
Nitrate-Nitrite (as N)	**0.37**	mg/L	0.050	1		10/23/19 03:19	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:11	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**16.1**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:29		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:39	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 1C **Lab ID: 70109260003** Collected: 10/21/19 12:35 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 18:28	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: DUP **Lab ID: 70109260004** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:52	7440-43-9	
Calcium	**5280**	ug/L	200	1	10/25/19 10:19	10/28/19 14:52	7440-70-2	
Iron	**40.7**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:52	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:52	7439-92-1	
Magnesium	**2510**	ug/L	200	1	10/25/19 10:19	10/28/19 14:52	7439-95-4	
Manganese	**13.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:52	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:52	7440-09-7	
Sodium	**8880**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:52	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**15.1**	mg/L	1.0	1		10/24/19 19:22		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**20.0**	mg/L	5.0	1		11/05/19 19:00		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**60.0**	mg/L	10.0	1		10/24/19 10:07		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:39		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:04	10/27/19 09:35		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/26/19 05:18	24959-67-9	
Chloride	**11.4**	mg/L	2.0	1		10/26/19 05:18	16887-00-6	
Sulfate	**10.5**	mg/L	5.0	1		10/26/19 05:18	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**0.28**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:21	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.35**	mg/L	0.050	1		10/23/19 03:20	14797-55-8	
Nitrate-Nitrite (as N)	**0.35**	mg/L	0.050	1		10/23/19 03:20	7727-37-9	H1
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:12	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.6**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:29		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:40	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: DUP **Lab ID: 70109260004** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 18:39	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11A **Lab ID: 70109260005** Collected: 10/21/19 08:50 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Aluminum	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 14:54	7429-90-5	
Antimony	**<60.0**	ug/L	60.0	1	10/25/19 10:19	10/28/19 14:54	7440-36-0	
Arsenic	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7440-38-2	
Barium	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 14:54	7440-39-3	
Beryllium	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:54	7440-41-7	
Boron	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:54	7440-42-8	
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:54	7440-43-9	
Calcium	**36500**	ug/L	200	1	10/25/19 10:19	10/28/19 14:54	7440-70-2	
Chromium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7440-47-3	
Cobalt	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:54	7440-48-4	
Copper	**<25.0**	ug/L	25.0	1	10/25/19 10:19	10/28/19 14:54	7440-50-8	
Iron	**35600**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:54	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:54	7439-92-1	
Magnesium	**12700**	ug/L	200	1	10/25/19 10:19	10/28/19 14:54	7439-95-4	
Manganese	**5400**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7439-96-5	
Nickel	**<40.0**	ug/L	40.0	1	10/25/19 10:19	10/28/19 14:54	7440-02-0	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:54	7440-09-7	
Selenium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7782-49-2	
Silver	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7440-22-4	
Sodium	**8960**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:54	7440-23-5	
Thallium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:54	7440-28-0	
Vanadium	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:54	7440-62-2	
Zinc	**<20.0**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:54	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	**<0.20**	ug/L	0.20	1	11/01/19 11:56	11/01/19 16:38	7439-97-6	
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		10/23/19 16:04	67-64-1	IC
Acrylonitrile	**<5.0**	ug/L	5.0	1		10/23/19 16:04	107-13-1	
Benzene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	71-43-2	
Bromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	74-97-5	
Bromodichloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-27-4	
Bromoform	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-25-2	
Bromomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		10/23/19 16:04	78-93-3	CL,IL
Carbon disulfide	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	5.0	1		10/23/19 16:04	56-23-5	
Chlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-00-3	
Chloroform	**<5.0**	ug/L	5.0	1		10/23/19 16:04	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	74-87-3	
1,2-Dibromo-3-chloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	96-12-8	
Dibromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	124-48-1	
1,2-Dibromoethane (EDB)	**<5.0**	ug/L	5.0	1		10/23/19 16:04	106-93-4	
Dibromomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	74-95-3	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11A **Lab ID: 70109260005** Collected: 10/21/19 08:50 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
1,2-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	95-50-1	
1,4-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	106-46-7	
trans-1,4-Dichloro-2-butene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	110-57-6	
1,1-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-34-3	
1,2-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	107-06-2	
1,1-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	156-60-5	
1,2-Dichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	10061-02-6	
Ethylbenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		10/23/19 16:04	591-78-6	
Iodomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	74-88-4	L1
Methylene Chloride	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		10/23/19 16:04	108-10-1	
Styrene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	100-42-5	
1,1,1,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	630-20-6	
1,1,2,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	79-34-5	
Tetrachloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	127-18-4	
Toluene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	79-00-5	
Trichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:04	79-01-6	
Trichlorofluoromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-69-4	
1,2,3-Trichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:04	96-18-4	
Vinyl acetate	**<5.0**	ug/L	5.0	1		10/23/19 16:04	108-05-4	
Vinyl chloride	**<5.0**	ug/L	5.0	1		10/23/19 16:04	75-01-4	
Xylene (Total)	**<5.0**	ug/L	5.0	1		10/23/19 16:04	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		10/23/19 16:04	17060-07-0	
4-Bromofluorobenzene (S)	95	%	79-124	1		10/23/19 16:04	460-00-4	
Toluene-d8 (S)	94	%	69-124	1		10/23/19 16:04	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**141**	mg/L	1.0	1		10/24/19 19:31		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**200**	mg/L	5.0	1		11/05/19 20:15		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**171**	mg/L	10.0	1		10/24/19 10:08		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11A **Lab ID: 70109260005** Collected: 10/21/19 08:50 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**10.2**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:39		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/22/19 17:04	10/27/19 09:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 00:48	24959-67-9	
Chloride	**14.3**	mg/L	2.0	1		10/29/19 00:48	16887-00-6	
Sulfate	**14.0**	mg/L	5.0	1		10/29/19 00:48	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**0.99**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:21	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.11**	mg/L	0.050	1		10/23/19 03:21	14797-55-8	
Nitrate-Nitrite (as N)	**0.11**	mg/L	0.050	1		10/23/19 03:21	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:13	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**5.4**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:30		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**1.0**	mg/L	0.10	1		11/01/19 15:42	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**3.0**	mg/L	1.0	1		10/31/19 19:00	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Aluminum	**3540**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7429-90-5	
Antimony	**<60.0**	ug/L	60.0	1	10/25/19 10:19	10/28/19 14:57	7440-36-0	
Arsenic	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-38-2	
Barium	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7440-39-3	
Beryllium	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:57	7440-41-7	
Boron	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-42-8	
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:57	7440-43-9	
Calcium	**16800**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7440-70-2	
Chromium	**19.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-47-3	
Cobalt	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-48-4	
Copper	**<25.0**	ug/L	25.0	1	10/25/19 10:19	10/28/19 14:57	7440-50-8	
Iron	**11600**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:57	7439-89-6	
Lead	**19.5**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:57	7439-92-1	
Magnesium	**6210**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7439-95-4	
Manganese	**369**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7439-96-5	
Nickel	**<40.0**	ug/L	40.0	1	10/25/19 10:19	10/28/19 14:57	7440-02-0	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:57	7440-09-7	
Selenium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7782-49-2	
Silver	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-22-4	
Sodium	**10500**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:57	7440-23-5	
Thallium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-28-0	
Vanadium	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-62-2	
Zinc	**39.4**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:57	7440-66-6	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010C							
Aluminum, Dissolved	**<200**	ug/L	200	1		11/06/19 13:04	7429-90-5	
Antimony, Dissolved	**<60.0**	ug/L	60.0	1		11/06/19 13:04	7440-36-0	M1
Arsenic, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-38-2	
Barium, Dissolved	**<200**	ug/L	200	1		11/06/19 13:04	7440-39-3	
Beryllium, Dissolved	**<5.0**	ug/L	5.0	1		11/06/19 13:04	7440-41-7	
Boron, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-42-8	
Cadmium, Dissolved	**<2.5**	ug/L	2.5	1		11/06/19 13:04	7440-43-9	
Calcium, Dissolved	**13500**	ug/L	200	1		11/06/19 13:04	7440-70-2	
Chromium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-47-3	
Cobalt, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-48-4	
Copper, Dissolved	**<25.0**	ug/L	25.0	1		11/06/19 13:04	7440-50-8	
Iron, Dissolved	**32.5**	ug/L	20.0	1		11/06/19 13:04	7439-89-6	
Lead, Dissolved	**<5.0**	ug/L	5.0	1		11/06/19 13:04	7439-92-1	
Magnesium, Dissolved	**4150**	ug/L	200	1		11/06/19 13:04	7439-95-4	
Manganese, Dissolved	**181**	ug/L	10.0	1		11/06/19 13:04	7439-96-5	
Nickel, Dissolved	**<40.0**	ug/L	40.0	1		11/06/19 13:04	7440-02-0	
Potassium, Dissolved	**<5000**	ug/L	5000	1		11/06/19 13:04	7440-09-7	
Selenium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7782-49-2	
Silver, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-22-4	M1
Sodium, Dissolved	**10300**	ug/L	5000	1		11/06/19 13:04	7440-23-5	
Thallium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-28-0	
Vanadium, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-62-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010C							
Zinc, Dissolved	**<20.0**	ug/L	20.0	1		11/06/19 13:04	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A	Preparation Method: EPA 7470A						
Mercury	**<0.20**	ug/L	0.20	1	11/01/19 11:56	11/01/19 16:40	7439-97-6	
7470 Mercury, Dissolved	Analytical Method: EPA 7470A	Preparation Method: EPA 7470A						
Mercury, Dissolved	**<0.20**	ug/L	0.20	1	10/31/19 11:19	10/31/19 17:41	7439-97-6	
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		10/23/19 16:23	67-64-1	IC
Acrylonitrile	**<5.0**	ug/L	5.0	1		10/23/19 16:23	107-13-1	
Benzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	71-43-2	
Bromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-97-5	
Bromodichloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-27-4	
Bromoform	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-25-2	
Bromomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	78-93-3	CL,IL
Carbon disulfide	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	5.0	1		10/23/19 16:23	56-23-5	
Chlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-00-3	
Chloroform	**5.0**	ug/L	5.0	1		10/23/19 16:23	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-87-3	
1,2-Dibromo-3-chloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	96-12-8	
Dibromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	124-48-1	
1,2-Dibromoethane (EDB)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	106-93-4	
Dibromomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-95-3	
1,2-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	95-50-1	
1,4-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	106-46-7	
trans-1,4-Dichloro-2-butene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	110-57-6	
1,1-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-34-3	
1,2-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	107-06-2	
1,1-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	156-60-5	
1,2-Dichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	10061-02-6	
Ethylbenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		10/23/19 16:23	591-78-6	
Iodomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-88-4	L1
Methylene Chloride	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-10-1	
Styrene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	100-42-5	
1,1,1,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	630-20-6	
1,1,2,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-34-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Tetrachloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	127-18-4	
Toluene	**55.4**	ug/L	5.0	1		10/23/19 16:23	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-00-5	
Trichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-01-6	
Trichlorofluoromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-69-4	
1,2,3-Trichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	96-18-4	
Vinyl acetate	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-05-4	
Vinyl chloride	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-01-4	
Xylene (Total)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		10/23/19 16:23	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 16:23	460-00-4	
Toluene-d8 (S)	95	%	69-124	1		10/23/19 16:23	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**40.4**	mg/L	1.0	1		10/24/19 19:38		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**70.0**	mg/L	5.0	1		11/05/19 20:17		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**94.0**	mg/L	10.0	1		10/24/19 10:08		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**165**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:40		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/22/19 17:05	10/27/19 09:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 01:38	24959-67-9	
Chloride	**13.9**	mg/L	2.0	1		10/29/19 01:38	16887-00-6	
Sulfate	**20.0**	mg/L	5.0	1		10/29/19 01:38	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**0.59**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:22	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.69**	mg/L	0.050	1		10/23/19 03:22	14797-55-8	
Nitrate-Nitrite (as N)	**0.69**	mg/L	0.050	1		10/23/19 03:22	7727-37-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:15	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.6**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:31		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**0.87**	mg/L	0.10	1		11/01/19 15:45	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**16.7**	mg/L	1.0	1		10/31/19 19:23	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: MW-9 **Lab ID: 70109260007** Collected: 10/21/19 10:25 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:59	7440-43-9	
Calcium	**7430**	ug/L	200	1	10/25/19 10:19	10/28/19 14:59	7440-70-2	
Iron	**1160**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:59	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:59	7439-92-1	
Magnesium	**2940**	ug/L	200	1	10/25/19 10:19	10/28/19 14:59	7439-95-4	
Manganese	**98.6**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:59	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:59	7440-09-7	
Sodium	**8710**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:59	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**14.0**	mg/L	1.0	1		10/24/19 19:44		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**28.0**	mg/L	5.0	1		11/05/19 20:19		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**74.0**	mg/L	10.0	1		10/24/19 10:09		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:40		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:05	10/27/19 09:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 01:55	24959-67-9	
Chloride	**18.7**	mg/L	2.0	1		10/29/19 01:55	16887-00-6	
Sulfate	**9.0**	mg/L	5.0	1		10/29/19 01:55	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:23	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.24**	mg/L	0.050	1		10/23/19 03:24	14797-55-8	
Nitrate-Nitrite (as N)	**0.24**	mg/L	0.050	1		10/23/19 03:24	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:16	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**17.6**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:04		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:46	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: MW-9 **Lab ID: 70109260007** Collected: 10/21/19 10:25 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 19:33	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: MW-8 **Lab ID: 70109260008** Collected: 10/21/19 11:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:01	7440-43-9	
Calcium	**16000**	ug/L	200	1	10/25/19 10:19	10/28/19 15:01	7440-70-2	
Iron	**10300**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:01	7439-89-6	M1
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:01	7439-92-1	
Magnesium	**6740**	ug/L	200	1	10/25/19 10:19	10/28/19 15:01	7439-95-4	
Manganese	**126**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:01	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:01	7440-09-7	
Sodium	**8850**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:01	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**52.0**	mg/L	1.0	1		10/24/19 20:20		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**80.0**	mg/L	5.0	1		11/05/19 20:40		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**103**	mg/L	10.0	1		10/24/19 10:09		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**12.4**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:42		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/22/19 17:05	10/27/19 09:44		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 02:11	24959-67-9	
Chloride	**13.8**	mg/L	2.0	1		10/29/19 02:11	16887-00-6	
Sulfate	**13.4**	mg/L	5.0	1		10/29/19 02:11	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:26	7727-37-9	B,M6
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.65**	mg/L	0.050	1		10/23/19 03:25	14797-55-8	
Nitrate-Nitrite (as N)	**0.65**	mg/L	0.050	1		10/23/19 03:25	7727-37-9	M1
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:17	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**<5.0**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:05		M1
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:47	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: MW-8 **Lab ID: 70109260008** Collected: 10/21/19 11:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**1.3**	mg/L	1.0	1		10/31/19 19:53	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 12A **Lab ID: 70109260009** Collected: 10/21/19 14:30 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:13	7440-43-9	
Calcium	**29100**	ug/L	200	1	10/25/19 10:19	10/28/19 15:13	7440-70-2	
Iron	**4100**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:13	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:13	7439-92-1	
Magnesium	**8070**	ug/L	200	1	10/25/19 10:19	10/28/19 15:13	7439-95-4	
Manganese	**2270**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:13	7439-96-5	
Potassium	**9110**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:13	7440-09-7	
Sodium	**11700**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**114**	mg/L	1.0	1		10/24/19 20:42		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**110**	mg/L	5.0	1		11/05/19 21:14		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**157**	mg/L	10.0	1		10/24/19 10:20		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:43		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:05	10/27/19 09:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 03:01	24959-67-9	
Chloride	**17.1**	mg/L	2.0	1		10/29/19 03:01	16887-00-6	
Sulfate	**26.8**	mg/L	5.0	1		10/29/19 03:01	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**7.6**	mg/L	0.50	1	11/05/19 06:05	11/05/19 12:28	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.16**	mg/L	0.050	1		10/23/19 03:28	14797-55-8	
Nitrate-Nitrite (as N)	**0.16**	mg/L	0.050	1		10/23/19 03:28	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:20	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**14.4**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:08		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**6.1**	mg/L	0.50	5		11/01/19 16:25	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 12A **Lab ID: 70109260009** Collected: 10/21/19 14:30 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**2.4**	mg/L	1.0	1		10/31/19 21:41	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 12B **Lab ID: 70109260010** Collected: 10/21/19 14:15 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:20	7440-43-9	
Calcium	**34400**	ug/L	200	1	10/25/19 10:19	10/28/19 15:20	7440-70-2	
Iron	**49.9**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:20	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:20	7439-92-1	
Magnesium	**14000**	ug/L	200	1	10/25/19 10:19	10/28/19 15:20	7439-95-4	
Manganese	**25.6**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:20	7439-96-5	
Potassium	**6990**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:20	7440-09-7	
Sodium	**19900**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:20	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**114**	mg/L	1.0	1		10/24/19 20:51		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**127**	mg/L	5.0	1		11/05/19 20:58		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**238**	mg/L	10.0	1		10/24/19 10:20		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**12.4**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:43		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:05	10/27/19 09:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 03:18	24959-67-9	
Chloride	**28.0**	mg/L	2.0	1		10/29/19 03:18	16887-00-6	
Sulfate	**49.3**	mg/L	5.0	1		10/29/19 03:18	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**2.9**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:31	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.41**	mg/L	0.050	1		10/23/19 03:32	14797-55-8	
Nitrate-Nitrite (as N)	**0.41**	mg/L	0.050	1		10/23/19 03:32	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:22	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**10.9**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:08		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**1.8**	mg/L	0.10	1		11/01/19 15:52	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 12B **Lab ID: 70109260010** Collected: 10/21/19 14:15 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**3.2**	mg/L	1.0	1		10/31/19 22:35	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: EQUIPMENT BLANK **Lab ID: 70109260011** Collected: 10/21/19 15:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:22	7440-43-9	
Calcium	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 15:22	7440-70-2	
Iron	**<20.0**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:22	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:22	7439-92-1	
Magnesium	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 15:22	7439-95-4	
Manganese	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:22	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:22	7440-09-7	
Sodium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:22	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**<1.0**	mg/L	1.0	1		10/24/19 20:55		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**<5.0**	mg/L	5.0	1		11/05/19 20:59		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**<10.0**	mg/L	10.0	1		10/24/19 10:20		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:44		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/22/19 17:05	10/27/19 09:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 03:35	24959-67-9	
Chloride	**<2.0**	mg/L	2.0	1		10/29/19 03:35	16887-00-6	
Sulfate	**<5.0**	mg/L	5.0	1		10/29/19 03:35	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:32	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**<0.050**	mg/L	0.050	1		10/23/19 03:33	14797-55-8	
Nitrate-Nitrite (as N)	**<0.050**	mg/L	0.050	1		10/23/19 03:33	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:25	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**7.7**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:09		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:53	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: EQUIPMENT BLANK **Lab ID: 70109260011** Collected: 10/21/19 15:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 23:40	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: TRIP BLANK **Lab ID: 70109260012** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		10/23/19 14:55	67-64-1	IC
Acrylonitrile	**<5.0**	ug/L	5.0	1		10/23/19 14:55	107-13-1	
Benzene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	71-43-2	
Bromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	74-97-5	
Bromodichloromethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-27-4	
Bromoform	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-25-2	
Bromomethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		10/23/19 14:55	78-93-3	CL,IL
Carbon disulfide	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	5.0	1		10/23/19 14:55	56-23-5	
Chlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-00-3	
Chloroform	**<5.0**	ug/L	5.0	1		10/23/19 14:55	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	74-87-3	
1,2-Dibromo-3-chloropropane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	96-12-8	
Dibromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	124-48-1	
1,2-Dibromoethane (EDB)	**<5.0**	ug/L	5.0	1		10/23/19 14:55	106-93-4	
Dibromomethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	74-95-3	
1,2-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	95-50-1	
1,4-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	106-46-7	
trans-1,4-Dichloro-2-butene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	110-57-6	
1,1-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-34-3	
1,2-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	107-06-2	
1,1-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	156-60-5	
1,2-Dichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	10061-02-6	
Ethylbenzene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		10/23/19 14:55	591-78-6	
Iodomethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	74-88-4	L1
Methylene Chloride	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		10/23/19 14:55	108-10-1	
Styrene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	100-42-5	
1,1,1,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	630-20-6	
1,1,2,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	79-34-5	
Tetrachloroethene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	127-18-4	
Toluene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	79-00-5	
Trichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 14:55	79-01-6	
Trichlorofluoromethane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-69-4	
1,2,3-Trichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 14:55	96-18-4	
Vinyl acetate	**<5.0**	ug/L	5.0	1		10/23/19 14:55	108-05-4	
Vinyl chloride	**<5.0**	ug/L	5.0	1		10/23/19 14:55	75-01-4	
Xylene (Total)	**<5.0**	ug/L	5.0	1		10/23/19 14:55	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: TRIP BLANK **Lab ID: 70109260012** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		10/23/19 14:55	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 14:55	460-00-4	
Toluene-d8 (S)	94	%	69-124	1		10/23/19 14:55	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: STORAGE BLANK **Lab ID: 70109260013** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		10/23/19 15:41	67-64-1	IC
Acrylonitrile	**<5.0**	ug/L	5.0	1		10/23/19 15:41	107-13-1	
Benzene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	71-43-2	
Bromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	74-97-5	
Bromodichloromethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-27-4	
Bromoform	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-25-2	
Bromomethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L	5.0	1		10/23/19 15:41	78-93-3	CL,IL
Carbon disulfide	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	5.0	1		10/23/19 15:41	56-23-5	
Chlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-00-3	
Chloroform	**<5.0**	ug/L	5.0	1		10/23/19 15:41	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	74-87-3	
1,2-Dibromo-3-chloropropane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	96-12-8	
Dibromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	124-48-1	
1,2-Dibromoethane (EDB)	**<5.0**	ug/L	5.0	1		10/23/19 15:41	106-93-4	
Dibromomethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	74-95-3	
1,2-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	95-50-1	
1,4-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	106-46-7	
trans-1,4-Dichloro-2-butene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	110-57-6	
1,1-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-34-3	
1,2-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	107-06-2	
1,1-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	156-60-5	
1,2-Dichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	10061-02-6	
Ethylbenzene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	100-41-4	
2-Hexanone	**<5.0**	ug/L	5.0	1		10/23/19 15:41	591-78-6	
Iodomethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	74-88-4	L1
Methylene Chloride	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		10/23/19 15:41	108-10-1	
Styrene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	100-42-5	
1,1,1,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	630-20-6	
1,1,2,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	79-34-5	
Tetrachloroethene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	127-18-4	
Toluene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	79-00-5	
Trichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 15:41	79-01-6	
Trichlorofluoromethane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-69-4	
1,2,3-Trichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 15:41	96-18-4	
Vinyl acetate	**<5.0**	ug/L	5.0	1		10/23/19 15:41	108-05-4	
Vinyl chloride	**<5.0**	ug/L	5.0	1		10/23/19 15:41	75-01-4	
Xylene (Total)	**<5.0**	ug/L	5.0	1		10/23/19 15:41	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: STORAGE BLANK **Lab ID: 70109260013** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	68-153	1		10/23/19 15:41	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 15:41	460-00-4	
Toluene-d8 (S)	94	%	69-124	1		10/23/19 15:41	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4C **Lab ID: 70109260014** Collected: 10/22/19 14:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:25	7440-43-9	
Calcium	**25300**	ug/L	200	1	10/25/19 10:19	10/28/19 15:25	7440-70-2	
Iron	**2640**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:25	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:25	7439-92-1	
Magnesium	**11400**	ug/L	200	1	10/25/19 10:19	10/28/19 15:25	7439-95-4	
Manganese	**93.3**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:25	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:25	7440-09-7	
Sodium	**44200**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:25	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**44.2**	mg/L	1.0	1		10/29/19 16:23		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**90.0**	mg/L	5.0	1		11/05/19 21:16		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**300**	mg/L	20.0	1		10/25/19 10:33		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:53		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 15:56	10/28/19 11:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 03:52	24959-67-9	
Chloride	**134**	mg/L	10.0	5		10/29/19 20:03	16887-00-6	
Sulfate	**6.6**	mg/L	5.0	1		10/29/19 03:52	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:33	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**<0.050**	mg/L	0.050	1		10/23/19 22:25	14797-55-8	
Nitrate-Nitrite (as N)	**<0.050**	mg/L	0.050	1		10/23/19 22:25	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 19:58	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.4**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:10		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 15:55	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4C **Lab ID: 70109260014** Collected: 10/22/19 14:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		10/31/19 23:52	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4B **Lab ID: 70109260015** Collected: 10/22/19 14:30 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:27	7440-43-9	
Calcium	**14400**	ug/L	200	1	10/25/19 10:19	10/28/19 15:27	7440-70-2	
Iron	**5430**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:27	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:27	7439-92-1	
Magnesium	**7320**	ug/L	200	1	10/25/19 10:19	10/28/19 15:27	7439-95-4	
Manganese	**959**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:27	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:27	7440-09-7	
Sodium	**26000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:27	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**68.6**	mg/L	1.0	1		10/29/19 16:31		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**66.7**	mg/L	5.0	1		11/05/19 21:19		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**216**	mg/L	10.0	1		10/28/19 13:42		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:54		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 15:59	10/28/19 11:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 04:08	24959-67-9	
Chloride	**43.4**	mg/L	2.0	1		10/29/19 04:08	16887-00-6	
Sulfate	**14.9**	mg/L	5.0	1		10/29/19 04:08	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**2.4**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:33	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.21**	mg/L	0.050	1		10/23/19 22:28	14797-55-8	
Nitrate-Nitrite (as N)	**0.22**	mg/L	0.050	1		10/23/19 22:28	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:00	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**14.0**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:11		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**2.1**	mg/L	0.10	1		11/01/19 15:56	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4B **Lab ID: 70109260015** Collected: 10/22/19 14:30 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**1.4**	mg/L	1.0	1		11/01/19 00:12	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4A **Lab ID: 70109260016** Collected: 10/22/19 15:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:31	7440-43-9	
Calcium	**9030**	ug/L	200	1	10/25/19 10:19	10/28/19 15:31	7440-70-2	
Iron	**2140**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:31	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:31	7439-92-1	
Magnesium	**3190**	ug/L	200	1	10/25/19 10:19	10/28/19 15:31	7439-95-4	
Manganese	**224**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:31	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:31	7440-09-7	
Sodium	**19200**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:31	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**4.8**	mg/L	1.0	1		10/29/19 16:34		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**34.0**	mg/L	5.0	1		11/05/19 21:29		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**126**	mg/L	10.0	1		10/28/19 13:42		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:54		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/23/19 16:00	10/28/19 11:42		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 04:59	24959-67-9	
Chloride	**37.1**	mg/L	2.0	1		10/29/19 04:59	16887-00-6	
Sulfate	**19.5**	mg/L	5.0	1		10/29/19 04:59	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:34	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**3.6**	mg/L	0.50	10		10/23/19 22:32	14797-55-8	
Nitrate-Nitrite (as N)	**3.6**	mg/L	0.50	10		10/23/19 22:32	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:01	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**16.1**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:12		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**0.20**	mg/L	0.10	1		11/01/19 15:59	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 4A **Lab ID: 70109260016** Collected: 10/22/19 15:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**1.8**	mg/L	1.0	1		11/01/19 00:44	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: LEA-SECONDARY **Lab ID: 70109260017** Collected: 10/22/19 08:10 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Arsenic	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:33	7440-38-2	
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 15:33	7440-43-9	
Calcium	**84400**	ug/L	200	1	10/25/19 10:19	10/28/19 15:33	7440-70-2	
Iron	**2010**	ug/L	20.0	1	10/25/19 10:19	10/28/19 15:33	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 15:33	7439-92-1	
Magnesium	**13900**	ug/L	200	1	10/25/19 10:19	10/28/19 15:33	7439-95-4	
Manganese	**231**	ug/L	10.0	1	10/25/19 10:19	10/28/19 15:33	7439-96-5	
Potassium	**48200**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:33	7440-09-7	
Sodium	**74600**	ug/L	5000	1	10/25/19 10:19	10/28/19 15:33	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**368**	mg/L	1.0	1		10/29/19 16:51		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**240**	mg/L	5.0	1		11/05/19 21:38		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**634**	mg/L	20.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**125**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:54		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**9.0**	mg/L	4.0	2	10/23/19 16:02	10/28/19 11:45		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 05:15	24959-67-9	
Chloride	**113**	mg/L	20.0	10		10/29/19 05:32	16887-00-6	
Sulfate	**58.7**	mg/L	50.0	10		10/29/19 05:32	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**43.5**	mg/L	5.0	10	11/05/19 06:05	11/05/19 12:35	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**8.2**	mg/L	0.50	10		10/23/19 22:33	14797-55-8	
Nitrate-Nitrite (as N)	**9.1**	mg/L	0.50	10		10/23/19 22:33	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**0.81**	mg/L	0.050	1		10/23/19 20:02	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**<5.0**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:14		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**32.3**	mg/L	2.0	20		11/01/19 16:28	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: LEA-SECONDARY **Lab ID: 70109260017** Collected: 10/22/19 08:10 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**41.9**	mg/L	1.0	1		11/01/19 01:06	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: LEA-PRIMARY **Lab ID: 70109260018** Collected: 10/22/19 08:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:09	7440-43-9	
Calcium	**108000**	ug/L	200	1	10/31/19 10:00	11/01/19 11:09	7440-70-2	
Iron	**1020**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:09	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:09	7439-92-1	
Magnesium	**19600**	ug/L	200	1	10/31/19 10:00	11/01/19 11:09	7439-95-4	
Manganese	**848**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:09	7439-96-5	
Potassium	**87200**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:09	7440-09-7	
Sodium	**225000**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:09	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010C							
Arsenic, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:14	7440-38-2	
Cadmium, Dissolved	**<2.5**	ug/L	2.5	1		11/06/19 13:14	7440-43-9	
Calcium, Dissolved	**107000**	ug/L	200	1		11/06/19 13:14	7440-70-2	
Iron, Dissolved	**484**	ug/L	20.0	1		11/06/19 13:14	7439-89-6	
Lead, Dissolved	**<5.0**	ug/L	5.0	1		11/06/19 13:14	7439-92-1	
Magnesium, Dissolved	**19000**	ug/L	200	1		11/06/19 13:14	7439-95-4	
Manganese, Dissolved	**763**	ug/L	10.0	1		11/06/19 13:14	7439-96-5	
Potassium, Dissolved	**85300**	ug/L	5000	1		11/06/19 13:14	7440-09-7	
Sodium, Dissolved	**210000**	ug/L	5000	1		11/06/19 13:14	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**793**	mg/L	1.0	1		10/29/19 17:20		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**320**	mg/L	5.0	1		11/05/19 21:40		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**648**	mg/L	20.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**231**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:54		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**8.9**	mg/L	6.7	3.33	10/23/19 16:07	10/28/19 11:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**1.7**	mg/L	0.50	1		10/29/19 05:49	24959-67-9	
Chloride	**332**	mg/L	20.0	10		10/29/19 06:05	16887-00-6	
Sulfate	**44.7**	mg/L	5.0	1		10/29/19 05:49	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**127**	mg/L	5.0	10	11/05/19 06:05	11/05/19 12:36	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**12.0**	mg/L	0.50	10		10/23/19 22:34	14797-55-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: LEA-PRIMARY **Lab ID: 70109260018** Collected: 10/22/19 08:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate-Nitrite (as N)	**13.4**	mg/L	0.50	10		10/23/19 22:34	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**1.4**	mg/L	0.050	1		10/23/19 20:03	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**14.8**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:15		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**83.7**	mg/L	5.0	50		11/01/19 16:29	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**69.0**	mg/L	2.0	2		11/01/19 02:14	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3A **Lab ID: 70109260019** Collected: 10/22/19 13:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:12	7440-43-9	
Calcium	**18200**	ug/L	200	1	10/31/19 10:00	11/01/19 11:12	7440-70-2	
Iron	**3630**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:12	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:12	7439-92-1	
Magnesium	**5770**	ug/L	200	1	10/31/19 10:00	11/01/19 11:12	7439-95-4	
Manganese	**390**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:12	7439-96-5	
Potassium	**11400**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:12	7440-09-7	
Sodium	**33000**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:12	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**83.8**	mg/L	1.0	1		10/29/19 17:28		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**70.0**	mg/L	5.0	1		11/05/19 21:44		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**209**	mg/L	10.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**12.4**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:55		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/23/19 16:10	10/28/19 11:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 06:22	24959-67-9	
Chloride	**46.8**	mg/L	2.0	1		10/29/19 06:22	16887-00-6	
Sulfate	**9.4**	mg/L	5.0	1		10/29/19 06:22	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**1.3**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:37	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.33**	mg/L	0.050	1		10/23/19 22:35	14797-55-8	
Nitrate-Nitrite (as N)	**0.34**	mg/L	0.050	1		10/23/19 22:35	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:14	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**9.9**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:16		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**0.53**	mg/L	0.10	1		11/01/19 16:03	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3A **Lab ID: 70109260019** Collected: 10/22/19 13:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**5.5**	mg/L	1.0	1		11/01/19 02:35	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 6AR **Lab ID: 70109260020** Collected: 10/22/19 09:30 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Aluminum	**<200**	ug/L	200	1	10/31/19 10:00	11/01/19 11:14	7429-90-5	B
Antimony	**<60.0**	ug/L	60.0	1	10/31/19 10:00	11/01/19 11:14	7440-36-0	
Arsenic	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7440-38-2	
Barium	**<200**	ug/L	200	1	10/31/19 10:00	11/01/19 11:14	7440-39-3	
Beryllium	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:14	7440-41-7	
Boron	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:14	7440-42-8	
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:14	7440-43-9	
Calcium	**8690**	ug/L	200	1	10/31/19 10:00	11/01/19 11:14	7440-70-2	
Chromium	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7440-47-3	
Cobalt	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:14	7440-48-4	
Copper	**<25.0**	ug/L	25.0	1	10/31/19 10:00	11/01/19 11:14	7440-50-8	
Iron	**261**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:14	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:14	7439-92-1	
Magnesium	**4340**	ug/L	200	1	10/31/19 10:00	11/01/19 11:14	7439-95-4	
Manganese	**40.5**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7439-96-5	
Nickel	**<40.0**	ug/L	40.0	1	10/31/19 10:00	11/01/19 11:14	7440-02-0	
Potassium	**<5000**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:14	7440-09-7	
Selenium	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7782-49-2	
Silver	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7440-22-4	
Sodium	**8600**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:14	7440-23-5	
Thallium	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:14	7440-28-0	
Vanadium	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:14	7440-62-2	
Zinc	**<20.0**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:14	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	**<0.20**	ug/L	0.20	1	11/01/19 11:56	11/01/19 16:42	7439-97-6	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**29.9**	mg/L	1.0	1		10/29/19 17:33		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**36.7**	mg/L	5.0	1		11/05/19 21:52		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**76.0**	mg/L	10.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:55		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 16:12	10/28/19 11:56		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 06:39	24959-67-9	
Chloride	**17.0**	mg/L	2.0	1		10/29/19 06:39	16887-00-6	
Sulfate	**10.2**	mg/L	5.0	1		10/29/19 06:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 6AR **Lab ID: 70109260020** Collected: 10/22/19 09:30 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:38	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.79**	mg/L	0.050	1		10/23/19 22:37	14797-55-8	
Nitrate-Nitrite (as N)	**0.82**	mg/L	0.050	1		10/23/19 22:37	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:08	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**<5.0**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:16		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 16:04	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		11/01/19 02:49	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 6B **Lab ID: 70109260021** Collected: 10/22/19 10:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Aluminum	**<200**	ug/L	200	1	10/31/19 10:00	11/01/19 11:16	7429-90-5	B
Antimony	**<60.0**	ug/L	60.0	1	10/31/19 10:00	11/01/19 11:16	7440-36-0	
Arsenic	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7440-38-2	
Barium	**<200**	ug/L	200	1	10/31/19 10:00	11/01/19 11:16	7440-39-3	
Beryllium	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:16	7440-41-7	
Boron	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:16	7440-42-8	
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:16	7440-43-9	
Calcium	**4540**	ug/L	200	1	10/31/19 10:00	11/01/19 11:16	7440-70-2	
Chromium	**13.7**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7440-47-3	
Cobalt	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:16	7440-48-4	
Copper	**<25.0**	ug/L	25.0	1	10/31/19 10:00	11/01/19 11:16	7440-50-8	
Iron	**100**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:16	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:16	7439-92-1	
Magnesium	**2650**	ug/L	200	1	10/31/19 10:00	11/01/19 11:16	7439-95-4	
Manganese	**15.4**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7439-96-5	
Nickel	**<40.0**	ug/L	40.0	1	10/31/19 10:00	11/01/19 11:16	7440-02-0	
Potassium	**<5000**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:16	7440-09-7	
Selenium	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7782-49-2	
Silver	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7440-22-4	
Sodium	**7820**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:16	7440-23-5	
Thallium	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:16	7440-28-0	
Vanadium	**<50.0**	ug/L	50.0	1	10/31/19 10:00	11/01/19 11:16	7440-62-2	
Zinc	**<20.0**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:16	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	**<0.20**	ug/L	0.20	1	11/01/19 11:56	11/01/19 16:43	7439-97-6	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**13.0**	mg/L	1.0	1		10/29/19 17:38		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**17.5**	mg/L	5.0	1		11/05/19 21:54		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**142**	mg/L	10.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:55		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 16:18	10/28/19 11:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 06:56	24959-67-9	
Chloride	**13.2**	mg/L	2.0	1		10/29/19 06:56	16887-00-6	
Sulfate	**9.7**	mg/L	5.0	1		10/29/19 06:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 6B **Lab ID: 70109260021** Collected: 10/22/19 10:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:39	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.42**	mg/L	0.050	1		10/23/19 22:38	14797-55-8	
Nitrate-Nitrite (as N)	**0.43**	mg/L	0.050	1		10/23/19 22:38	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:09	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**13.0**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:17		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 16:05	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		11/01/19 03:01	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3C **Lab ID: 70109260022** Collected: 10/22/19 12:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:23	7440-43-9	
Calcium	**8800**	ug/L	200	1	10/31/19 10:00	11/01/19 11:23	7440-70-2	
Iron	**28.5**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:23	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:23	7439-92-1	
Magnesium	**4080**	ug/L	200	1	10/31/19 10:00	11/01/19 11:23	7439-95-4	
Manganese	**<10.0**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:23	7439-96-5	
Potassium	**<5000**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:23	7440-09-7	
Sodium	**12100**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:23	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**45.8**	mg/L	1.0	1		10/29/19 17:44		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**23.3**	mg/L	5.0	1		11/05/19 21:56		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**102**	mg/L	10.0	1		10/28/19 13:51		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**<10.0**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:56		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 16:21	10/28/19 12:01		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 07:12	24959-67-9	
Chloride	**13.0**	mg/L	2.0	1		10/29/19 07:12	16887-00-6	
Sulfate	**<5.0**	mg/L	5.0	1		10/29/19 07:12	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**<0.10**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:41	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.19**	mg/L	0.050	1		10/23/19 22:39	14797-55-8	
Nitrate-Nitrite (as N)	**0.20**	mg/L	0.050	1		10/23/19 22:39	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:10	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**12.1**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:18		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**<0.10**	mg/L	0.10	1		11/01/19 16:09	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3C **Lab ID: 70109260022** Collected: 10/22/19 12:00 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**<1.0**	mg/L	1.0	1		11/01/19 03:44	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3B **Lab ID: 70109260023** Collected: 10/22/19 12:40 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	**<2.5**	ug/L	2.5	1	10/31/19 10:00	11/01/19 11:26	7440-43-9	
Calcium	**18900**	ug/L	200	1	10/31/19 10:00	11/01/19 11:26	7440-70-2	
Iron	**8570**	ug/L	20.0	1	10/31/19 10:00	11/01/19 11:26	7439-89-6	
Lead	**<5.0**	ug/L	5.0	1	10/31/19 10:00	11/01/19 11:26	7439-92-1	
Magnesium	**6810**	ug/L	200	1	10/31/19 10:00	11/01/19 11:26	7439-95-4	
Manganese	**2440**	ug/L	10.0	1	10/31/19 10:00	11/01/19 11:26	7439-96-5	
Potassium	**5940**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:26	7440-09-7	
Sodium	**11400**	ug/L	5000	1	10/31/19 10:00	11/01/19 11:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**77.7**	mg/L	1.0	1		10/29/19 17:52		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**90.0**	mg/L	5.0	1		11/05/19 22:17		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**183**	mg/L	10.0	1		10/28/19 13:58		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**21.2**	mg/L	10.0	1	10/30/19 09:31	10/30/19 11:56		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<2.0**	mg/L	2.0	1	10/23/19 16:25	10/28/19 12:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 07:29	24959-67-9	
Chloride	**20.1**	mg/L	2.0	1		10/29/19 07:29	16887-00-6	
Sulfate	**9.5**	mg/L	5.0	1		10/29/19 07:29	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**0.84**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:42	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.43**	mg/L	0.050	1		10/23/19 22:42	14797-55-8	
Nitrate-Nitrite (as N)	**0.47**	mg/L	0.050	1		10/23/19 22:42	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/23/19 20:15	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.6**	ug/L	5.0	1	11/04/19 08:14	11/04/19 12:19		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**0.30**	mg/L	0.10	1		11/01/19 16:10	7664-41-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 3B **Lab ID: 70109260023** Collected: 10/22/19 12:40 Received: 10/23/19 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**6.8**	mg/L	1.0	1		11/01/19 04:51	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136159
QC Batch Method: EPA 6010C
Analysis Method: EPA 6010C
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 70109260006, 70109260018

METHOD BLANK: 651772
Matrix: Water
Associated Lab Samples: 70109260006, 70109260018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	<200	200	11/06/19 13:00	
Antimony, Dissolved	ug/L	<60.0	60.0	11/06/19 13:00	
Arsenic, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Barium, Dissolved	ug/L	<200	200	11/06/19 13:00	
Beryllium, Dissolved	ug/L	<5.0	5.0	11/06/19 13:00	
Boron, Dissolved	ug/L	<50.0	50.0	11/06/19 13:00	
Cadmium, Dissolved	ug/L	<2.5	2.5	11/06/19 13:00	
Calcium, Dissolved	ug/L	<200	200	11/06/19 13:00	
Chromium, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Cobalt, Dissolved	ug/L	<50.0	50.0	11/06/19 13:00	
Copper, Dissolved	ug/L	<25.0	25.0	11/06/19 13:00	
Iron, Dissolved	ug/L	<20.0	20.0	11/06/19 13:00	
Lead, Dissolved	ug/L	<5.0	5.0	11/06/19 13:00	
Magnesium, Dissolved	ug/L	<200	200	11/06/19 13:00	
Manganese, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Nickel, Dissolved	ug/L	<40.0	40.0	11/06/19 13:00	
Potassium, Dissolved	ug/L	<5000	5000	11/06/19 13:00	
Selenium, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Silver, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Sodium, Dissolved	ug/L	<5000	5000	11/06/19 13:00	
Thallium, Dissolved	ug/L	<10.0	10.0	11/06/19 13:00	
Vanadium, Dissolved	ug/L	<50.0	50.0	11/06/19 13:00	
Zinc, Dissolved	ug/L	<20.0	20.0	11/06/19 13:00	

LABORATORY CONTROL SAMPLE: 651773

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	5000	4980	100	80-120	
Antimony, Dissolved	ug/L	750	733	98	80-120	
Arsenic, Dissolved	ug/L	500	489	98	80-120	
Barium, Dissolved	ug/L	500	498	100	80-120	
Beryllium, Dissolved	ug/L	50	50.2	100	80-120	
Boron, Dissolved	ug/L	2500	2520	101	80-120	
Cadmium, Dissolved	ug/L	50	50.0	100	80-120	
Calcium, Dissolved	ug/L	25000	25100	100	80-120	
Chromium, Dissolved	ug/L	250	251	100	80-120	
Cobalt, Dissolved	ug/L	500	503	101	80-120	
Copper, Dissolved	ug/L	250	251	100	80-120	
Iron, Dissolved	ug/L	2000	2030	101	80-120	
Lead, Dissolved	ug/L	500	503	101	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

LABORATORY CONTROL SAMPLE: 651773

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium, Dissolved	ug/L	25000	24700	99	80-120	
Manganese, Dissolved	ug/L	250	251	100	80-120	
Nickel, Dissolved	ug/L	250	250	100	80-120	
Potassium, Dissolved	ug/L	50000	48900	98	80-120	
Selenium, Dissolved	ug/L	750	755	101	80-120	
Silver, Dissolved	ug/L	250	247	99	80-120	
Sodium, Dissolved	ug/L	50000	51600	103	80-120	
Thallium, Dissolved	ug/L	750	753	100	80-120	
Vanadium, Dissolved	ug/L	500	502	100	80-120	
Zinc, Dissolved	ug/L	1000	1020	102	80-120	

MATRIX SPIKE SAMPLE: 651776

Parameter	Units	70109260006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	<200	5000	4620	92	75-125	
Antimony, Dissolved	ug/L	<60.0	750	538	72	75-125	M1
Arsenic, Dissolved	ug/L	<10.0	500	459	92	75-125	
Barium, Dissolved	ug/L	<200	500	482	92	75-125	
Beryllium, Dissolved	ug/L	<5.0	50	46.2	92	75-125	
Boron, Dissolved	ug/L	<50.0	2500	2300	92	75-125	
Cadmium, Dissolved	ug/L	<2.5	50	46.5	93	75-125	
Calcium, Dissolved	ug/L	13500	25000	37100	94	75-125	
Chromium, Dissolved	ug/L	<10.0	250	233	93	75-125	
Cobalt, Dissolved	ug/L	<50.0	500	466	93	75-125	
Copper, Dissolved	ug/L	<25.0	250	234	93	75-125	
Iron, Dissolved	ug/L	32.5	2000	1920	94	75-125	
Lead, Dissolved	ug/L	<5.0	500	467	93	75-125	
Magnesium, Dissolved	ug/L	4150	25000	27700	94	75-125	
Manganese, Dissolved	ug/L	181	250	407	90	75-125	
Nickel, Dissolved	ug/L	<40.0	250	242	91	75-125	
Potassium, Dissolved	ug/L	<5000	50000	41700	81	75-125	
Selenium, Dissolved	ug/L	<10.0	750	705	94	75-125	
Silver, Dissolved	ug/L	<10.0	250	63.5	25	75-125	M1
Sodium, Dissolved	ug/L	10300	50000	55800	91	75-125	
Thallium, Dissolved	ug/L	<10.0	750	692	92	75-125	
Vanadium, Dissolved	ug/L	<50.0	500	469	94	75-125	
Zinc, Dissolved	ug/L	<20.0	1000	968	96	75-125	

SAMPLE DUPLICATE: 651775

Parameter	Units	70109260006 Result	Dup Result	RPD	Qualifiers
Aluminum, Dissolved	ug/L	<200	<200		
Antimony, Dissolved	ug/L	<60.0	<60.0		
Arsenic, Dissolved	ug/L	<10.0	<10.0		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

SAMPLE DUPLICATE: 651775

Parameter	Units	70109260006 Result	Dup Result	RPD	Qualifiers
Barium, Dissolved	ug/L	<200	<200		
Beryllium, Dissolved	ug/L	<5.0	<5.0		
Boron, Dissolved	ug/L	<50.0	<50.0		
Cadmium, Dissolved	ug/L	<2.5	<2.5		
Calcium, Dissolved	ug/L	13500	13400	1	
Chromium, Dissolved	ug/L	<10.0	<10.0		
Cobalt, Dissolved	ug/L	<50.0	<50.0		
Copper, Dissolved	ug/L	<25.0	<25.0		
Iron, Dissolved	ug/L	32.5	32.1	1	
Lead, Dissolved	ug/L	<5.0	<5.0		
Magnesium, Dissolved	ug/L	4150	4160	0	
Manganese, Dissolved	ug/L	181	181	0	
Nickel, Dissolved	ug/L	<40.0	<40.0		
Potassium, Dissolved	ug/L	<5000	<5000		
Selenium, Dissolved	ug/L	<10.0	<10.0		
Silver, Dissolved	ug/L	<10.0	<10.0		
Sodium, Dissolved	ug/L	10300	10000	3	
Thallium, Dissolved	ug/L	<10.0	<10.0		
Vanadium, Dissolved	ug/L	<50.0	<50.0		
Zinc, Dissolved	ug/L	<20.0	<20.0		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136839 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 70109260005, 70109260006, 70109260020, 70109260021

METHOD BLANK: 654874 Matrix: Water
Associated Lab Samples: 70109260005, 70109260006, 70109260020, 70109260021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	11/01/19 16:33	

LABORATORY CONTROL SAMPLE: 654875

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	0.93	93	80-120	

MATRIX SPIKE SAMPLE: 654876

Parameter	Units	70109314004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	1	0.97	96	75-125	

SAMPLE DUPLICATE: 654877

Parameter	Units	70109314004 Result	Dup Result	RPD	Qualifiers
Mercury	ug/L	<0.20	<0.20		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136699 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury Dissolved
Associated Lab Samples: 70109260006

METHOD BLANK: 654082 Matrix: Water
Associated Lab Samples: 70109260006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.20	0.20	10/31/19 17:38	

LABORATORY CONTROL SAMPLE: 654083

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	1	0.93	93	80-120	

MATRIX SPIKE SAMPLE: 654084

Parameter	Units	70109260006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	<0.20	1	0.89	89	75-125	

SAMPLE DUPLICATE: 654085

Parameter	Units	70109260006 Result	Dup Result	RPD	Qualifiers
Mercury, Dissolved	ug/L	<0.20	<0.20		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135967 Analysis Method: EPA 6010C
QC Batch Method: EPA 3005A Analysis Description: 6010 MET Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017

METHOD BLANK: 650714 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	<200	200	10/28/19 14:24	
Antimony	ug/L	<60.0	60.0	10/28/19 14:24	
Arsenic	ug/L	<10.0	10.0	10/28/19 14:24	
Barium	ug/L	<200	200	10/28/19 14:24	
Beryllium	ug/L	<5.0	5.0	10/28/19 14:24	
Boron	ug/L	<50.0	50.0	10/28/19 14:24	
Cadmium	ug/L	<2.5	2.5	10/28/19 14:24	
Calcium	ug/L	<200	200	10/28/19 14:24	
Chromium	ug/L	<10.0	10.0	10/28/19 14:24	
Cobalt	ug/L	<50.0	50.0	10/28/19 14:24	
Copper	ug/L	<25.0	25.0	10/28/19 14:24	
Iron	ug/L	<20.0	20.0	10/28/19 14:24	
Lead	ug/L	<5.0	5.0	10/28/19 14:24	
Magnesium	ug/L	<200	200	10/28/19 14:24	
Manganese	ug/L	<10.0	10.0	10/28/19 14:24	
Nickel	ug/L	<40.0	40.0	10/28/19 14:24	
Potassium	ug/L	<5000	5000	10/28/19 14:24	
Selenium	ug/L	<10.0	10.0	10/28/19 14:24	
Silver	ug/L	<10.0	10.0	10/28/19 14:24	
Sodium	ug/L	<5000	5000	10/28/19 14:24	
Thallium	ug/L	<10.0	10.0	10/28/19 14:24	
Vanadium	ug/L	<50.0	50.0	10/28/19 14:24	
Zinc	ug/L	<20.0	20.0	10/28/19 14:24	

LABORATORY CONTROL SAMPLE: 650715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	5130	103	80-120	
Antimony	ug/L	750	775	103	80-120	
Arsenic	ug/L	500	528	106	80-120	
Barium	ug/L	500	518	104	80-120	
Beryllium	ug/L	50	52.6	105	80-120	
Boron	ug/L	2500	2590	104	80-120	
Cadmium	ug/L	50	51.6	103	80-120	
Calcium	ug/L	25000	26000	104	80-120	
Chromium	ug/L	250	259	104	80-120	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

LABORATORY CONTROL SAMPLE: 650715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	500	519	104	80-120	
Copper	ug/L	250	260	104	80-120	
Iron	ug/L	2000	2090	104	80-120	
Lead	ug/L	500	519	104	80-120	
Magnesium	ug/L	25000	25600	102	80-120	
Manganese	ug/L	250	260	104	80-120	
Nickel	ug/L	250	260	104	80-120	
Potassium	ug/L	50000	50400	101	80-120	
Selenium	ug/L	750	762	102	80-120	
Silver	ug/L	250	255	102	80-120	
Sodium	ug/L	50000	52200	104	80-120	
Thallium	ug/L	750	778	104	80-120	
Vanadium	ug/L	500	523	105	80-120	
Zinc	ug/L	1000	1040	104	80-120	

MATRIX SPIKE SAMPLE: 650717

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1030	5000	7550	130	75-125	M1
Antimony	ug/L	<60.0	750	807	107	75-125	
Arsenic	ug/L	<10.0	500	552	110	75-125	
Barium	ug/L	<200	500	607	109	75-125	
Beryllium	ug/L	<5.0	50	54.0	108	75-125	
Boron	ug/L	<50.0	2500	2690	107	75-125	
Cadmium	ug/L	<2.5	50	52.8	106	75-125	
Calcium	ug/L	16000	25000	42700	107	75-125	
Chromium	ug/L	78.1	250	327	100	75-125	
Cobalt	ug/L	<50.0	500	547	107	75-125	
Copper	ug/L	<25.0	250	275	106	75-125	
Iron	ug/L	10300	2000	11600	67	75-125	M1
Lead	ug/L	<5.0	500	535	107	75-125	
Magnesium	ug/L	6740	25000	33300	106	75-125	
Manganese	ug/L	126	250	390	106	75-125	
Nickel	ug/L	70.6	250	333	105	75-125	
Potassium	ug/L	<5000	50000	52900	103	75-125	
Selenium	ug/L	<10.0	750	787	105	75-125	
Silver	ug/L	<10.0	250	352	141	75-125	M1
Sodium	ug/L	8850	50000	62600	108	75-125	
Thallium	ug/L	<10.0	750	795	106	75-125	
Vanadium	ug/L	<50.0	500	546	108	75-125	
Zinc	ug/L	<20.0	1000	1080	107	75-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

SAMPLE DUPLICATE: 650716

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	1030	991	4	
Antimony	ug/L	<60.0	<60.0		
Arsenic	ug/L	<10.0	<10.0		
Barium	ug/L	<200	<200		
Beryllium	ug/L	<5.0	<5.0		
Boron	ug/L	<50.0	<50.0		
Cadmium	ug/L	<2.5	<2.5		
Calcium	ug/L	16000	15800	1	
Chromium	ug/L	78.1	73.8	6	
Cobalt	ug/L	<50.0	<50.0		
Copper	ug/L	<25.0	<25.0		
Iron	ug/L	10300	9770	5	
Lead	ug/L	<5.0	<5.0		
Magnesium	ug/L	6740	6690	1	
Manganese	ug/L	126	124	2	
Nickel	ug/L	70.6	67.7	4	
Potassium	ug/L	<5000	<5000		
Selenium	ug/L	<10.0	<10.0		
Silver	ug/L	<10.0	<10.0		
Sodium	ug/L	8850	8770	1	
Thallium	ug/L	<10.0	<10.0		
Vanadium	ug/L	<50.0	<50.0		
Zinc	ug/L	<20.0	<20.0		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136635 Analysis Method: EPA 6010C
QC Batch Method: EPA 3005A Analysis Description: 6010 MET Water
Associated Lab Samples: 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 653730 Matrix: Water
Associated Lab Samples: 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	<200	200	11/01/19 11:02	
Antimony	ug/L	<60.0	60.0	11/01/19 11:02	
Arsenic	ug/L	<10.0	10.0	11/01/19 11:02	
Barium	ug/L	<200	200	11/01/19 11:02	
Beryllium	ug/L	<5.0	5.0	11/01/19 11:02	
Boron	ug/L	<50.0	50.0	11/01/19 11:02	
Cadmium	ug/L	<2.5	2.5	11/01/19 11:02	
Calcium	ug/L	<200	200	11/01/19 11:02	
Chromium	ug/L	<10.0	10.0	11/01/19 11:02	
Cobalt	ug/L	<50.0	50.0	11/01/19 11:02	
Copper	ug/L	<25.0	25.0	11/01/19 11:02	
Iron	ug/L	<20.0	20.0	11/01/19 11:02	
Lead	ug/L	<5.0	5.0	11/01/19 11:02	
Magnesium	ug/L	<200	200	11/01/19 11:02	
Manganese	ug/L	<10.0	10.0	11/01/19 11:02	
Nickel	ug/L	<40.0	40.0	11/01/19 11:02	
Potassium	ug/L	<5000	5000	11/01/19 11:02	
Selenium	ug/L	<10.0	10.0	11/01/19 11:02	
Silver	ug/L	<10.0	10.0	11/01/19 11:02	
Sodium	ug/L	<5000	5000	11/01/19 11:02	
Thallium	ug/L	<10.0	10.0	11/01/19 11:02	
Vanadium	ug/L	<50.0	50.0	11/01/19 11:02	
Zinc	ug/L	<20.0	20.0	11/01/19 11:02	

LABORATORY CONTROL SAMPLE: 653731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	5150	103	80-120	
Antimony	ug/L	750	808	108	80-120	
Arsenic	ug/L	500	513	103	80-120	
Barium	ug/L	500	513	103	80-120	
Beryllium	ug/L	50	51.2	102	80-120	
Boron	ug/L	2500	2560	102	80-120	
Cadmium	ug/L	50	49.5	99	80-120	
Calcium	ug/L	25000	25700	103	80-120	
Chromium	ug/L	250	255	102	80-120	
Cobalt	ug/L	500	520	104	80-120	
Copper	ug/L	250	257	103	80-120	
Iron	ug/L	2000	2110	105	80-120	
Lead	ug/L	500	515	103	80-120	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

LABORATORY CONTROL SAMPLE: 653731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	25000	25500	102	80-120	
Manganese	ug/L	250	258	103	80-120	
Nickel	ug/L	250	260	104	80-120	
Potassium	ug/L	50000	48900	98	80-120	
Selenium	ug/L	750	738	98	80-120	
Silver	ug/L	250	254	102	80-120	
Sodium	ug/L	50000	52100	104	80-120	
Thallium	ug/L	750	776	103	80-120	
Vanadium	ug/L	500	517	103	80-120	
Zinc	ug/L	1000	1020	102	80-120	

MATRIX SPIKE SAMPLE: 653733

Parameter	Units	70109826001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	<200	5000	5090	99	75-125	
Antimony	ug/L	<60.0	750	810	108	75-125	
Arsenic	ug/L	<10.0	500	510	101	75-125	
Barium	ug/L	1080	500	1540	92	75-125	
Beryllium	ug/L	<5.0	50	49.3	99	75-125	
Boron	ug/L	<50.0	2500	2570	102	75-125	
Cadmium	ug/L	<2.5	50	47.7	95	75-125	
Calcium	ug/L	221000	25000	236000	60	75-125	M1
Chromium	ug/L	<10.0	250	247	99	75-125	
Cobalt	ug/L	<50.0	500	508	102	75-125	
Copper	ug/L	<25.0	250	254	97	75-125	
Iron	ug/L	28000	2000	29300	62	75-125	M1
Lead	ug/L	<5.0	500	496	99	75-125	
Magnesium	ug/L	46600	25000	69500	92	75-125	
Manganese	ug/L	759	250	985	90	75-125	
Nickel	ug/L	<40.0	250	274	103	75-125	
Potassium	ug/L	8070	50000	56000	96	75-125	
Selenium	ug/L	<10.0	750	728	97	75-125	
Silver	ug/L	<10.0	250	235	94	75-125	
Sodium	ug/L	38600	50000	88700	100	75-125	
Thallium	ug/L	<10.0	750	755	101	75-125	
Vanadium	ug/L	<50.0	500	510	102	75-125	
Zinc	ug/L	<20.0	1000	977	97	75-125	

SAMPLE DUPLICATE: 653732

Parameter	Units	70109826001 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	<200	<200		
Antimony	ug/L	<60.0	<60.0		
Arsenic	ug/L	<10.0	<10.0		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

SAMPLE DUPLICATE: 653732

Parameter	Units	70109826001 Result	Dup Result	RPD	Qualifiers
Barium	ug/L	1080	1090	1	
Beryllium	ug/L	<5.0	<5.0		
Boron	ug/L	<50.0	<50.0		
Cadmium	ug/L	<2.5	<2.5		
Calcium	ug/L	221000	223000	1	
Chromium	ug/L	<10.0	<10.0		
Cobalt	ug/L	<50.0	<50.0		
Copper	ug/L	<25.0	<25.0		
Iron	ug/L	28000	28500	2	
Lead	ug/L	<5.0	<5.0		
Magnesium	ug/L	46600	47100	1	
Manganese	ug/L	759	769	1	
Nickel	ug/L	<40.0	<40.0		
Potassium	ug/L	8070	7940	2	
Selenium	ug/L	<10.0	<10.0		
Silver	ug/L	<10.0	<10.0		
Sodium	ug/L	38600	39500	2	
Thallium	ug/L	<10.0	<10.0		
Vanadium	ug/L	<50.0	<50.0		
Zinc	ug/L	<20.0	<20.0		

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Melville, NY 11747
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135589 Analysis Method: EPA 8260C/5030C
QC Batch Method: EPA 8260C/5030C Analysis Description: 8260 MSV
Associated Lab Samples: 70109260005, 70109260006, 70109260012, 70109260013

METHOD BLANK: 648736 Matrix: Water
Associated Lab Samples: 70109260005, 70109260006, 70109260012, 70109260013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,1,1-Trichloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,1,2,2-Tetrachloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,1,2-Trichloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,1-Dichloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,1-Dichloroethene	ug/L	<5.0	5.0	10/23/19 11:34	
1,2,3-Trichloropropane	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dibromo-3-chloropropane	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dibromoethane (EDB)	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dichlorobenzene	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dichloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dichloropropane	ug/L	<5.0	5.0	10/23/19 11:34	
1,4-Dichlorobenzene	ug/L	<5.0	5.0	10/23/19 11:34	
2-Butanone (MEK)	ug/L	<5.0	5.0	10/23/19 11:34	CL,IL
2-Hexanone	ug/L	<5.0	5.0	10/23/19 11:34	
4-Methyl-2-pentanone (MIBK)	ug/L	<5.0	5.0	10/23/19 11:34	
Acetone	ug/L	<5.0	5.0	10/23/19 11:34	IC
Acrylonitrile	ug/L	<5.0	5.0	10/23/19 11:34	
Benzene	ug/L	<5.0	5.0	10/23/19 11:34	
Bromochloromethane	ug/L	<5.0	5.0	10/23/19 11:34	
Bromodichloromethane	ug/L	<5.0	5.0	10/23/19 11:34	
Bromoform	ug/L	<5.0	5.0	10/23/19 11:34	
Bromomethane	ug/L	<5.0	5.0	10/23/19 11:34	
Carbon disulfide	ug/L	<5.0	5.0	10/23/19 11:34	
Carbon tetrachloride	ug/L	<5.0	5.0	10/23/19 11:34	
Chlorobenzene	ug/L	<5.0	5.0	10/23/19 11:34	
Chloroethane	ug/L	<5.0	5.0	10/23/19 11:34	
Chloroform	ug/L	<5.0	5.0	10/23/19 11:34	
Chloromethane	ug/L	<5.0	5.0	10/23/19 11:34	
cis-1,2-Dichloroethene	ug/L	<5.0	5.0	10/23/19 11:34	
cis-1,3-Dichloropropene	ug/L	<5.0	5.0	10/23/19 11:34	
Dibromochloromethane	ug/L	<5.0	5.0	10/23/19 11:34	
Dibromomethane	ug/L	<5.0	5.0	10/23/19 11:34	
Ethylbenzene	ug/L	<5.0	5.0	10/23/19 11:34	
Iodomethane	ug/L	<5.0	5.0	10/23/19 11:34	
Methylene Chloride	ug/L	<5.0	5.0	10/23/19 11:34	
Styrene	ug/L	<5.0	5.0	10/23/19 11:34	
Tetrachloroethene	ug/L	<5.0	5.0	10/23/19 11:34	
Toluene	ug/L	<5.0	5.0	10/23/19 11:34	
trans-1,2-Dichloroethene	ug/L	<5.0	5.0	10/23/19 11:34	
trans-1,3-Dichloropropene	ug/L	<5.0	5.0	10/23/19 11:34	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

METHOD BLANK: 648736 Matrix: Water
Associated Lab Samples: 70109260005, 70109260006, 70109260012, 70109260013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,4-Dichloro-2-butene	ug/L	<5.0	5.0	10/23/19 11:34	
Trichloroethene	ug/L	<5.0	5.0	10/23/19 11:34	
Trichlorofluoromethane	ug/L	<5.0	5.0	10/23/19 11:34	
Vinyl acetate	ug/L	<5.0	5.0	10/23/19 11:34	
Vinyl chloride	ug/L	<5.0	5.0	10/23/19 11:34	
Xylene (Total)	ug/L	<5.0	5.0	10/23/19 11:34	
1,2-Dichloroethane-d4 (S)	%	93	68-153	10/23/19 11:34	
4-Bromofluorobenzene (S)	%	94	79-124	10/23/19 11:34	
Toluene-d8 (S)	%	93	69-124	10/23/19 11:34	

LABORATORY CONTROL SAMPLE: 648737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	42.1	84	74-113	
1,1,1-Trichloroethane	ug/L	50	43.6	87	65-118	
1,1,2,2-Tetrachloroethane	ug/L	50	49.9	100	74-121	
1,1,2-Trichloroethane	ug/L	50	48.6	97	80-117	
1,1-Dichloroethane	ug/L	50	49.8	100	83-151	
1,1-Dichloroethene	ug/L	50	46.0	92	45-146	
1,2,3-Trichloropropane	ug/L	50	44.1	88	71-123	
1,2-Dibromo-3-chloropropane	ug/L	50	44.8	90	74-119	
1,2-Dibromoethane (EDB)	ug/L	50	44.9	90	83-115	
1,2-Dichlorobenzene	ug/L	50	46.2	92	74-113	
1,2-Dichloroethane	ug/L	50	49.4	99	74-129	
1,2-Dichloropropane	ug/L	50	48.2	96	75-117	
1,4-Dichlorobenzene	ug/L	50	45.5	91	71-113	
2-Butanone (MEK)	ug/L	50	38.9	78	44-162	IL
2-Hexanone	ug/L	50	45.3	91	32-183	
4-Methyl-2-pentanone (MIBK)	ug/L	50	47.2	94	69-132	
Acetone	ug/L	50	47.1	94	23-188	CH,IC
Acrylonitrile	ug/L	50	58.0	116	59-148	
Benzene	ug/L	50	47.0	94	73-119	
Bromochloromethane	ug/L	50	51.4	103	81-116	
Bromodichloromethane	ug/L	50	46.8	94	78-117	
Bromoform	ug/L	50	39.2	78	65-122	
Bromomethane	ug/L	50	69.5	139	52-147	CH
Carbon disulfide	ug/L	50	41.2	82	41-144	
Carbon tetrachloride	ug/L	50	47.2	94	59-120	
Chlorobenzene	ug/L	50	46.2	92	75-113	
Chloroethane	ug/L	50	45.5	91	49-151	
Chloroform	ug/L	50	52.7	105	72-122	
Chloromethane	ug/L	50	47.0	94	46-144	
cis-1,2-Dichloroethene	ug/L	50	50.8	102	72-121	
cis-1,3-Dichloropropene	ug/L	50	45.3	91	78-116	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

LABORATORY CONTROL SAMPLE: 648737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	43.3	87	70-120	
Dibromomethane	ug/L	50	45.9	92	75-125	
Ethylbenzene	ug/L	50	46.0	92	70-113	
Iodomethane	ug/L	50	115	230	61-144	CH,L1
Methylene Chloride	ug/L	50	52.6	105	61-142	
Styrene	ug/L	50	45.6	91	72-118	
Tetrachloroethene	ug/L	50	43.1	86	60-128	
Toluene	ug/L	50	47.7	95	72-119	
trans-1,2-Dichloroethene	ug/L	50	49.3	99	56-142	
trans-1,3-Dichloropropene	ug/L	50	42.8	86	79-116	
trans-1,4-Dichloro-2-butene	ug/L	50	55.6	111	71-121	
Trichloroethene	ug/L	50	45.3	91	69-117	
Trichlorofluoromethane	ug/L	50	44.1	88	27-173	
Vinyl acetate	ug/L	50	46.5	93	20-158	
Vinyl chloride	ug/L	50	44.4	89	43-143	
Xylene (Total)	ug/L	150	136	90	71-109	
1,2-Dichloroethane-d4 (S)	%			88	68-153	
4-Bromofluorobenzene (S)	%			94	79-124	
Toluene-d8 (S)	%			95	69-124	

SAMPLE DUPLICATE: 649102

Parameter	Units	70109294003 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	<5.0		
1,1,1-Trichloroethane	ug/L	<1.0	<5.0		
1,1,2,2-Tetrachloroethane	ug/L	<1.0	<5.0		
1,1,2-Trichloroethane	ug/L	<1.0	<5.0		
1,1-Dichloroethane	ug/L	<1.0	<5.0		
1,1-Dichloroethene	ug/L	<1.0	<5.0		
1,2,3-Trichloropropane	ug/L	<1.0	<5.0		
1,2-Dibromo-3-chloropropane	ug/L	<1.0	<5.0		
1,2-Dibromoethane (EDB)	ug/L	<1.0	<5.0		
1,2-Dichlorobenzene	ug/L	<1.0	<5.0		
1,2-Dichloroethane	ug/L	<1.0	<5.0		
1,2-Dichloropropane	ug/L	<1.0	<5.0		
1,4-Dichlorobenzene	ug/L	<1.0	<5.0		
2-Butanone (MEK)	ug/L	<5.0	<5.0		CL,IL
2-Hexanone	ug/L	<5.0	<5.0		
4-Methyl-2-pentanone (MIBK)	ug/L	<5.0	<5.0		
Acetone	ug/L	<5.0	<5.0		IC
Acrylonitrile	ug/L	<1.0	<5.0		
Benzene	ug/L	<1.0	<5.0		
Bromochloromethane	ug/L	<1.0	<5.0		
Bromodichloromethane	ug/L	<1.0	<5.0		
Bromoform	ug/L	<1.0	<5.0		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

SAMPLE DUPLICATE: 649102

Parameter	Units	70109294003 Result	Dup Result	RPD	Qualifiers
Bromomethane	ug/L	<1.0	<5.0		
Carbon disulfide	ug/L	<1.0	<5.0		
Carbon tetrachloride	ug/L	<1.0	<5.0		
Chlorobenzene	ug/L	<1.0	<5.0		
Chloroethane	ug/L	<1.0	<5.0		
Chloroform	ug/L	<1.0	<5.0		
Chloromethane	ug/L	<1.0	<5.0		
cis-1,2-Dichloroethene	ug/L	<1.0	<5.0		
cis-1,3-Dichloropropene	ug/L	<1.0	<5.0		
Dibromochloromethane	ug/L	<1.0	<5.0		
Dibromomethane	ug/L	<1.0	<5.0		
Ethylbenzene	ug/L	<1.0	<5.0		
Iodomethane	ug/L	<1.0	<5.0		
Methylene Chloride	ug/L	<1.0	<5.0		
Styrene	ug/L	<1.0	<5.0		
Tetrachloroethene	ug/L	<1.0	<5.0		
Toluene	ug/L	<1.0	<5.0		
trans-1,2-Dichloroethene	ug/L	<1.0	<5.0		
trans-1,3-Dichloropropene	ug/L	<1.0	<5.0		
trans-1,4-Dichloro-2-butene	ug/L	<1.0	<5.0		
Trichloroethene	ug/L	<1.0	<5.0		
Trichlorofluoromethane	ug/L	<1.0	<5.0		
Vinyl acetate	ug/L	<1.0	<5.0		
Vinyl chloride	ug/L	<1.0	<5.0		
Xylene (Total)	ug/L	<3.0	<5.0		
1,2-Dichloroethane-d4 (S)	%	89	88		
4-Bromofluorobenzene (S)	%	93	94		
Toluene-d8 (S)	%	93	94		

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135811 Analysis Method: SM22 2320B
QC Batch Method: SM22 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 649947 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.0	1.0	10/24/19 18:17	

LABORATORY CONTROL SAMPLE: 649948

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	25	23.3	93	85-115	

MATRIX SPIKE SAMPLE: 649950

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	52.0	25	75.0	92	75-125	

SAMPLE DUPLICATE: 649949

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	52.0	50.5	3	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136348 Analysis Method: SM22 2320B
QC Batch Method: SM22 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 652404 Matrix: Water
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.0	1.0	10/29/19 16:00	

LABORATORY CONTROL SAMPLE: 652405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	25	26.0	104	85-115	

MATRIX SPIKE SAMPLE: 652407

Parameter	Units	70109317003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	5.7	25	33.3	111	75-125	

SAMPLE DUPLICATE: 652406

Parameter	Units	70109317003 Result	Dup Result	RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	5.7	5.7	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 137276 Analysis Method: SM22 2340C
QC Batch Method: SM22 2340C Analysis Description: 2340C Hardness, Total
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022

METHOD BLANK: 656867 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	<5.0	5.0	11/05/19 17:24	

LABORATORY CONTROL SAMPLE: 656868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	100	100	100	90-110	

MATRIX SPIKE SAMPLE: 656869

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	80.0	500	575	99	75-125	

SAMPLE DUPLICATE: 656870

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	80.0	70.0	13	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 137305 Analysis Method: SM22 2340C
QC Batch Method: SM22 2340C Analysis Description: 2340C Hardness, Total
Associated Lab Samples: 70109260023

METHOD BLANK: 657116 Matrix: Water
Associated Lab Samples: 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	<5.0	5.0	11/05/19 22:12	

LABORATORY CONTROL SAMPLE: 657117

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	100	100	100	90-110	

MATRIX SPIKE SAMPLE: 657118

Parameter	Units	70109260023 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	90.0	1000	1090	100	75-125	

SAMPLE DUPLICATE: 657119

Parameter	Units	70109260023 Result	Dup Result	RPD	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	mg/L	90.0	90.0	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135688 Analysis Method: SM22 2540C
QC Batch Method: SM22 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 649501 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10/24/19 09:41	

LABORATORY CONTROL SAMPLE: 649502

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	500	554	111	85-115	

MATRIX SPIKE SAMPLE: 649504

Parameter	Units	70109260001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	330	600	978	108	75-125	

MATRIX SPIKE SAMPLE: 649506

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	103	300	432	110	75-125	

SAMPLE DUPLICATE: 649503

Parameter	Units	70109260001 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	330	330	0	

SAMPLE DUPLICATE: 649505

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	103	103	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135871
QC Batch Method: SM22 2540C
Analysis Method: SM22 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 70109260014

METHOD BLANK: 650334 Matrix: Water
Associated Lab Samples: 70109260014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10/25/19 09:41	

LABORATORY CONTROL SAMPLE: 650335

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	500	482	96	85-115	

MATRIX SPIKE SAMPLE: 650337

Parameter	Units	70109650001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	502	600	1250	124	75-125	

MATRIX SPIKE SAMPLE: 650339

Parameter	Units	70109314004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	370	600	1070	116	75-125	

SAMPLE DUPLICATE: 650336

Parameter	Units	70109650001 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	502	486	3	

SAMPLE DUPLICATE: 650338

Parameter	Units	70109314004 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	370	436	16	D6

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REPORT OF LABORATORY ANALYSIS

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(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136065 Analysis Method: SM22 2540C
QC Batch Method: SM22 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 651343 Matrix: Water
Associated Lab Samples: 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10/28/19 13:42	

LABORATORY CONTROL SAMPLE: 651344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	500	510	102	85-115	

MATRIX SPIKE SAMPLE: 651346

Parameter	Units	70109260015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	216	300	554	113	75-125	

MATRIX SPIKE SAMPLE: 651348

Parameter	Units	70109461004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	139	300	442	101	75-125	

SAMPLE DUPLICATE: 651345

Parameter	Units	70109260015 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	216	212	2	

SAMPLE DUPLICATE: 651347

Parameter	Units	70109461004 Result	Dup Result	RPD	Qualifiers
Total Dissolved Solids	mg/L	139	141	1	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136082 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 651393 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	10.0	10/28/19 13:35	

LABORATORY CONTROL SAMPLE: 651394

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	500	542	108	90-110	

MATRIX SPIKE SAMPLE: 651395

Parameter	Units	70109826004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	41.1	1000	1080	103	90-110	

MATRIX SPIKE SAMPLE: 651397

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	12.4	1000	1040	103	90-110	

SAMPLE DUPLICATE: 651396

Parameter	Units	70109826004 Result	Dup Result	RPD	Qualifiers
Chemical Oxygen Demand	mg/L	41.1	36.7	11	

SAMPLE DUPLICATE: 651398

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Chemical Oxygen Demand	mg/L	12.4	14.6	16	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136440 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 652918 Matrix: Water
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	10.0	10/30/19 11:52	

LABORATORY CONTROL SAMPLE: 652919

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	500	527	105	90-110	

MATRIX SPIKE SAMPLE: 652920

Parameter	Units	70109260014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	1000	1050	105	90-110	

MATRIX SPIKE SAMPLE: 652922

Parameter	Units	70109314004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	1000	1030	102	90-110	

SAMPLE DUPLICATE: 652921

Parameter	Units	70109260014 Result	Dup Result	RPD	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	<10.0		

SAMPLE DUPLICATE: 652923

Parameter	Units	70109314004 Result	Dup Result	RPD	Qualifiers
Chemical Oxygen Demand	mg/L	<10.0	10.2		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135404 Analysis Method: SM22 5210B
QC Batch Method: SM22 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 647706 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	<2.0	2.0	10/27/19 08:26	

LABORATORY CONTROL SAMPLE: 647707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	187	94	84.5-115.4	

SAMPLE DUPLICATE: 647708

Parameter	Units	70109242001 Result	Dup Result	RPD	Qualifiers
BOD, 5 day	mg/L	529	540	2	

SAMPLE DUPLICATE: 648019

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
BOD, 5 day	mg/L	<4.0	<4.0		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135600 Analysis Method: SM22 5210B
QC Batch Method: SM22 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 648890 Matrix: Water
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	<2.0	2.0	10/28/19 12:05	

LABORATORY CONTROL SAMPLE: 648891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	194	98	84.5-115.4	

SAMPLE DUPLICATE: 648892

Parameter	Units	70109360001 Result	Dup Result	RPD	Qualifiers
BOD, 5 day	mg/L	226	234	3	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136000 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004

METHOD BLANK: 650847 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	<0.50	0.50	10/25/19 18:59	
Chloride	mg/L	<2.0	2.0	10/25/19 18:59	
Sulfate	mg/L	<5.0	5.0	10/25/19 18:59	

LABORATORY CONTROL SAMPLE: 650848

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1	1.1	110	90-110	
Chloride	mg/L	10	10.9	109	90-110	
Sulfate	mg/L	10	10.4	104	90-110	

MATRIX SPIKE SAMPLE: 650849

Parameter	Units	70109323003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	0.079	1	1.1	103	80-120	
Chloride	mg/L	21.7	10	31.6	99	80-120	
Sulfate	mg/L	30.5	10	39.5	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 650851 650884

Parameter	Units	70108807012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Bromide	mg/L	87.2 ug/L	1	1	1.1	1.1	104	103	80-120	1	
Chloride	mg/L	376	10	10	387	385	102	92	80-120	0	
Sulfate	mg/L	68.0	10	10	76.7	76.1	87	81	80-120	1	

SAMPLE DUPLICATE: 650850

Parameter	Units	70109323003 Result	Dup Result	RPD	Qualifiers
Bromide	mg/L	0.079	<0.50		
Chloride	mg/L	21.7	21.7	0	
Sulfate	mg/L	30.5	30.4	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136175 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 651898 Matrix: Water
Associated Lab Samples: 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	<0.50	0.50	10/28/19 19:13	
Chloride	mg/L	<2.0	2.0	10/28/19 19:13	
Sulfate	mg/L	<5.0	5.0	10/28/19 19:13	

LABORATORY CONTROL SAMPLE: 651899

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	1	1.1	107	90-110	
Chloride	mg/L	10	10.9	109	90-110	
Sulfate	mg/L	10	10.8	108	90-110	

MATRIX SPIKE SAMPLE: 651900

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	<0.50	1	1.0	98	80-120	
Chloride	mg/L	13.8	10	25.7	119	80-120	
Sulfate	mg/L	13.4	10	24.3	109	80-120	

MATRIX SPIKE SAMPLE: 651902

Parameter	Units	70109818001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	<0.50	1	1.1	106	80-120	
Chloride	mg/L	<2.0	10	10.5	105	80-120	
Sulfate	mg/L	<5.0	10	9.7	96	80-120	

SAMPLE DUPLICATE: 651901

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Bromide	mg/L	<0.50	<0.50		
Chloride	mg/L	13.8	13.7	1	
Sulfate	mg/L	13.4	13.4	0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

SAMPLE DUPLICATE: 651903

Parameter	Units	70109818001 Result	Dup Result	RPD	Qualifiers
Bromide	mg/L	<0.50	<0.50		
Chloride	mg/L	<2.0	<2.0		
Sulfate	mg/L	<5.0	<5.0		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 137115 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007

METHOD BLANK: 656259 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.10	0.10	11/05/19 11:58	

LABORATORY CONTROL SAMPLE: 656260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	4	4.3	109	90-110	

MATRIX SPIKE SAMPLE: 656261

Parameter	Units	70109807002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	0.79	4	5.6	119	90-110	M6

MATRIX SPIKE SAMPLE: 656263

Parameter	Units	70110012001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	0.29	4	4.4	102	90-110	

SAMPLE DUPLICATE: 656262

Parameter	Units	70109807002 Result	Dup Result	RPD	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	0.79	0.81	3	

SAMPLE DUPLICATE: 656264

Parameter	Units	70110012001 Result	Dup Result	RPD	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	0.29	0.26	12	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 137116 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 656265 Matrix: Water
Associated Lab Samples: 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.10	0.10	11/05/19 12:24	

LABORATORY CONTROL SAMPLE: 656266

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	4	4.2	104	90-110	

MATRIX SPIKE SAMPLE: 656267

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.10	4	4.6	113	90-110	M6

MATRIX SPIKE SAMPLE: 656269

Parameter	Units	70109385002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.0	4	7.0	126	90-110	M6

SAMPLE DUPLICATE: 656268

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.10	<0.10		

SAMPLE DUPLICATE: 656270

Parameter	Units	70109385002 Result	Dup Result	RPD	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.0	2.1	4	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135450 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrite, Unpres.
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 648255 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrite as N	mg/L	<0.050	0.050	10/22/19 22:47	

LABORATORY CONTROL SAMPLE: 648256

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	1	0.96	96	90-110	

MATRIX SPIKE SAMPLE: 648257

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	<0.050	0.5	0.54	108	90-110	

MATRIX SPIKE SAMPLE: 648259

Parameter	Units	70109301001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	2.0	0.5	6.8	963	90-110	M6

SAMPLE DUPLICATE: 648258

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	<0.050	<0.050		

SAMPLE DUPLICATE: 648260

Parameter	Units	70109301001 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	2.0	2.0	0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135654 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrite, Unpres.
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022

METHOD BLANK: 649231 Matrix: Water
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrite as N	mg/L	<0.050	0.050	10/23/19 19:36	

LABORATORY CONTROL SAMPLE: 649232

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	1	0.97	97	90-110	

MATRIX SPIKE SAMPLE: 649233

Parameter	Units	70109461001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	<0.050	0.5	0.49	96	90-110	

MATRIX SPIKE SAMPLE: 649235

Parameter	Units	70109456001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	<0.050	0.5	0.50	98	90-110	

SAMPLE DUPLICATE: 649234

Parameter	Units	70109461001 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	<0.050	<0.050		

SAMPLE DUPLICATE: 649236

Parameter	Units	70109456001 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	<0.050	<0.050		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135655 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrite, Unpres.
Associated Lab Samples: 70109260023

METHOD BLANK: 649239 Matrix: Water
Associated Lab Samples: 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrite as N	mg/L	<0.050	0.050	10/23/19 20:11	

LABORATORY CONTROL SAMPLE: 649240

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	1	0.96	96	90-110	

MATRIX SPIKE SAMPLE: 649241

Parameter	Units	70109471001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	0.083	0.5	0.43	69	90-110	M1

MATRIX SPIKE SAMPLE: 649243

Parameter	Units	70109472001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrite as N	mg/L	<0.050	0.5	0.42	84	90-110	M1

SAMPLE DUPLICATE: 649242

Parameter	Units	70109471001 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	0.083	0.083	0	

SAMPLE DUPLICATE: 649244

Parameter	Units	70109472001 Result	Dup Result	RPD	Qualifiers
Nitrite as N	mg/L	<0.050	<0.050		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135456 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate, Unpres.
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

METHOD BLANK: 648278 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate-Nitrite (as N)	mg/L	<0.050	0.050	10/23/19 03:09	

LABORATORY CONTROL SAMPLE: 648279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate-Nitrite (as N)	mg/L	1	1.1	107	90-110	

MATRIX SPIKE SAMPLE: 648280

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate-Nitrite (as N)	mg/L	0.65	0.5	1.2	115	90-110	M1

MATRIX SPIKE SAMPLE: 648282

Parameter	Units	70109260001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate-Nitrite (as N)	mg/L	6.6	5	13.1	130	90-110	M6

SAMPLE DUPLICATE: 648281

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Nitrate-Nitrite (as N)	mg/L	0.65	0.64	0	

SAMPLE DUPLICATE: 648283

Parameter	Units	70109260001 Result	Dup Result	RPD	Qualifiers
Nitrate-Nitrite (as N)	mg/L	6.6	6.7	1	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Melville, NY 11747
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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 135664 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate, Unpres.
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 649420 Matrix: Water
Associated Lab Samples: 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate-Nitrite (as N)	mg/L	<0.050	0.050	10/23/19 22:22	

LABORATORY CONTROL SAMPLE: 649421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate-Nitrite (as N)	mg/L	1	1.0	100	90-110	

MATRIX SPIKE SAMPLE: 649424

Parameter	Units	70109260015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate-Nitrite (as N)	mg/L	0.22	0.5	0.69	94	90-110	

SAMPLE DUPLICATE: 649425

Parameter	Units	70109260015 Result	Dup Result	RPD	Qualifiers
Nitrate-Nitrite (as N)	mg/L	0.22	0.22	1	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136531 Analysis Method: EPA 420.1
QC Batch Method: EPA 420.1 Analysis Description: 420.1 Phenolics Macro
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006

METHOD BLANK: 653286 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phenolics, Total Recoverable	ug/L	<5.0	5.0	10/31/19 11:17	

LABORATORY CONTROL SAMPLE: 653287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ug/L	100	95.4	95	90-110	

MATRIX SPIKE SAMPLE: 653288

Parameter	Units	70109826004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ug/L	18.7	20	33.0	72	75-125	M1

SAMPLE DUPLICATE: 653289

Parameter	Units	70109826004 Result	Dup Result	RPD	Qualifiers
Phenolics, Total Recoverable	ug/L	18.7	14.6	25	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(631)694-3040

QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136946 Analysis Method: EPA 420.1
QC Batch Method: EPA 420.1 Analysis Description: 420.1 Phenolics Macro
Associated Lab Samples: 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

METHOD BLANK: 655495 Matrix: Water
Associated Lab Samples: 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021, 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phenolics, Total Recoverable	ug/L	<5.0	5.0	11/04/19 12:03	

LABORATORY CONTROL SAMPLE: 655496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ug/L	100	104	104	90-110	

MATRIX SPIKE SAMPLE: 655497

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ug/L	<5.0	20	33.3	159	75-125	M1

SAMPLE DUPLICATE: 655498

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Phenolics, Total Recoverable	ug/L	<5.0	<5.0		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136824 Analysis Method: SM22 4500 NH3 H
QC Batch Method: SM22 4500 NH3 H Analysis Description: 4500 Ammonia
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021

METHOD BLANK: 654725 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009, 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	0.10	11/01/19 15:33	

LABORATORY CONTROL SAMPLE: 654726

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	1.0	101	90-110	

MATRIX SPIKE SAMPLE: 654727

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	1	1.1	108	75-125	

SAMPLE DUPLICATE: 654728

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	<0.10		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136825 Analysis Method: SM22 4500 NH3 H
QC Batch Method: SM22 4500 NH3 H Analysis Description: 4500 Ammonia
Associated Lab Samples: 70109260022, 70109260023

METHOD BLANK: 654735 Matrix: Water
Associated Lab Samples: 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	0.10	11/01/19 16:07	

LABORATORY CONTROL SAMPLE: 654736

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	1.0	102	90-110	

MATRIX SPIKE SAMPLE: 654737

Parameter	Units	70109909001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	1	1.1	106	75-125	

SAMPLE DUPLICATE: 654738

Parameter	Units	70109909001 Result	Dup Result	RPD	Qualifiers
Nitrogen, Ammonia	mg/L	<0.10	<0.10		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136675 Analysis Method: SM22 5310B
QC Batch Method: SM22 5310B Analysis Description: 5310B TOC
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009

METHOD BLANK: 653926 Matrix: Water
Associated Lab Samples: 70109260001, 70109260002, 70109260003, 70109260004, 70109260005, 70109260006, 70109260007, 70109260008, 70109260009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<1.0	1.0	10/31/19 17:10	

LABORATORY CONTROL SAMPLE: 653927

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	10	9.7	97	85-115	

MATRIX SPIKE SAMPLE: 653929

Parameter	Units	70109260008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	1.3	10	11.3	100	75-125	

SAMPLE DUPLICATE: 653928

Parameter	Units	70109260008 Result	Dup Result	RPD	Qualifiers
Total Organic Carbon	mg/L	1.3	1.5	9	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136677 Analysis Method: SM22 5310B
QC Batch Method: SM22 5310B Analysis Description: 5310B TOC
Associated Lab Samples: 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021

METHOD BLANK: 653932 Matrix: Water
Associated Lab Samples: 70109260010, 70109260011, 70109260014, 70109260015, 70109260016, 70109260017, 70109260018, 70109260019, 70109260020, 70109260021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<1.0	1.0	10/31/19 21:51	

LABORATORY CONTROL SAMPLE: 653933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	10	9.7	97	85-115	

MATRIX SPIKE SAMPLE: 653935

Parameter	Units	70109260010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	3.2	10	13.1	100	75-125	

SAMPLE DUPLICATE: 653934

Parameter	Units	70109260010 Result	Dup Result	RPD	Qualifiers
Total Organic Carbon	mg/L	3.2	3.3	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

QC Batch: 136678 Analysis Method: SM22 5310B
QC Batch Method: SM22 5310B Analysis Description: 5310B TOC
Associated Lab Samples: 70109260022, 70109260023

METHOD BLANK: 653941 Matrix: Water
Associated Lab Samples: 70109260022, 70109260023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<1.0	1.0	11/01/19 03:11	

LABORATORY CONTROL SAMPLE: 653942

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	10	9.6	96	85-115	

MATRIX SPIKE SAMPLE: 653944

Parameter	Units	70109260022 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	<1.0	10	11.5	115	75-125	

SAMPLE DUPLICATE: 653943

Parameter	Units	70109260022 Result	Dup Result	RPD	Qualifiers
Total Organic Carbon	mg/L	<1.0	<1.0		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALIFIERS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
IC	The initial calibration for this compound was outside of method control limits. The result is estimated.
IL	This analyte exceeded secondary source verification criteria low for the initial calibration. The reported results should be considered an estimated value.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260001	1A	EPA 3005A	135967	EPA 6010C	135974
70109260002	1B	EPA 3005A	135967	EPA 6010C	135974
70109260003	1C	EPA 3005A	135967	EPA 6010C	135974
70109260004	DUP	EPA 3005A	135967	EPA 6010C	135974
70109260005	11A	EPA 3005A	135967	EPA 6010C	135974
70109260006	11B	EPA 3005A	135967	EPA 6010C	135974
70109260007	MW-9	EPA 3005A	135967	EPA 6010C	135974
70109260008	MW-8	EPA 3005A	135967	EPA 6010C	135974
70109260009	12A	EPA 3005A	135967	EPA 6010C	135974
70109260010	12B	EPA 3005A	135967	EPA 6010C	135974
70109260011	EQUIPMENT BLANK	EPA 3005A	135967	EPA 6010C	135974
70109260014	4C	EPA 3005A	135967	EPA 6010C	135974
70109260015	4B	EPA 3005A	135967	EPA 6010C	135974
70109260016	4A	EPA 3005A	135967	EPA 6010C	135974
70109260017	LEA-SECONDARY	EPA 3005A	135967	EPA 6010C	135974
70109260018	LEA-PRIMARY	EPA 3005A	136635	EPA 6010C	136644
70109260019	3A	EPA 3005A	136635	EPA 6010C	136644
70109260020	6AR	EPA 3005A	136635	EPA 6010C	136644
70109260021	6B	EPA 3005A	136635	EPA 6010C	136644
70109260022	3C	EPA 3005A	136635	EPA 6010C	136644
70109260023	3B	EPA 3005A	136635	EPA 6010C	136644
70109260006	11B	EPA 6010C	136159		
70109260018	LEA-PRIMARY	EPA 6010C	136159		
70109260005	11A	EPA 7470A	136839	EPA 7470A	136849
70109260006	11B	EPA 7470A	136839	EPA 7470A	136849
70109260020	6AR	EPA 7470A	136839	EPA 7470A	136849
70109260021	6B	EPA 7470A	136839	EPA 7470A	136849
70109260006	11B	EPA 7470A	136699	EPA 7470A	136706
70109260005	11A	EPA 8260C/5030C	135589		
70109260006	11B	EPA 8260C/5030C	135589		
70109260012	TRIP BLANK	EPA 8260C/5030C	135589		
70109260013	STORAGE BLANK	EPA 8260C/5030C	135589		
70109260005	11A	EPA 8260			
70109260006	11B	EPA 8260			
70109260012	TRIP BLANK	EPA 8260			
70109260013	STORAGE BLANK	EPA 8260			
70109260001	1A	SM22 2320B	135811		
70109260002	1B	SM22 2320B	135811		
70109260003	1C	SM22 2320B	135811		
70109260004	DUP	SM22 2320B	135811		
70109260005	11A	SM22 2320B	135811		
70109260006	11B	SM22 2320B	135811		
70109260007	MW-9	SM22 2320B	135811		
70109260008	MW-8	SM22 2320B	135811		
70109260009	12A	SM22 2320B	135811		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260010	**12B**	SM22 2320B	135811		
70109260011	**EQUIPMENT BLANK**	SM22 2320B	135811		
70109260014	**4C**	SM22 2320B	136348		
70109260015	**4B**	SM22 2320B	136348		
70109260016	**4A**	SM22 2320B	136348		
70109260017	**LEA-SECONDARY**	SM22 2320B	136348		
70109260018	**LEA-PRIMARY**	SM22 2320B	136348		
70109260019	**3A**	SM22 2320B	136348		
70109260020	**6AR**	SM22 2320B	136348		
70109260021	**6B**	SM22 2320B	136348		
70109260022	**3C**	SM22 2320B	136348		
70109260023	**3B**	SM22 2320B	136348		
70109260001	**1A**	SM22 2340C	137276		
70109260002	**1B**	SM22 2340C	137276		
70109260003	**1C**	SM22 2340C	137276		
70109260004	**DUP**	SM22 2340C	137276		
70109260005	**11A**	SM22 2340C	137276		
70109260006	**11B**	SM22 2340C	137276		
70109260007	**MW-9**	SM22 2340C	137276		
70109260008	**MW-8**	SM22 2340C	137276		
70109260009	**12A**	SM22 2340C	137276		
70109260010	**12B**	SM22 2340C	137276		
70109260011	**EQUIPMENT BLANK**	SM22 2340C	137276		
70109260014	**4C**	SM22 2340C	137276		
70109260015	**4B**	SM22 2340C	137276		
70109260016	**4A**	SM22 2340C	137276		
70109260017	**LEA-SECONDARY**	SM22 2340C	137276		
70109260018	**LEA-PRIMARY**	SM22 2340C	137276		
70109260019	**3A**	SM22 2340C	137276		
70109260020	**6AR**	SM22 2340C	137276		
70109260021	**6B**	SM22 2340C	137276		
70109260022	**3C**	SM22 2340C	137276		
70109260023	**3B**	SM22 2340C	137305		
70109260001	**1A**	SM22 2540C	135688		
70109260002	**1B**	SM22 2540C	135688		
70109260003	**1C**	SM22 2540C	135688		
70109260004	**DUP**	SM22 2540C	135688		
70109260005	**11A**	SM22 2540C	135688		
70109260006	**11B**	SM22 2540C	135688		
70109260007	**MW-9**	SM22 2540C	135688		
70109260008	**MW-8**	SM22 2540C	135688		
70109260009	**12A**	SM22 2540C	135688		
70109260010	**12B**	SM22 2540C	135688		
70109260011	**EQUIPMENT BLANK**	SM22 2540C	135688		
70109260014	**4C**	SM22 2540C	135871		
70109260015	**4B**	SM22 2540C	136065		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260016	**4A**	SM22 2540C	136065		
70109260017	**LEA-SECONDARY**	SM22 2540C	136065		
70109260018	**LEA-PRIMARY**	SM22 2540C	136065		
70109260019	**3A**	SM22 2540C	136065		
70109260020	**6AR**	SM22 2540C	136065		
70109260021	**6B**	SM22 2540C	136065		
70109260022	**3C**	SM22 2540C	136065		
70109260023	**3B**	SM22 2540C	136065		
70109260001	**1A**	EPA 410.4	136082	EPA 410.4	136115
70109260002	**1B**	EPA 410.4	136082	EPA 410.4	136115
70109260003	**1C**	EPA 410.4	136082	EPA 410.4	136115
70109260004	**DUP**	EPA 410.4	136082	EPA 410.4	136115
70109260005	**11A**	EPA 410.4	136082	EPA 410.4	136115
70109260006	**11B**	EPA 410.4	136082	EPA 410.4	136115
70109260007	**MW-9**	EPA 410.4	136082	EPA 410.4	136115
70109260008	**MW-8**	EPA 410.4	136082	EPA 410.4	136115
70109260009	**12A**	EPA 410.4	136082	EPA 410.4	136115
70109260010	**12B**	EPA 410.4	136082	EPA 410.4	136115
70109260011	**EQUIPMENT BLANK**	EPA 410.4	136082	EPA 410.4	136115
70109260014	**4C**	EPA 410.4	136440	EPA 410.4	136462
70109260015	**4B**	EPA 410.4	136440	EPA 410.4	136462
70109260016	**4A**	EPA 410.4	136440	EPA 410.4	136462
70109260017	**LEA-SECONDARY**	EPA 410.4	136440	EPA 410.4	136462
70109260018	**LEA-PRIMARY**	EPA 410.4	136440	EPA 410.4	136462
70109260019	**3A**	EPA 410.4	136440	EPA 410.4	136462
70109260020	**6AR**	EPA 410.4	136440	EPA 410.4	136462
70109260021	**6B**	EPA 410.4	136440	EPA 410.4	136462
70109260022	**3C**	EPA 410.4	136440	EPA 410.4	136462
70109260023	**3B**	EPA 410.4	136440	EPA 410.4	136462
70109260001	**1A**	SM22 5210B	135404	SM22 5210B	136239
70109260002	**1B**	SM22 5210B	135404	SM22 5210B	136239
70109260003	**1C**	SM22 5210B	135404	SM22 5210B	136239
70109260004	**DUP**	SM22 5210B	135404	SM22 5210B	136239
70109260005	**11A**	SM22 5210B	135404	SM22 5210B	136239
70109260006	**11B**	SM22 5210B	135404	SM22 5210B	136239
70109260007	**MW-9**	SM22 5210B	135404	SM22 5210B	136239
70109260008	**MW-8**	SM22 5210B	135404	SM22 5210B	136239
70109260009	**12A**	SM22 5210B	135404	SM22 5210B	136239
70109260010	**12B**	SM22 5210B	135404	SM22 5210B	136239
70109260011	**EQUIPMENT BLANK**	SM22 5210B	135404	SM22 5210B	136239
70109260014	**4C**	SM22 5210B	135600	SM22 5210B	136460
70109260015	**4B**	SM22 5210B	135600	SM22 5210B	136460
70109260016	**4A**	SM22 5210B	135600	SM22 5210B	136460
70109260017	**LEA-SECONDARY**	SM22 5210B	135600	SM22 5210B	136460
70109260018	**LEA-PRIMARY**	SM22 5210B	135600	SM22 5210B	136460
70109260019	**3A**	SM22 5210B	135600	SM22 5210B	136460
70109260020	**6AR**	SM22 5210B	135600	SM22 5210B	136460

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260021	**6B**	SM22 5210B	135600	SM22 5210B	136460
70109260022	**3C**	SM22 5210B	135600	SM22 5210B	136460
70109260023	**3B**	SM22 5210B	135600	SM22 5210B	136460
70109260001	**1A**	EPA 300.0	136000		
70109260002	**1B**	EPA 300.0	136000		
70109260003	**1C**	EPA 300.0	136000		
70109260004	**DUP**	EPA 300.0	136000		
70109260005	**11A**	EPA 300.0	136175		
70109260006	**11B**	EPA 300.0	136175		
70109260007	**MW-9**	EPA 300.0	136175		
70109260008	**MW-8**	EPA 300.0	136175		
70109260009	**12A**	EPA 300.0	136175		
70109260010	**12B**	EPA 300.0	136175		
70109260011	**EQUIPMENT BLANK**	EPA 300.0	136175		
70109260014	**4C**	EPA 300.0	136175		
70109260015	**4B**	EPA 300.0	136175		
70109260016	**4A**	EPA 300.0	136175		
70109260017	**LEA-SECONDARY**	EPA 300.0	136175		
70109260018	**LEA-PRIMARY**	EPA 300.0	136175		
70109260019	**3A**	EPA 300.0	136175		
70109260020	**6AR**	EPA 300.0	136175		
70109260021	**6B**	EPA 300.0	136175		
70109260022	**3C**	EPA 300.0	136175		
70109260023	**3B**	EPA 300.0	136175		
70109260001	**1A**	EPA 351.2	137115	EPA 351.2	137132
70109260002	**1B**	EPA 351.2	137115	EPA 351.2	137132
70109260003	**1C**	EPA 351.2	137115	EPA 351.2	137132
70109260004	**DUP**	EPA 351.2	137115	EPA 351.2	137132
70109260005	**11A**	EPA 351.2	137115	EPA 351.2	137132
70109260006	**11B**	EPA 351.2	137115	EPA 351.2	137132
70109260007	**MW-9**	EPA 351.2	137115	EPA 351.2	137132
70109260008	**MW-8**	EPA 351.2	137116	EPA 351.2	137134
70109260009	**12A**	EPA 351.2	137116	EPA 351.2	137134
70109260010	**12B**	EPA 351.2	137116	EPA 351.2	137134
70109260011	**EQUIPMENT BLANK**	EPA 351.2	137116	EPA 351.2	137134
70109260014	**4C**	EPA 351.2	137116	EPA 351.2	137134
70109260015	**4B**	EPA 351.2	137116	EPA 351.2	137134
70109260016	**4A**	EPA 351.2	137116	EPA 351.2	137134
70109260017	**LEA-SECONDARY**	EPA 351.2	137116	EPA 351.2	137134
70109260018	**LEA-PRIMARY**	EPA 351.2	137116	EPA 351.2	137134
70109260019	**3A**	EPA 351.2	137116	EPA 351.2	137134
70109260020	**6AR**	EPA 351.2	137116	EPA 351.2	137134
70109260021	**6B**	EPA 351.2	137116	EPA 351.2	137134
70109260022	**3C**	EPA 351.2	137116	EPA 351.2	137134
70109260023	**3B**	EPA 351.2	137116	EPA 351.2	137134
70109260001	**1A**	EPA 353.2	135456		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260002	**1B**	EPA 353.2	135456		
70109260003	**1C**	EPA 353.2	135456		
70109260004	**DUP**	EPA 353.2	135456		
70109260005	**11A**	EPA 353.2	135456		
70109260006	**11B**	EPA 353.2	135456		
70109260007	**MW-9**	EPA 353.2	135456		
70109260008	**MW-8**	EPA 353.2	135456		
70109260009	**12A**	EPA 353.2	135456		
70109260010	**12B**	EPA 353.2	135456		
70109260011	**EQUIPMENT BLANK**	EPA 353.2	135456		
70109260014	**4C**	EPA 353.2	135664		
70109260015	**4B**	EPA 353.2	135664		
70109260016	**4A**	EPA 353.2	135664		
70109260017	**LEA-SECONDARY**	EPA 353.2	135664		
70109260018	**LEA-PRIMARY**	EPA 353.2	135664		
70109260019	**3A**	EPA 353.2	135664		
70109260020	**6AR**	EPA 353.2	135664		
70109260021	**6B**	EPA 353.2	135664		
70109260022	**3C**	EPA 353.2	135664		
70109260023	**3B**	EPA 353.2	135664		
70109260001	**1A**	EPA 353.2	135450		
70109260002	**1B**	EPA 353.2	135450		
70109260003	**1C**	EPA 353.2	135450		
70109260004	**DUP**	EPA 353.2	135450		
70109260005	**11A**	EPA 353.2	135450		
70109260006	**11B**	EPA 353.2	135450		
70109260007	**MW-9**	EPA 353.2	135450		
70109260008	**MW-8**	EPA 353.2	135450		
70109260009	**12A**	EPA 353.2	135450		
70109260010	**12B**	EPA 353.2	135450		
70109260011	**EQUIPMENT BLANK**	EPA 353.2	135450		
70109260014	**4C**	EPA 353.2	135654		
70109260015	**4B**	EPA 353.2	135654		
70109260016	**4A**	EPA 353.2	135654		
70109260017	**LEA-SECONDARY**	EPA 353.2	135654		
70109260018	**LEA-PRIMARY**	EPA 353.2	135654		
70109260019	**3A**	EPA 353.2	135654		
70109260020	**6AR**	EPA 353.2	135654		
70109260021	**6B**	EPA 353.2	135654		
70109260022	**3C**	EPA 353.2	135654		
70109260023	**3B**	EPA 353.2	135655		
70109260001	**1A**	EPA 420.1	136531	EPA 420.1	136587
70109260002	**1B**	EPA 420.1	136531	EPA 420.1	136587
70109260003	**1C**	EPA 420.1	136531	EPA 420.1	136587
70109260004	**DUP**	EPA 420.1	136531	EPA 420.1	136587
70109260005	**11A**	EPA 420.1	136531	EPA 420.1	136587

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260006	**11B**	EPA 420.1	136531	EPA 420.1	136587
70109260007	**MW-9**	EPA 420.1	136946	EPA 420.1	137026
70109260008	**MW-8**	EPA 420.1	136946	EPA 420.1	137026
70109260009	**12A**	EPA 420.1	136946	EPA 420.1	137026
70109260010	**12B**	EPA 420.1	136946	EPA 420.1	137026
70109260011	**EQUIPMENT BLANK**	EPA 420.1	136946	EPA 420.1	137026
70109260014	**4C**	EPA 420.1	136946	EPA 420.1	137026
70109260015	**4B**	EPA 420.1	136946	EPA 420.1	137026
70109260016	**4A**	EPA 420.1	136946	EPA 420.1	137026
70109260017	**LEA-SECONDARY**	EPA 420.1	136946	EPA 420.1	137026
70109260018	**LEA-PRIMARY**	EPA 420.1	136946	EPA 420.1	137026
70109260019	**3A**	EPA 420.1	136946	EPA 420.1	137026
70109260020	**6AR**	EPA 420.1	136946	EPA 420.1	137026
70109260021	**6B**	EPA 420.1	136946	EPA 420.1	137026
70109260022	**3C**	EPA 420.1	136946	EPA 420.1	137026
70109260023	**3B**	EPA 420.1	136946	EPA 420.1	137026
70109260001	**1A**	SM22 4500 NH3 H	136824		
70109260002	**1B**	SM22 4500 NH3 H	136824		
70109260003	**1C**	SM22 4500 NH3 H	136824		
70109260004	**DUP**	SM22 4500 NH3 H	136824		
70109260005	**11A**	SM22 4500 NH3 H	136824		
70109260006	**11B**	SM22 4500 NH3 H	136824		
70109260007	**MW-9**	SM22 4500 NH3 H	136824		
70109260008	**MW-8**	SM22 4500 NH3 H	136824		
70109260009	**12A**	SM22 4500 NH3 H	136824		
70109260010	**12B**	SM22 4500 NH3 H	136824		
70109260011	**EQUIPMENT BLANK**	SM22 4500 NH3 H	136824		
70109260014	**4C**	SM22 4500 NH3 H	136824		
70109260015	**4B**	SM22 4500 NH3 H	136824		
70109260016	**4A**	SM22 4500 NH3 H	136824		
70109260017	**LEA-SECONDARY**	SM22 4500 NH3 H	136824		
70109260018	**LEA-PRIMARY**	SM22 4500 NH3 H	136824		
70109260019	**3A**	SM22 4500 NH3 H	136824		
70109260020	**6AR**	SM22 4500 NH3 H	136824		
70109260021	**6B**	SM22 4500 NH3 H	136824		
70109260022	**3C**	SM22 4500 NH3 H	136825		
70109260023	**3B**	SM22 4500 NH3 H	136825		
70109260001	**1A**	SM22 5310B	136675		
70109260002	**1B**	SM22 5310B	136675		
70109260003	**1C**	SM22 5310B	136675		
70109260004	**DUP**	SM22 5310B	136675		
70109260005	**11A**	SM22 5310B	136675		
70109260006	**11B**	SM22 5310B	136675		
70109260007	**MW-9**	SM22 5310B	136675		
70109260008	**MW-8**	SM22 5310B	136675		
70109260009	**12A**	SM22 5310B	136675		

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70109260010	**12B**	SM22 5310B	136677		
70109260011	**EQUIPMENT BLANK**	SM22 5310B	136677		
70109260014	**4C**	SM22 5310B	136677		
70109260015	**4B**	SM22 5310B	136677		
70109260016	**4A**	SM22 5310B	136677		
70109260017	**LEA-SECONDARY**	SM22 5310B	136677		
70109260018	**LEA-PRIMARY**	SM22 5310B	136677		
70109260019	**3A**	SM22 5310B	136677		
70109260020	**6AR**	SM22 5310B	136677		
70109260021	**6B**	SM22 5310B	136677		
70109260022	**3C**	SM22 5310B	136678		
70109260023	**3B**	SM22 5310B	136678		

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Af[...]

WO#: 70109260

70109260

ALL [...]

Container Preservative Type

Lab Project Manager: JSA

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

Company: P.W. Grosser Consulting

Address: 630 Johnson Ave. Suite 7 Bohemia NY

Report To: Derek Erskine

Copy To:

Billing Information: Town of Southampton

Email To: DerekE@pwgrosser.com

Site Collection Info/Address:

Customer Project Name/Number: SHP1901 - North Sea Landfill

State: NY County/City: Suffolk / Southampton Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET

Phone: 631-589-6353

Email: DerekE@pwgrosser.com

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected By (print): NR/CA

Purchase Order #:

Quote #:

DW PWS ID #:

DW Location Code:

Collected By (signature): [signature]

Turnaround Date Required: Standard

Immediately Packed on Ice: [✓] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:

Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [✓] No

Analysis:

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

Analyses: (A) BOD, Br, Cl, SO4, Alk, TDS, NO; (B) COD, NH3, NO3, Phenols, TKN; (C) Routine metals + Hardness; (D) TOC; (E) Volatiles; (F) Filtered metals; (G) Baseline Metals + Hardness

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	A	B	C	D	E	F	G	Lab Sample # / Comments
1A	GW	G	10.21.19	1315	NA			6	X	X	X	X				001
1B	↓	↓	↓	1300				6	X	X	X	X				002
1C				1235				6	X	X	X	X				003
DUP				xx				6	X	X	X	X				004
11A				850				8	X	X		X	X		X	005
11B				920				9	X	X		X	X	X	X	006
MW-9				1025				6	X	X	X	X				007
MW-8/MS/MSD				1100				18	X	X	X	X				008
12A				1430				6	X	X	X	X				009
12B	↓	↓	↓	1415				6	X	X	X	X				010

Lab Profile/Line:

Lab Sample Receipt Checklist:

- Custody Seals Present/Intact Y (N) NA
- Custody Signatures Present (Y) N NA
- Collector Signature Present (Y) N NA
- Bottles Intact (Y) N NA
- Correct Bottles (Y) N NA
- Sufficient Volume (Y) N NA
- Samples Received on Ice (Y) N NA
- VOA - Headspace Acceptable (Y) N NA
- USDA Regulated Soils Y N (NA)
- Samples in Holding Time (Y) N NA
- Residual Chlorine Present Y N (NA)
- Cl Strips:
- Sample pH Acceptable (Y) N NA
- pH Strips: HC863463
- Sulfide Present Y N (NA)
- Lead Acetate Strips:

LAB USE ONLY:

Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

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

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

Lab Tracking #: 2404304

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

Lab Sample Temperature Info:

- Temp Blank Received: Y (N) NA
- Therm ID#: THO91
- Cooler 1 Temp Upon Receipt: 5.6 oC
- Cooler 1 Therm Corr. Factor: 0.2 oC
- Cooler 1 Corrected Temp: 5.8 oC
- Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] PWGC	10.21.19 1640	[signature]	10/22/19 11:04
[signature]	10/22/19 1154	[signature]	10/22/19 11:54

MTJL LAB USE ONLY

Table #:

Acctnum:

Template:

Prelogin:

PM:

PB:

Trip Blank Received: (Y) N NA

(HCL) MeOH TSP Other

Non Conformance(s): YES / (NO)

Page: 1 of: 2

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

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

WO#: 70109260
PM: JSA Due Date: 11/05/19
CLIENT: TOS

Company: P.W. Grosser Consultant	Billing Information: Town of Southampton
Address: 620 Johnson Ave St. 7 Bohemia NY	
Report To: Derek Ersbak	Email To: DerekE@pwgrosser.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: SHP1701 - North Sea Landfill	State: NY County/City: Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: 631-589-6353 Email: DerekE@pwgrosser.com	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Nam Kyser/CA	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: BOD, Br, Cl, SO4, Alk, TDS, NO	COD, NH3, NO2, Phenols, TRN	Routine Metals + Hardness	TOC	Volatiles	Lab Sample # / Comments
Equipment Blank	OT	G	10.21.19	1500				6	X	X	X	X		011
Trip Blank	OT	G	↓	-				2					X	012

Container Preservative Type

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

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y (N)	NA
Custody Signatures Present	(Y) N	NA
Collector Signature Present	(Y) N	NA
Bottles Intact	(Y) N	NA
Correct Bottles	(Y) N	NA
Sufficient Volume	(Y) N	NA
Samples Received on Ice	(Y) N	NA
VOA - Headspace Acceptable	(Y) N	NA
USDA Regulated Soils	Y N	(NA)
Samples in Holding Time	(Y) N	NA
Residual Chlorine Present	Y N	(NA)
Cl Strips:		
Sample pH Acceptable	(Y) N	NA
pH Strips: HC463463		
Sulfide Present	Y N	(NA)
Lead Acetate Strips:		

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

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

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

Lab Tracking #: 2434272

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

Lab Sample Temperature Info:
Temp Blank Received: Y (N) NA
Therm ID#: TH091
Cooler 1 Temp Upon Receipt: 5.6 oC
Cooler 1 Therm Corr. Factor: 0.2 oC
Cooler 1 Corrected Temp: 5.8 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time: 10.21.19 1600	Received by/Company: (Signature)	Date/Time: 10/22/19 11:09
Relinquished by/Company: (Signature)	Date/Time: 10/22/19 11:54	Received by/Company: (Signature)	Date/Time: 10/22/19 11:54
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

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

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

Non Conformance(s): YES / (NO)

Page: 2 of: 2

WO#:70109260
PM: JSA Due Date: 11/05/19
CLIENT: TOS

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Docu[ment]

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed ac[curately.]

Page: 1 of 1

Section A
Required Client Information:

Company: P.W. Grosser Consulting
Address: 630 Johnson ave. st. 7
Bohemia NY 11716
Email To: DerekE@Pwgrosser.com
Phone: 631-589-6353 Fax:
Requested Due Date/TAT:

Section B
Required Project Information:

Report To:
Copy To:
Purchase Order No.:
Project Name: North Sea Landfill
Project Number: SHP1901

Section C
Invoice Information:

Attention:
Company Name: Town of Southampton
Address: ↓
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

- NPDES
- GROUND WATER
- DRINKING WATER
- UST
- RCRA
- OTHER

Site Location STATE: Ny

Section D
Required Client Information

Matrix Codes
MATRIX / CODE

Matrix	Code
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

MATRIX CODE (see valid codes to left); SAMPLE TYPE (G=GRAB C=COMP); COLLECTED: COMPOSITE START (DATE, TIME), COMPOSITE END/GRAB (DATE, TIME); SAMPLE TEMP AT COLLECTION; # OF CONTAINERS; Preservatives: Unpreserved, H_2SO_4, HNO_3, HCl, NaOH, $Na_2S_2O_3$, Methanol, Other; Analysis Test Y/N; Residual Chlorine (Y/N)

Requested Analysis Filtered (Y/N)

Analyses: (A) Bod, Br, Cl, SO4, Alk; (B) TDS, NO; (C) Cod, NH3, NO3, Phenols, TKN; (D) Routine metals + Hardness; (E) TOC; (F) Filtered metals; (G) Baseline Metals (+Hardness); (H) Arsenic

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE	DATE	TIME	A	B	C	D	E	F	G	H	Pace Project No./ Lab I.D.
1	4C	GW	G	10-22-19	1400	X	X	X	X	X				014
2	4B	↓	↓	↓	1430	X	X	X	X	X				015
3	4A	↓	↓	↓	1500	X	X	X	X	X				016
4	LEA-Secondary	↓	↓	↓	810	X	X	X	X	X			X	017
5	LEA-Primary	↓	↓	↓	800	X	X	X	X	X	X		X	018
6	3A	↓	↓	↓	1300	X	X	X	X	X				019
7	6AR	↓	↓	↓	930	X	X	X		X		X		020
8	6B	↓	↓	↓	1000	X	X	X		X		X		021
9	3C	↓	↓	↓	1200	X	X	X	X	X				022
10	3B	↓	↓	↓	1240	X	X	X	X	X				023
11														
12														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nick Russell PWGC	10.22.19	1600	W. Kelly	10/23/19	1030	
	W Kelly	10/23/19	1125	[signature]	10/23/19	11:25	3.0
							2.1

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Russell

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10-22-19

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical

Sample Condition Upon Receipt

WO#: 70109260
PM: JSA Due Date: 11/05/19
CLIENT: TOS

Client Name: PW GROSSER Pr

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ Other

Tracking #:

Custody Seal on Cooler/Box Present: ☑ Yes ☐ No Seals intact: ☑ Yes ☐ No Temperature Blank Present: ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ Ziploc ☑ None ☐ Other Type of Ice: Wet Blue None

Thermometer Used: TH091 Correction Factor: +0.2 ☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 3.0/2.1 Cooler Temperature Corrected (°C): 3.2/2.3 Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☐ N/A, water sample) Date and Initials of person examining contents: DC 10/23/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☑ Yes	☐ No		1.
Chain of Custody Filled Out:	☑ Yes	☐ No		2.
Chain of Custody Relinquished:	☑ Yes	☐ No		3.
Sampler Name & Signature on COC:	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time:	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72hr):	☑ Yes	☐ No		6.
Rush Turn Around Time Requested:	☐ Yes	☑ No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☑ Yes	☐ No		8.
Correct Containers Used:	☑ Yes	☐ No		9.
-Pace Containers Used:	☑ Yes	☐ No		
Containers Intact:	☑ Yes	☐ No		10.
Filtered volume received for Dissolved tests	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☑ Yes	☐ No		12.
-Includes date/time/ID/Analysis Matrix SL (WT) OIL				
All containers needing preservation have been checked	☑ Yes	☐ No	☐ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot # HC863463				
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	Sample #
Exceptions: VOA, Coliform, (TOC) DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis				Initial when completed: / Lot # of added preservative: / Date/Time preservative added
Samples checked for dechlorination:	☐ Yes	☐ No	☑ N/A	14.
KI starch test strips Lot #				
Residual chlorine strips Lot #				Positive for Res. Chlorine? Y N
Headspace in VOA Vials (>6mm):	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present:	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if applicable):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

PREMIER ENVIRONMENTAL SERVICES, INC.

DATA VALIDATION REPORT
OF THE
TOWN OF SOUTHAMPTON
NORTH SEA LANDFILL

ORGANIC AND INORGANIC ANALYSES
OF AQUEOUS SAMPLES

PACE ANALYTICAL SERVICES, INC.
MELVILLE, NEW YORK

LABORATORY REPORT NUMBER: 70109260

December 2019

Prepared for
P.W. Grosser Consulting
Bohemia, New York

Prepared by
Premier Environmental Services
2815 Covered Bridge Road
Merrick, New York 11566
(516)223-9761

NYS DEC Data Usability Summary Report

DATA VALIDATION FOR:	**Volatile Organic Analyses**
SITE:	**North Sea Landfill-Town of Southampton**
CONTRACT LAB:	**Pace Analytical Services, Inc. Melville, New York**
REPORT NO.:	**70109260**
REVIEWER:	**Renee Cohen**
DATE REVIEW COMPLETED:	**November 2019**
MATRIX:	**Aqueous**

The data validation was performed according to the guidelines in the described in the New York State Department of Environmental Conservation, Division of Environmental Remediation, Guidance for the Development of Data Usability Summary Reports (DUSR). In addition, the data has been reviewed using the protocol specified in the NYS Analytical Services Protocol ('05).

All data are considered valid and acceptable except those analytes which have been rejected "R" (unusable). Due to various QC problems, some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material, "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All actions are detailed on the attached sheets.

Several factors should be noted for all persons using this data. Persons using this data should be aware that no result is guaranteed to be accurate even if it has passed all QC tests. The main purpose of this review is to appropriately qualify outliers and to determine whether the results presented meet the specific site/project criteria for data quality and data use.

This data reports includes twenty (20) aqueous samples including one (1) field duplicate sample. In addition, one (1) Equipment Blank sample and one (1) Trip Blank sample were submitted with these field samples. The samples associated with this data set were collected October 21, 2019 and October 22, 2019. The samples were received at Pace Analytical Services, Inc. located in Melville, New York on October 22, 2019 and October 23, 2019 for the analyses listed on the chain of custody documents that accompanied these samples to the laboratory. The cooler temperatures were within QC limits upon receipt. The samples were analyzed for Volatile Organic Analytes (EPA Method 8260C), Total and Dissolved Metals and Miscellaneous Wet Chemistry analytes as specified on the Chain of Custody (COC) documentation that accompanied the samples to the laboratory.

A cross-reference between Field Sample ID and Laboratory Sample ID is located in Table 1 of this report. Copies of the definitions that may be used to qualify data results are located in Appendix A of this report. Copies of qualified data result pages are located in Appendix B of this report and a copy of Chain of Custody (COC) documentation associated with sampling event is located in Appendix C.

This review is for the subset of samples that were marked on the Chain of Custody for Volatile Organic Analytes. A subset of these samples was also analyzed for Total and Dissolved Metals and miscellaneous wet chemistry analytes. The review of these inorganic analytes is located in stand-alone data review reports within this validation report.

ORGANIC DATA ASSESSMENT

1. OVERVIEW:

The client requested that five (5) percent (%) of the samples in this data set be reviewed. One (1) discreet sample points was chosen for Volatile Organic Data review (VOA). A full data review of the sample chosen will be performed.

The samples in this data set were analyzed using EPA Test Methods for the Evaluation of Solid Waste (SW 846), Method 8260C. The project target analytes were reported by the laboratory. Proper custody transfer of the samples was documented in the laboratory reports. Cooler temperatures were within QC limits. Sample preservation was checked prior to analysis. The samples in this data set were properly preserved.

The following aqueous sample was chosen for the 5 % data review in the VOA fraction: 11B (70109260006).

2. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Preserved volatile organic analyses are required to be analyzed within 10 days of validated time of sample receipt (VTSR) in accordance with the NYSDEC ASP, Rev '95. The technical holding time for properly preserved aqueous samples is 14 days from collection.

The samples in this data set were collected on October 21, 2019 and October 22, 2019 and received at the laboratory on October 22, 2019 and October 23, 2019. The sample analyses associated with this data set was completed on October 23, 2019. The sample chosen for data review and the associated QC samples were prepared and analyzed within ten (10) days of VTSR.

3. SURROGATES:

Each of the samples reported in this data set have been fortified with the method specified surrogate compounds prior to sample preparation/analysis to evaluate the overall laboratory performance and the efficiency of the analytical technique. If the measured surrogate concentrations are outside the QC limits, qualifiers were applied to the effected samples.

Each of the samples in this data set was spiked with the three (3) surrogate compounds 1, 2-Dichloroethane-d4, Toluene-d8 and 4-Bromofluorobenzene. In house-surrogate recovery limits were utilized by the laboratory. The percent recovery of each surrogate compound met QC criteria in the sample chosen for review.

4. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

Site specific and/or Batch QC MS/MSD is not reported in this data set. No action was taken based on this QC outlier.

ORGANIC DATA ASSESSMENT

5. BLANK SPIKE ANALYSIS:

The NY ASP protocol requires that a blank spike analysis be performed with each sample batch. The blank spike analysis is used to ensure that the analytical system is in control. The laboratory applied in-house recovery limits for each analyte.

The laboratory performed one (1) laboratory control sample (LCS) analysis is reported with this data set. The LCS was fortified with the complete list of reported target analytes. In-house spike recovery limits were reported for each of target analyte. The percent recovery of target analytes met QC criteria in the reported LCS sample.

6. BLANK CONTAMINATION:

Quality assurance (QA) blanks, such as the method, trip, field, or rinse blanks are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks and Equipment Blank samples are used to measure cross-contamination of samples during field operations. Samples are then qualified based on blank contamination when detected.

A) Method Blank contamination

One (1) aqueous method blank sample is associated with the sample chosen for review. The method blank sample was free from contamination of target and non-target (TIC) analytes.

B) Equipment Blank contamination

An Equipment Blank sample is not associated with this data set.

C) Trip Blank contamination

One (1) Trip Blank sample is associated with this data set. The Trip Blank sample is free from contamination of target analytes.

D) Storage Blank contamination

One (1) Storage Blank sample is associated with this data set. The Storage Blank sample is free from contamination of target analytes.

ORGANIC DATA ASSESSMENT

7. GC/MS CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. Region II data review requires that the response factor of all analytes be greater than or equal to 0.05 in both initial and continuing calibration analyses. A value less than 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Region II data validation criteria states that if the minimum RRF criteria are not met in an initial calibration the positive results are qualified "J". Non-detect results in the initial calibration with an RRF <0.05 are qualified "R", unusable. If RRF criteria is not met in the continuing calibration curve analysis, affected positive analytes will be qualified "J" estimated. Those analytes not detected are not qualified. The SW-846 Methods cite specific analytes known as System Performance Check Compounds (SPCC). Minimum response criteria are set for these analytes. If the minimum criteria are not met, analyses must stop, and the source of problems must be found and corrected. Data associated with this set has been reviewed for the criteria in the cited in the EPA Method and the Region II criteria.

One (1) initial calibration curve analysis is associated with the aqueous samples in this data set. The laboratory performed one aqueous initial multilevel calibration on July 3, 2019 (Inst 70MSV8). The RRF of target compounds met QC criteria in this initial calibration curve analysis. One (1) ICV standard was analyzed following the initial calibration analysis (File ID: 11945633, 7/3/19). RRF of target analytes met QC criteria in the ICV standard analysis.

One (1) continuing calibration standard is associated with the sample chosen for data review. The CCV standard associated with the sample chosen for review was analyzed on October 23, 2019 (File ID 102319.B/P19488.D. The RRF of target compounds met QC criteria in this continuing calibration standard analysis.

B) PERCENT RELATIVE STANDARD DEVIATION (RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the compounds in the continuing calibration standard to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Region II data validation criteria states that the percent RSD of the initial calibration curve must be less than or equal to 20% (30% CCC compounds). The %D must be <20% in the continuing calibration standard. These criteria have been applied to all target analytes. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects may be flagged "UJ", based on professional judgment. If %RSD and %D grossly exceed QC criteria (>90%), non-detects data may be qualified "R", unusable. Data associated with this set has been reviewed for the criteria in the cited in the USEPA Data Validation Guidelines and the USEPA Region II criteria.

One (1) aqueous initial calibration standard analysis is associated with this data set. The laboratory analyzed an aqueous initial calibration curve on July 3, 2019 (70MSV8). The laboratory reported the Relative Standard Deviation (%RSD) of each target compound on a summary form that was included in the report. Target analyte %RSD criteria were met in the initial calibration curve analysis. An initial calibration verification standard (ICV) was analyzed (19945633, 7/3/19). Target analytes met QC criteria in the ICV standard analysis with the exception of Bromomethane (24.7%), 2-Butanone (49.3%) and Vinyl Chloride (26.3%)

ORGANIC DATA ASSESSMENT

7. GC/MS CALIBRATION:

B) PERCENT RELATIVE STANDARD DEVIATION (RSD) AND PERCENT DIFFERENCE (%D) (cont'd):

One (1) continuing calibration standard analysis is associated with the aqueous sample chosen for data review. This CCV standard was analyzed on October 23, 2019 (File ID: 102319.B/P19488.D). The % Difference of reported target compounds met QC criteria in the continuing calibration standard with the exception of Acetone (22.3%), Bromomethane (44.0%), 2-Butanone (20.7%) and Iodomethane (>100%). Acetone, Bromomethane and 2-Butanone have been estimated "J"/"UJ" qualified in the sample chosen for review. Iodomethane has been deemed unusable "R" qualified due to the high %Difference in the CCV standard analysis.

Qualified data result pages are located in Appendix B of this report.

8. GC/MS INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every run. The method recommends that the internal standard area count must not vary by more than a factor of 2 (-50%to +100%) from the associated continuing calibration standard. The method recommends that the retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. The EPA CLP validation guidelines state that if the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified estimated, "J", and all non-detects below 50% are qualified "UJ", non-detects above 100% should not be qualified or "R" if there is a severe loss of sensitivity. The internal standard area count evaluation criteria are applied to all field and QC samples.

The samples in this data set were spiked with the internal standards Pentafluorobenzene, 1, 4-Difluorobenzene, Chlorobenzene-d5 and 1, 4-Dichlorobenzene-d4 prior to analysis. The area counts, and retention time of each internal standard met QC criteria in the field samples and QC samples associated with this data set.

9. GC/MS MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is Bromofluorobenzene (BFB). If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R".

The tune criteria listed in the data report met or exceeded that required by the method. Tuning criteria associated with these sample analyses were met.

ORGANIC DATA ASSESSMENT

10. GC/MS INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every run. The method recommends that the internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The method recommends that the retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. The EPA CLP validation guidelines state that if the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified estimated, "J", and all non-detects below 50% are qualified "UJ", non-detects above 100% should not be qualified or "R" if there is a severe loss of sensitivity. The internal standard area count evaluation criteria are applied to all field and QC samples.

The samples in this data set were fortified with the internal standards Chlorobenzene-d5, 1,4-Fluorobenzene, 1,4-Dichlorobenzene-d4 and Pentafluorobenzene prior to analysis. The area counts, and retention time of each internal standard met QC criteria in each of the field samples and QC samples associated with this data set.

11. FIELD DUPLICATE ANALYSIS:

Field duplicate samples are taken and analyzed as an indication of overall precision. These measure both field and lab precision, therefore, the results may have more variability than lab duplicate samples. Soil samples are also expected to have a greater variance due to the difficulties associated with collecting exact duplicate soil samples. Data was not qualified based on the results of the field duplicate sample data.

Field duplicate sample analysis is not associated with the sample chosen for data review.

The laboratory prepared and analyzed a Batch QC Laboratory Duplicate sample and reported it in this data set. Target analytes were not detected in the sample and/or laboratory duplicate sample analysis. No action was taken.

12. COMPOUND IDENTIFICATION:

Target compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectrum which has a ratio of the primary and secondary ion intensities with 20% of that in the standard compound.

Twenty (20) field samples, inc. one (1) Field Duplicate, one (1) Equipment Blank and one (1) Trip Blank sample were marked on the COC for volatile organic analyses. One (1) aqueous sample was chosen for data review and DUS preparation. Sample MW-11B (70109260006) was analyzed for Volatile Organic analytes by EPA Method 8260C. Chloroform (5.0 ug/L) and Toluene (55.4 ug/L) were detected in the sample chosen for data review. Tentatively Identified Compounds (TIC's) were analyzed for, none were detected in this sample. The samples were analyzed in accordance with the cited method. Detected analyte results reported between the method detection limit and the reporting limit are "J" qualified by the laboratory.

Sample MW-11B (70109260006) was analyzed for Volatile Organic analytes by EPA Method 8260C. Chloroform (5.0 ug/L) and Toluene (55.4 ug/L) were detected in the sample chosen for data review. Sample MW-11B was analyzed without dilution. The laboratory provided the quantitation report, chromatogram and analyte spectra in the New York Sate DEC ASP Category B deliverable that was reported for this data set.

ORGANIC DATA ASSESSMENT

13. OVERALL ASSESSMENT:

The aqueous samples associated with this data set were collected October 21, 2019 and October 22, 2019. The COC documents that accompanied the samples to the laboratory and indicated which samples were to be analyzed Volatile Organic compounds. The data reported agrees with the raw data provided in the final report. The laboratory provided a complete ASP Category B data package and reported all data using acceptable protocols and laboratory qualifiers as defined in the report package.

One (1) sample was reviewed to meet the Quality Assurance Plan requirements. The Volatile Organic analytes/sample results associated with sample MW-11B are reported to the laboratory reporting limit or Practical Quantitation Limit (PQL). These Volatile Organic data results are acceptable for use with the noted data qualifiers. Data qualification is described in the above report.

Qualified data result pages are located in Appendix B of this report.

NYS DEC Data Usability Summary Report

DATA VALIDATION FOR:	**Target Analyte List of Metals (TAL)**
SITE:	**North Sea Landfill**
CONTRACT LAB:	**Pace Analytical Services, Inc. Melville, New York**
PROJECT NO.:	**70109260**
REVIEWER:	**Renee Cohen**
DATE REVIEW COMPLETED:	**December 2019**
MATRIX:	**Aqueous**

The Chain of Custody (COC) documentation associated with this data set listed twenty (20) aqueous samples (inc. one Duplicate sample) and one (1) equipment blank sample. One (1) Trip Blank sample was listed on the COC documents. The TB sample was not analyzed for TAL Metals. Samples in this data set were analyzed for the Total TAL metals (inc. Boron), Filtered TAL metals (inc. Boron) or a subset of metals in accordance with the COC documents that accompanied the samples to the laboratory.

The samples in this data set were collected October 21, 2019 and October 22, 2019 and received at Pace Analytical Services, LLC located in Melville, New York on October 22, 2019 and October 23, 2019.

The data evaluation was performed according to the guidelines noted in the "National Functional Guidelines for Inorganic Data Review", January 2010 and the NYSDEC ASP. A Data Usability Summary Report (DUSR) has been prepared in accordance with the guidelines of the Division of Environmental Remediation.

Several factors should be noted for all persons using this data. Persons using this data should be aware that no result is guaranteed to be accurate even if it has passed all QC tests. The main purpose of this review is to appropriately qualify outliers and to determine whether the results presented meet the specific site/project criteria for data quality and data use.

Table 1 of this report contains a cross reference between the Field Sample ID's and the Laboratory Sample ID's. Appendix A of this Data Usability Summary Report (DUSR) contains a summary of the data qualifiers that may be used in the report. Appendix B contains the qualified data result pages. Appendix C contains the Chain of Custody (COC) documents associated with this data set.

The samples in this data set were also analyzed for Volatile Organic Analytes and Miscellaneous Wet Chemistry analytes. The data review associated with these analyses are located in stand-alone Data Usability Reports (DUSR). This data review is associated with these Metals Analyses.

DATA USABILITY SUMMARY REPORT (DUSR)
Inorganic Data Assessment

1. OVERVIEW

This data report includes the analysis of 5% of the aqueous samples that were collected October 21, 2019 and October 22, 2019. The samples were received at the laboratory on October 22, 2019 and October 23, 2019. The samples were prepared and analyzed for the parameters indicated on the COC documents that accompanied the samples to the laboratory. Table 1 of this report is a cross reference between the Field Sample ID and Laboratory Sample ID.

Sample MW-11B (70109260006) was reviewed for Total and Dissolved ICP Metals (Inc. Hg).

2. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Metals with the exception of Mercury, is required to be digested and analyzed within 180 days of Verified Time of Sample Receipt (VTSR). Mercury samples are to be digested and analyzed within 26 days of VTSR.

The Total ICP metal aqueous sample (sample 11B) chosen for review was prepared/digested for ICP metals in one (1) batch on October 16, 2018.
The Dissolved ICP metal aqueous sample (sample 11B) chosen for review was prepared/digested for ICP metals in one (1) batch on October 26, 2018.

Sample 11B was chosen for the Total Mercury and Dissolved Mercury data review. Total sample 11B was prepared in one sample batch on October 31, 2019 (Batch 654082-Total). Dissolved sample 11B was prepared in one sample Batch on November 1, 2019 (Batch 654874-Dissolved).

Sample 11B was prepared/digested and analyzed within the Mercury method holding time.

3. CALIBRATION ANALYSIS

Inductively Coupled Plasma (ICP) was utilized for these analyses. The ICP was calibrated using the calibration standards required by the manufacturer. An initial calibration verification (ICV) standard is then analyzed to verify instrument calibration. One (1) continuing calibration standard was analyzed after each ten (10) field samples.

Three (3) ICP analytical sequences are associated with this data set. The ICP analyses were performed on October 28, 2019, November 1, 2019 and November 6, 2019.

One (1) ICP analytical sequence is associated with the sample chosen for data review. The sample chosen for review (1A) was analyzed for ICP metals on April 24, 2018.

Two (2) Mercury (Hg) analytical sequences are associated with these Total and Dissolved Mercury analyses. Sample 11B was analyzed on October 31, 2019 and November 1, 2019. The ICV and CCV standards associated with these analytical sequences met QC criteria.

4. ICP CRDL STANDARD

The CRDL standard is used for the verification of instrument linearity near the CRDL. The CRDL standard control limits are 70%-130% recovery. If the CRDL standard falls outside of the control limits, associated data less than or equal to the 10X the CRDL are qualified estimated (J or UJ) or rejected (R) depending on the recovery of the CRDL standard and the concentration of the analyte in the sample. When the CRDL standard exceeds the control limit, indicating a high bias samples are qualified estimated (J or UJ).

The laboratory analyzed one (1) CRDL standard with each of the Total and Dissolved/Filtered ICP analytical sequences associated with this data set. This validator applied limits of 70-130% to review each target analyte. CRDL recovery of the target analytes met QC criteria in the opening and closing CRDL standard.

5. ICP INTERFERENCE CHECK STANDARD

The Interference Check Standard (ICS) is used to verify the laboratory interelement and background correction factors of the ICP. Two solutions comprise the ICS A and ICS AB. Solution A consists of the interferent metals while solution AB is the group of target analytes and the interferent metals. An ICS analysis consists of analyzing both solutions consecutively for all wavelengths used for each analyte reported by ICP. The ICP ICS standards are to be analyzed at the beginning and end of each analytical run. The results are to fall within control limits of +/-20% of the true value.

Total Metal Analyses - The laboratory analyzed one (1) ICSA and one (1) ICSAB standard at the beginning and end of the ICP analytical sequence reported with this data set. These QC samples are used to verify the laboratories interelement and background correction factors of the ICP. The recovery of the ICSA/AB standards met QC criteria in the analytical sequence associated with these data sets on October 16, 2018 (Total) and October 26, 2018 (Dissolved).

6. MATRIX SPIKE (MS) ANALYSIS

The spike sample analysis provides information about the effect of the sample matrix upon the digestion and measurement methodology. The spike control limits are 75%-125% when the sample concentration is less than four (4) times the spike added. If the matrix spike recoveries fall in the range of 30%-74%, the sample results are may be biased low and are qualified as estimated (J or UJ). If the matrix spike recoveries fall in the range of 126%-200%, sample results may be biased high. Positive results are qualified estimated (J). If the spike recovery is greater than 125% and the reported sample result is less than the IDL the data point is acceptable for use. If the matrix spike recovery is greater than 200%, the associated sample data are unusable and are rejected (R). If matrix spike results are less than 30%, the associated non-detect results are qualified unusable and rejected (R), and the results reported above the IDL are qualified estimated (J).

MS/MSD was prepared and analyzed on sample MW-8 (Total Metals). Percent recovery met QC limit for the reported target analytes with the exception of Iron (67%) and Silver (141%). Iron and Silver have been estimated "UJ" qualified in the sample chosen for review.

Batch QC Mercury (Total) matrix spike (MS) analyses was reported in this data set. Sample data has not been qualified based on the results of Batch QC MS analysis.

Site specific sample 11B (70109260006) was prepared and analyzed as the Dissolved Mercury matrix spike sample analysis. The percent (%) recovery of Dissolved Mercury met QC criteria in the site-specific matrix spike analyses.

7. POST DIGESTION SPIKE ANALYSIS

The post digestion spike sample analysis provides additional information about the effect of the sample matrix upon the digestion and measurement methodology. The post digestion spike is performed for each analyte that the pre-digestion spike recovery falls outside the 75-125% control limit.

Total Metal Analyses - Post digestion spike (PDS) analysis was not performed on the site-specific sample (MW-11B), no further action was taken. PDS analysis was performed on sample MW-8. Iron was recovered outside QC limit in the PDS sample.

Qualified data result pages are located in Appendix B of this report.

Filtered Metal Analyses - The sample chosen for data review was not prepared and/or analyzed for filtered/dissolved metal analyses

8. DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample analysis is used to evaluate the laboratory precision of the method for each analyte. If the duplicate sample analysis results for a particular analyte fall outside the control windows of 20% RPD or +/- CRDL, whichever is appropriate depending upon the concentration of the sample, the associated sample results are qualified "J" estimated.

Total Metals Analyses – Batch QC duplicate analysis is reported with this data set. Sample data has not been qualified based on Batch QC duplicate analyses.

Filtered Metal Analyses - Batch QC duplicate analysis is reported with this data set. Sample data has not been qualified based on Batch QC duplicate analyses.

9. ICP SERIAL DILUTION

The serial dilution analysis indicates whether significant physical or chemical interferences exist due to the sample matrix. If the concentration of any analyte in the original sample is greater than 50 times the instrument detection limit (IDL), an analysis of a 5-fold dilution samples must yield results which have a percent difference (%D) of less than or equal to 10 with the original sample results. If the %D of the serial dilution exceeds the 10% (and is not greater than 100%) for a particular analyte, all the associated sample results are qualified estimated (J).

Total Metal Analysis – Site specific serial dilution analysis was performed on sample 11B. The recovery of reported target analytes met QC criteria.

Filtered Metal Analyses - Site specific serial dilution analysis was performed on sample 11B. The recovery of reported analytes met QC criteria with the exception of Sodium (Na). Sodium has been estimated "J"/"UJ" qualified in sample 11B.

10. BLANKS

Blank analyses are assessed to determine the existence and magnitude of contamination problems. The criteria for the evaluation of blanks applies to all blanks, including but not limited to reagent blanks, method blanks and field blanks. The responsibility for action in the case of an unsuitable blank result depends upon the circumstances and the origin of the blank itself. If the problem with any blank exists, then all associated data must be carefully evaluated to determine whether there is inherent variability in the data for that case, or the problem is an isolated occurrence not affecting other data.

The laboratory provided a summary report form for the method blank associated with each of the preparation batches. The ICP method blank sample associated with the Total and Dissolved sample (11B) chosen for review was free from contamination of target analytes with the exception of the reported target analytes.

The preparation blank associated with the Total Mercury and Dissolved Mercury sample analyses were free from contamination above the laboratory reporting limit.

The laboratory provided summary forms to report the ICB and CCB analyses for all the ICP and Mercury analytical sequences reported in this data set. All QC criteria were met in each of the ICB/CCB analyses reported in this data set.

DATA USABILITY SUMMARY REPORT (DUSR)
Inorganic Data Assessment

11. LABORATORY CONTROL SAMPLE ANALYSIS (LCS)

The laboratory control sample (LCS) analysis provides information about the efficiency of the laboratory digestion procedure. If the recovery of any analyte is outside the established control limits, then laboratory performance and method accuracy are in question. Professional judgment is used to determine of data should be qualified or rejected.

One (1) Laboratory Control Sample (LCS) was prepared and analyzed with each preparation batch. Each of the LCS samples was fortified with the associated target analytes. A recovery limit of 80%-120% was applied to each target analyte. The recovery of target analytes met QC criteria in the ICP LCS sample and the Hg LCS sample associated with this data set.

12. INSTRUMENT QC DATA

The laboratory provided the required annual and semiannual ICP and Mercury Instrument QC summary report forms in this data report. All annual and semiannual QC studies were performed by the laboratory within the proper time frame.

13. COMPOUND IDENTIFICATION

The samples in this data set were reported as Total Metals and Filtered/Dissolved Metals. Samples were filtered upon receipt at the laboratory as per the documentation that accompanied the samples to the laboratory. Samples in this data set were analyzed for ICP metals and mercury as specified by the COC documents that accompanied the samples to the laboratory.

Five (5) percent (%) of these samples were chosen for data review. Sample 11B (70109260-006) was chosen for the review of Total and Dissolved Metals.

The samples in this data set were analyzed in accordance with the required methods as specified by the COC documents that accompanied the samples to the laboratory. All sample data was reported in ug/l.

14. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate samples are collected and analyzed as an indication of overall precision. These results are expected to have more variability than laboratory duplicate samples. Soil samples have more variability than aqueous samples due to the non-homogeneity of the soil. The total metal sample chosen for data review (11B) is not associated with the field duplicate sample included in this data set.

15. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

This data set included the reporting of Total and Filtered Metals as required by the Chain of Custody Documentation that accompanied the samples to the laboratory. The samples were analyzed for the Total/Filtered TAL Metals and Boron or a subset of metals designated by the associated COC documents. The Chain of Custody documents noted what samples were analyzed for specified analytes. A copy of the Chain of Custody is located in Appendix C of this report. The sample results are reported in accordance with the cited methods.

The sample chosen for Total Metals data review in this data set is acceptable for use with the noted data qualifiers.

Qualified data results are located in Appendix B of this report.

NYS DEC Data Usability Summary Report

DATA VALIDATION FOR:	**Miscellaneous Wet Chemistry**
SITE:	**North Sea Landfill - Town of Southampton**
CONTRACT LAB:	**Pace Analytical Services, Inc. Melville, NY**
REPORT NO.:	**70109260**
REVIEWER:	**Renee Cohen**
DATE REVIEW COMPLETED:	**November 2019**
MATRIX:	**Aqueous**

The Chain of Custody (COC) documentation associated with this data set listed twenty (20) samples (inc. 1 Field Duplicate sample) and one (1) Equipment Blank sample and one (1) Trip Blank (TB) sample was listed on the COC documents that accompanied the samples to the laboratory. The samples in this data set were collected October 21, 2019 and October 22, 2019 and received at Pace Analytical Services, Inc. located in Melville, New York on October 22, 2019.

The data evaluation was performed according to the guidelines and QC criteria cited in the miscellaneous wet chemistry methods that were used for this data set. A Data Usability Summary Report (DUSR) has been prepared in accordance with the guidelines of the Division of Environmental Remediation.

Several factors should be noted for all persons using this data. Persons using this data should be aware that no result is guaranteed to be accurate even if it has passed all QC tests. The main purpose of this review is to appropriately qualify outliers and to determine whether the results presented meet the specific site/project criteria for data quality and data use.

Table 1 of this report contains a cross reference between the Field Sample ID's and the Laboratory Sample ID's. Appendix A of this Data Usability Summary Report (DUSR) contains a summary of the data qualifiers that may be used in the report. Appendix B contains the qualified data result pages. Appendix C contains the Chain of Custody (COC) documents associated with this data set.

The laboratory performed these wet chemistry analyses based on the COC documentation that accompanied the samples to the laboratory. In addition, these samples were analyzed for Volatile Organic Analytes and Metals (Total and Filtered). The review of these various analyses is reported in stand-alone DUSR reports. This data review is associated with the Miscellaneous Wet Chemistry Analyses.

DATA USABILITY SUMMARY REPORT (DUSR)
NORTH SEA LANDFILL

1. OVERVIEW

This data report includes the review of 5% of the aqueous samples that were collected October 21, 2019 and October 22, 2019 and received at the laboratory on October 22, 2019. Table 1 of this report is a cross reference between the field sample ID and laboratory sample ID. A total of nineteen (19) field samples, one (1) Field Duplicate sample, one (1) Equipment Blank sample and one (1) Trip Blank sample were submitted to the laboratory for the analyses listed on the COC documents. In addition, one (1) site specific matrix spike and one (1) site specific matrix spike duplicate (MS/MSD) was listed on the COC documents that accompanied the samples to the laboratory.

One (1) of the samples in this data set was chosen for review. The sample chosen for review was sample 11B (70109260006).

The samples in this data set were analyzed for the parameters listed on the COC documents. A full data deliverable was generated to report these sample results. The aqueous samples in this data set were analyzed for the Wet Chemistry analytes listed on the COC documents that accompanied the samples to the laboratory .

2. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid.

The laboratory chronicles list the date of analysis for each of the Miscellaneous Wet Chemistry analyses. Sample 11B (70109260006) was chosen for data review. The holding time for each of the reported analyses performed within the method holding time.

3. CALIBRATION ANALYSIS

The laboratory summarized the initial and continuing calibration data associated with each of the wet chemistry analytes where applicable. The initial and continuing calibration standard analyses associated with this data set met QC criteria for each of the analytes reported in this data set.

4. MATRIX SPIKE (MS) ANALYSIS

The spike sample analysis provides information about the effect of the sample matrix upon the digestion and measurement methodology. The spike control limits are designated by Pace Analytical Laboratories. The in-house recovery limits are cited on the QC summary report pages for each analyte where applicable.

Site specific matrix spike analysis was performed on samples MW-8 (Nitrite as N, Nitrate-Nitrite as N), TOC, Total Hardness, Alkalinity, 4C (COD), 3B (Hardness), 12B, 3C (TOC) and 1A (Nitrate-nitrite as N). In addition, Batch QC MS/MSD is reported in this data set with these wet chemistry analyses where applicable. Percent recovery was reviewed in these Batch QC MS analysis. No action was taken based on the results of Batch QC MS (MS/MSD) analyses.

5. DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample analysis is used to evaluate the laboratory precision of the method for each analyte. If the duplicate sample analysis results for a particular analyte fall outside the control windows of 20% RPD depending upon the concentration of the sample, the associated sample results are qualified "J" estimated.

Laboratory duplicate analysis was analyzed with each sample batch. Batch QC laboratory duplicate analysis is reported in this data set. RPD (%) was met in each of the reported Batch QC duplicate analyses.

6. BLANKS

Blank analyses are assessed to determine the existence and magnitude of contamination problems. The criteria for the evaluation of blanks applies to all blanks, including but not limited to reagent blanks, method blanks and field blanks. The responsibility for action in the case of an unsuitable blank result depends upon the circumstances and the origin of the blank itself. If the problem with any blank exists, then all associated data must be carefully evaluated to determine whether there is inherent variability in the data for that case, or the problem is an isolated occurrence not affecting other data.

The laboratory provided Method Blank data results for each of the Wet Chemistry analytes reported in this data set. The method blank and/or preparation blank associated with these miscellaneous Wet Chemistry methods were free from contamination of the target analyte above the reporting limit.

One (1) Equipment Blank (EB) sample is associated with this data set. The EB sample was free from contamination of target analytes with the exception of Phenolics, Total. Recoverable (TRP). Phenolics, Total (TRP) were detected at a concentration of 7.7 ug/L. TRP was reviewed in each of the field samples reported in this data set. When the concentration of TRP in the field sample can be attributed to the EB concentration, TRP has been negated "U" qualified in the field sample.

7. LABORATORY CONTROL SAMPLE ANALYSIS (LCS)

The laboratory control sample (LCS) analysis provides information about the efficiency of the laboratory digestion procedure. If the recovery of any analyte is outside the established control limits, then laboratory performance and method accuracy are in question. Professional judgment is used to determine of data should be qualified or rejected.

The laboratory reported in-house LCS recoveries for each of the wet chemistry analyses. The recovery of each of the LCS samples met QC criteria.

8. COMPOUND IDENTIFICATION

Sample results are reported in accordance with the cited methods. A review of the raw data was performed for these wet chemistry analyses. Sample 11B (70109260006) was the sample chosen for complete review. Sample results were reported in accordance with the analytical method. Sample results are reported to the base reporting limit for the reported target analytes.

DATA USABILITY SUMMARY REPORT (DUSR)
NORTH SEA LANDFILL

9. FIELD DUPLICATE DATA RESULTS:

Field duplicate samples are taken and analyzed as an indication of overall precision. The field duplicate sample analyses measure both field and laboratory precision; therefore, the results may have more variability than lab duplicate samples.

The duplicate sample (DUP) in this data set was not chosen within the 5% sample review. No further action was taken.

10. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The inorganic analyses associated with this data set included the reporting of twenty (20) aqueous samples (inc. 1 field duplicate sample) and one (1) Equipment Blank sample per the COC documents that accompanied the samples to the laboratory. The samples were analyzed for miscellaneous Wet Chemistry analytes as noted on the COC documents that accompanied the data set. Five percent (5%) of the sample set was to be reviewed. The sample chosen for review was sample 11B (70109260006). A copy of the associated Chain of Custody documents is located in Appendix C of this report. The sample results are reported in accordance with the cited methods.

The miscellaneous wet chemistry analyte results in sample 11B are acceptable for use with the noted data qualifiers. Data qualifiers "J"/"UJ" are detailed in the above text.

Qualified data result pages are located in Appendix B of this report.

TABLE 1

CLIENT SAMPLE ID	LABORATORYSAMPLE ID
MW-11B	70109260006 - VOA
MW-11B	70109260006 – TAL Metals
MW-11B	70109260006 – Misc. Wet Chemistry Analytes

APPENDIX A

DATA QUALIFIER DEFINITIONS

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

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.

R - The sample results are unreliable/unusable. The presence or absence of the analyte cannot be verified.

APPENDIX B

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Aluminum	**3540**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7429-90-5	
Antimony	**<60.0**	ug/L	60.0	1	10/25/19 10:19	10/28/19 14:57	7440-36-0	
Arsenic	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-38-2	
Barium	**<200**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7440-39-3	
Beryllium	**<5.0**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:57	7440-41-7	
Boron	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-42-8	
Cadmium	**<2.5**	ug/L	2.5	1	10/25/19 10:19	10/28/19 14:57	7440-43-9	
Calcium	**16800**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7440-70-2	
Chromium	**19.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-47-3	
Cobalt	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-48-4	
Copper	**<25.0**	ug/L	25.0	1	10/25/19 10:19	10/28/19 14:57	7440-50-8	
Iron	**11600** J	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:57	7439-89-6	
Lead	**19.5**	ug/L	5.0	1	10/25/19 10:19	10/28/19 14:57	7439-92-1	
Magnesium	**6210**	ug/L	200	1	10/25/19 10:19	10/28/19 14:57	7439-95-4	
Manganese	**369**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7439-96-5	
Nickel	**<40.0**	ug/L	40.0	1	10/25/19 10:19	10/28/19 14:57	7440-02-0	
Potassium	**<5000**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:57	7440-09-7	
Selenium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7782-49-2	
Silver	**<10.0** UJ	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-22-4	
Sodium	**10500**	ug/L	5000	1	10/25/19 10:19	10/28/19 14:57	7440-23-5	
Thallium	**<10.0**	ug/L	10.0	1	10/25/19 10:19	10/28/19 14:57	7440-28-0	
Vanadium	**<50.0**	ug/L	50.0	1	10/25/19 10:19	10/28/19 14:57	7440-62-2	
Zinc	**39.4**	ug/L	20.0	1	10/25/19 10:19	10/28/19 14:57	7440-66-6	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010C							
Aluminum, Dissolved	**<200**	ug/L	200	1		11/06/19 13:04	7429-90-5	
Antimony, Dissolved	**<60.0** UJ	ug/L	60.0	1		11/06/19 13:04	7440-36-0	M1
Arsenic, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-38-2	
Barium, Dissolved	**<200**	ug/L	200	1		11/06/19 13:04	7440-39-3	
Beryllium, Dissolved	**<5.0**	ug/L	5.0	1		11/06/19 13:04	7440-41-7	
Boron, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-42-8	
Cadmium, Dissolved	**<2.5**	ug/L	2.5	1		11/06/19 13:04	7440-43-9	
Calcium, Dissolved	**13500**	ug/L	200	1		11/06/19 13:04	7440-70-2	
Chromium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-47-3	
Cobalt, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-48-4	
Copper, Dissolved	**<25.0**	ug/L	25.0	1		11/06/19 13:04	7440-50-8	
Iron, Dissolved	**32.5**	ug/L	20.0	1		11/06/19 13:04	7439-89-6	
Lead, Dissolved	**<5.0**	ug/L	5.0	1		11/06/19 13:04	7439-92-1	
Magnesium, Dissolved	**4150**	ug/L	200	1		11/06/19 13:04	7439-95-4	
Manganese, Dissolved	**181**	ug/L	10.0	1		11/06/19 13:04	7439-96-5	
Nickel, Dissolved	**<40.0**	ug/L	40.0	1		11/06/19 13:04	7440-02-0	
Potassium, Dissolved	**<5000**	ug/L	5000	1		11/06/19 13:04	7440-09-7	
Selenium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7782-49-2	
Silver, Dissolved	**<10.0** UJ	ug/L	10.0	1		11/06/19 13:04	7440-22-4	M1
Sodium, Dissolved	**10300** J	ug/L	5000	1		11/06/19 13:04	7440-23-5	
Thallium, Dissolved	**<10.0**	ug/L	10.0	1		11/06/19 13:04	7440-28-0	
Vanadium, Dissolved	**<50.0**	ug/L	50.0	1		11/06/19 13:04	7440-62-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010C							
Zinc, Dissolved	**<20.0**	ug/L	20.0	1		11/06/19 13:04	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	**<0.20**	ug/L	0.20	1	11/01/19 11:56	11/01/19 16:40	7439-97-6	
7470 Mercury, Dissolved	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury, Dissolved	**<0.20**	ug/L	0.20	1	10/31/19 11:19	10/31/19 17:41	7439-97-6	
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L UJ	5.0	1		10/23/19 16:23	67-64-1	IC
Acrylonitrile	**<5.0**	ug/L	5.0	1		10/23/19 16:23	107-13-1	
Benzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	71-43-2	
Bromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-97-5	
Bromodichloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-27-4	
Bromoform	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-25-2	
Bromomethane	**<5.0**	ug/L UJ	5.0	1		10/23/19 16:23	74-83-9	
2-Butanone (MEK)	**<5.0**	ug/L UJ	5.0	1		10/23/19 16:23	78-93-3	CL,IL
Carbon disulfide	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-15-0	
Carbon tetrachloride	**<5.0**	ug/L	5.0	1		10/23/19 16:23	56-23-5	
Chlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-00-3	
Chloroform	**5.0**	ug/L	5.0	1		10/23/19 16:23	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-87-3	
1,2-Dibromo-3-chloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	96-12-8	
Dibromochloromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	124-48-1	
1,2-Dibromoethane (EDB)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	106-93-4	
Dibromomethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	74-95-3	
1,2-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	95-50-1	
1,4-Dichlorobenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	106-46-7	
trans-1,4-Dichloro-2-butene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	110-57-6	
1,1-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-34-3	
1,2-Dichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	107-06-2	
1,1-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	156-60-5	
1,2-Dichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	10061-02-6	
Ethylbenzene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	100-41-4	
2-Hexanone	**<5.0**	ug/L UJ	5.0	1		10/23/19 16:23	591-78-6	
Iodomethane	**<5.0**	ug/L R	5.0	1		10/23/19 16:23	74-88-4	L1
Methylene Chloride	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-10-1	
Styrene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	100-42-5	
1,1,1,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	630-20-6	
1,1,2,2-Tetrachloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-34-5	

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ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Tetrachloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	127-18-4	
Toluene	**55.4**	ug/L	5.0	1		10/23/19 16:23	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-00-5	
Trichloroethene	**<5.0**	ug/L	5.0	1		10/23/19 16:23	79-01-6	
Trichlorofluoromethane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	75-69-4	
1,2,3-Trichloropropane	**<5.0**	ug/L	5.0	1		10/23/19 16:23	96-18-4	
Vinyl acetate	**<5.0**	ug/L	5.0	1		10/23/19 16:23	108-05-4	
Vinyl chloride	**<5.0**	ug/L UJ	5.0	1		10/23/19 16:23	75-01-4	
Xylene (Total)	**<5.0**	ug/L	5.0	1		10/23/19 16:23	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		10/23/19 16:23	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 16:23	460-00-4	
Toluene-d8 (S)	95	%	69-124	1		10/23/19 16:23	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		
2320B Alkalinity	Analytical Method: SM22 2320B							
Alkalinity, Total as CaCO3	**40.4**	mg/L	1.0	1		10/24/19 19:38		
2340C Hardness, Total	Analytical Method: SM22 2340C							
Tot Hardness asCaCO3 (SM 2340B	**70.0**	mg/L	5.0	1		11/05/19 20:17		
2540C Total Dissolved Solids	Analytical Method: SM22 2540C							
Total Dissolved Solids	**94.0**	mg/L	10.0	1		10/24/19 10:08		
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4							
Chemical Oxygen Demand	**165**	mg/L	10.0	1	10/28/19 11:24	10/28/19 13:40		
5210B BOD, 5 day	Analytical Method: SM22 5210B Preparation Method: SM22 5210B							
BOD, 5 day	**<4.0**	mg/L	4.0	2	10/22/19 17:05	10/27/19 09:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Bromide	**<0.50**	mg/L	0.50	1		10/29/19 01:38	24959-67-9	
Chloride	**13.9**	mg/L	2.0	1		10/29/19 01:38	16887-00-6	
Sulfate	**20.0**	mg/L	5.0	1		10/29/19 01:38	14808-79-8	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**0.59**	mg/L	0.10	1	11/05/19 06:05	11/05/19 12:22	7727-37-9	B
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrate as N	**0.69** J	mg/L	0.050	1		10/23/19 03:22	14797-55-8	
Nitrate-Nitrite (as N)	**0.69**	mg/L	0.050	1		10/23/19 03:22	7727-37-9	

no data quals

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: 11B **Lab ID: 70109260006** Collected: 10/21/19 09:20 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2							
Nitrite as N	**<0.050**	mg/L	0.050	1		10/22/19 23:15	14797-65-0	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Preparation Method: EPA 420.1							
Phenolics, Total Recoverable	**11.6**	ug/L	5.0	1	10/31/19 06:28	10/31/19 11:31		
4500 Ammonia Water	Analytical Method: SM22 4500 NH3 H							
Nitrogen, Ammonia	**0.87**	mg/L	0.10	1		11/01/19 15:45	7664-41-7	
5310B TOC as NPOC	Analytical Method: SM22 5310B							
Total Organic Carbon	**16.7**	mg/L	1.0	1		10/31/19 19:23	7440-44-0	

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(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: TRIP BLANK **Lab ID: 70109260012** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	<5.0	ug/L	5.0	1		10/23/19 14:55	67-64-1	IC
Acrylonitrile	<5.0	ug/L	5.0	1		10/23/19 14:55	107-13-1	
Benzene	<5.0	ug/L	5.0	1		10/23/19 14:55	71-43-2	
Bromochloromethane	<5.0	ug/L	5.0	1		10/23/19 14:55	74-97-5	
Bromodichloromethane	<5.0	ug/L	5.0	1		10/23/19 14:55	75-27-4	
Bromoform	<5.0	ug/L	5.0	1		10/23/19 14:55	75-25-2	
Bromomethane	<5.0	ug/L	5.0	1		10/23/19 14:55	74-83-9	
2-Butanone (MEK)	<5.0	ug/L	5.0	1		10/23/19 14:55	78-93-3	CL,IL
Carbon disulfide	<5.0	ug/L	5.0	1		10/23/19 14:55	75-15-0	
Carbon tetrachloride	<5.0	ug/L	5.0	1		10/23/19 14:55	56-23-5	
Chlorobenzene	<5.0	ug/L	5.0	1		10/23/19 14:55	108-90-7	
Chloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	75-00-3	
Chloroform	<5.0	ug/L	5.0	1		10/23/19 14:55	67-66-3	
Chloromethane	<5.0	ug/L	5.0	1		10/23/19 14:55	74-87-3	
1,2-Dibromo-3-chloropropane	<5.0	ug/L	5.0	1		10/23/19 14:55	96-12-8	
Dibromochloromethane	<5.0	ug/L	5.0	1		10/23/19 14:55	124-48-1	
1,2-Dibromoethane (EDB)	<5.0	ug/L	5.0	1		10/23/19 14:55	106-93-4	
Dibromomethane	<5.0	ug/L	5.0	1		10/23/19 14:55	74-95-3	
,2-Dichlorobenzene	<5.0	ug/L	5.0	1		10/23/19 14:55	95-50-1	
,4-Dichlorobenzene	<5.0	ug/L	5.0	1		10/23/19 14:55	106-46-7	
trans-1,4-Dichloro-2-butene	<5.0	ug/L	5.0	1		10/23/19 14:55	110-57-6	
1,1-Dichloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	75-34-3	
1,2-Dichloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	107-06-2	
1,1-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 14:55	75-35-4	
cis-1,2-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 14:55	156-59-2	
trans-1,2-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 14:55	156-60-5	
1,2-Dichloropropane	<5.0	ug/L	5.0	1		10/23/19 14:55	78-87-5	
cis-1,3-Dichloropropene	<5.0	ug/L	5.0	1		10/23/19 14:55	10061-01-5	
trans-1,3-Dichloropropene	<5.0	ug/L	5.0	1		10/23/19 14:55	10061-02-6	
Ethylbenzene	<5.0	ug/L	5.0	1		10/23/19 14:55	100-41-4	
2-Hexanone	<5.0	ug/L	5.0	1		10/23/19 14:55	591-78-6	
Iodomethane	<5.0	ug/L	5.0	1		10/23/19 14:55	74-88-4	L1
Methylene Chloride	<5.0	ug/L	5.0	1		10/23/19 14:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	<5.0	ug/L	5.0	1		10/23/19 14:55	108-10-1	
Styrene	<5.0	ug/L	5.0	1		10/23/19 14:55	100-42-5	
1,1,1,2-Tetrachloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	630-20-6	
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	79-34-5	
Tetrachloroethene	<5.0	ug/L	5.0	1		10/23/19 14:55	127-18-4	
Toluene	<5.0	ug/L	5.0	1		10/23/19 14:55	108-88-3	
1,1,1-Trichloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	71-55-6	
1,1,2-Trichloroethane	<5.0	ug/L	5.0	1		10/23/19 14:55	79-00-5	
Trichloroethene	<5.0	ug/L	5.0	1		10/23/19 14:55	79-01-6	
Trichlorofluoromethane	<5.0	ug/L	5.0	1		10/23/19 14:55	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	5.0	1		10/23/19 14:55	96-18-4	
Vinyl acetate	<5.0	ug/L	5.0	1		10/23/19 14:55	108-05-4	
Vinyl chloride	<5.0	ug/L	5.0	1		10/23/19 14:55	75-01-4	
Xylene (Total)	<5.0	ug/L	5.0	1		10/23/19 14:55	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: TRIP BLANK **Lab ID: 70109260012** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		10/23/19 14:55	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 14:55	460-00-4	
Toluene-d8 (S)	94	%	69-124	1		10/23/19 14:55	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: STORAGE BLANK **Lab ID: 70109260013** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	<5.0	ug/L	5.0	1		10/23/19 15:41	67-64-1	IC
Acrylonitrile	<5.0	ug/L	5.0	1		10/23/19 15:41	107-13-1	
Benzene	<5.0	ug/L	5.0	1		10/23/19 15:41	71-43-2	
Bromochloromethane	<5.0	ug/L	5.0	1		10/23/19 15:41	74-97-5	
Bromodichloromethane	<5.0	ug/L	5.0	1		10/23/19 15:41	75-27-4	
Bromoform	<5.0	ug/L	5.0	1		10/23/19 15:41	75-25-2	
Bromomethane	<5.0	ug/L	5.0	1		10/23/19 15:41	74-83-9	
2-Butanone (MEK)	<5.0	ug/L	5.0	1		10/23/19 15:41	78-93-3	CL,IL
Carbon disulfide	<5.0	ug/L	5.0	1		10/23/19 15:41	75-15-0	
Carbon tetrachloride	<5.0	ug/L	5.0	1		10/23/19 15:41	56-23-5	
Chlorobenzene	<5.0	ug/L	5.0	1		10/23/19 15:41	108-90-7	
Chloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	75-00-3	
Chloroform	<5.0	ug/L	5.0	1		10/23/19 15:41	67-66-3	
Chloromethane	<5.0	ug/L	5.0	1		10/23/19 15:41	74-87-3	
1,2-Dibromo-3-chloropropane	<5.0	ug/L	5.0	1		10/23/19 15:41	96-12-8	
Dibromochloromethane	<5.0	ug/L	5.0	1		10/23/19 15:41	124-48-1	
1,2-Dibromoethane (EDB)	<5.0	ug/L	5.0	1		10/23/19 15:41	106-93-4	
Dibromomethane	<5.0	ug/L	5.0	1		10/23/19 15:41	74-95-3	
,2-Dichlorobenzene	<5.0	ug/L	5.0	1		10/23/19 15:41	95-50-1	
,4-Dichlorobenzene	<5.0	ug/L	5.0	1		10/23/19 15:41	106-46-7	
trans-1,4-Dichloro-2-butene	<5.0	ug/L	5.0	1		10/23/19 15:41	110-57-6	
1,1-Dichloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	75-34-3	
1,2-Dichloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	107-06-2	
1,1-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 15:41	75-35-4	
cis-1,2-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 15:41	156-59-2	
trans-1,2-Dichloroethene	<5.0	ug/L	5.0	1		10/23/19 15:41	156-60-5	
1,2-Dichloropropane	<5.0	ug/L	5.0	1		10/23/19 15:41	78-87-5	
cis-1,3-Dichloropropene	<5.0	ug/L	5.0	1		10/23/19 15:41	10061-01-5	
trans-1,3-Dichloropropene	<5.0	ug/L	5.0	1		10/23/19 15:41	10061-02-6	
Ethylbenzene	<5.0	ug/L	5.0	1		10/23/19 15:41	100-41-4	
2-Hexanone	<5.0	ug/L	5.0	1		10/23/19 15:41	591-78-6	
Iodomethane	<5.0	ug/L	5.0	1		10/23/19 15:41	74-88-4	L1
Methylene Chloride	<5.0	ug/L	5.0	1		10/23/19 15:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	<5.0	ug/L	5.0	1		10/23/19 15:41	108-10-1	
Styrene	<5.0	ug/L	5.0	1		10/23/19 15:41	100-42-5	
1,1,1,2-Tetrachloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	630-20-6	
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	79-34-5	
Tetrachloroethene	<5.0	ug/L	5.0	1		10/23/19 15:41	127-18-4	
Toluene	<5.0	ug/L	5.0	1		10/23/19 15:41	108-88-3	
1,1,1-Trichloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	71-55-6	
1,1,2-Trichloroethane	<5.0	ug/L	5.0	1		10/23/19 15:41	79-00-5	
Trichloroethene	<5.0	ug/L	5.0	1		10/23/19 15:41	79-01-6	
Trichlorofluoromethane	<5.0	ug/L	5.0	1		10/23/19 15:41	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	5.0	1		10/23/19 15:41	96-18-4	
Vinyl acetate	<5.0	ug/L	5.0	1		10/23/19 15:41	108-05-4	
Vinyl chloride	<5.0	ug/L	5.0	1		10/23/19 15:41	75-01-4	
Xylene (Total)	<5.0	ug/L	5.0	1		10/23/19 15:41	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: NORTH SEA LANDFILL 10/21
Pace Project No.: 70109260

Sample: STORAGE BLANK **Lab ID: 70109260013** Collected: 10/21/19 00:00 Received: 10/22/19 11:54 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	68-153	1		10/23/19 15:41	17060-07-0	
4-Bromofluorobenzene (S)	94	%	79-124	1		10/23/19 15:41	460-00-4	
Toluene-d8 (S)	94	%	69-124	1		10/23/19 15:41	2037-26-5	
TIC MSV Water	Analytical Method: EPA 8260							
TIC Search	**No TICs Found**			1		10/28/19 16:39		

REPORT OF LABORATORY ANALYSIS

SAMPLE NO.

11B

MSV - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

.o Name: Pace Analytical - New York
Contract: NORTH SEA LANDFILL 10/21

Date Received: 10/22/2019 11:54
Matrix: Water SDG No.: 70109260

Date Extracted: 10/23/2019 16:23
Lab Sample ID: 70109260006

Date Analyzed: 10/23/2019 16:23
Lab File ID: 102319.B\P19501.D

Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1
Instrument: 70MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q	
67-64-1	Acetone	<5.0	U	UJ
107-13-1	Acrylonitrile	<5.0	U	
71-43-2	Benzene	<5.0	U	
74-97-5	Bromochloromethane	<5.0	U	
75-27-4	Bromodichloromethane	<5.0	U	
75-25-2	Bromoform	<5.0	U	
74-83-9	Bromomethane	<5.0	U	UJ
78-93-3	2-Butanone (MEK)	<5.0	U	UJ
75-15-0	Carbon disulfide	<5.0	U	
56-23-5	Carbon tetrachloride	<5.0	U	
108-90-7	Chlorobenzene	<5.0	U	
75-00-3	Chloroethane	<5.0	U	
67-66-3	Chloroform	5.0		
74-87-3	Chloromethane	<5.0	U	
96-12-8	1,2-Dibromo-3-chloropropane	<5.0	U	
124-48-1	Dibromochloromethane	<5.0	U	
106-93-4	1,2-Dibromoethane (EDB)	<5.0	U	
74-95-3	Dibromomethane	<5.0	U	
95-50-1	1,2-Dichlorobenzene	<5.0	U	
106-46-7	1,4-Dichlorobenzene	<5.0	U	
110-57-6	trans-1,4-Dichloro-2-butene	<5.0	U	
75-34-3	1,1-Dichloroethane	<5.0	U	
107-06-2	1,2-Dichloroethane	<5.0	U	
75-35-4	1,1-Dichloroethene	<5.0	U	
156-59-2	cis-1,2-Dichloroethene	<5.0	U	
156-60-5	trans-1,2-Dichloroethene	<5.0	U	
78-87-5	1,2-Dichloropropane	<5.0	U	
10061-01-5	cis-1,3-Dichloropropene	<5.0	U	
10061-02-6	trans-1,3-Dichloropropene	<5.0	U	
100-41-4	Ethylbenzene	<5.0	U	
591-78-6	2-Hexanone	<5.0	U	UJ
74-88-4	Iodomethane	<5.0	U	R
75-09-2	Methylene Chloride	<5.0	U	
108-10-1	4-Methyl-2-pentanone (MIBK)	<5.0	U	
100-42-5	Styrene	<5.0	U	
630-20-6	1,1,1,2-Tetrachloroethane	<5.0	U	
79-34-5	1,1,2,2-Tetrachloroethane	<5.0	U	

SAMPLE NO.

11B

MSV - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York Contract: NORTH SEA LANDFILL 10/21

Date Received: 10/22/2019 11:54 Matrix: Water SDG No.: 70109260

Date Extracted: 10/23/2019 16:23 Lab Sample ID: 70109260006

Date Analyzed: 10/23/2019 16:23 Lab File ID: 102319.B\P19501.D

Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1 Instrument: 70MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
127-18-4	Tetrachloroethene	<5.0	U
108-88-3	Toluene	55.4	
71-55-6	1,1,1-Trichloroethane	<5.0	U
79-00-5	1,1,2-Trichloroethane	<5.0	U
79-01-6	Trichloroethene	<5.0	U
75-69-4	Trichlorofluoromethane	<5.0	U
96-18-4	1,2,3-Trichloropropane	<5.0	U
108-05-4	Vinyl acetate	<5.0	U
75-01-4	Vinyl chloride	<5.0	U UJ
1330-20-7	Xylene (Total)	<5.0	U

SAMPLE NO.

11B

MSV - FORM I VOA-TIC-1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Pace Analytical - New York
Contract: NORTH SEA LANDFILL 10/21
Date Received: 10/22/2019 11:54
Matrix: Water SDG No.: 70109260
Date Extracted: 10/23/2019 16:23
Lab Sample ID: 70109260006
Date Analyzed: 10/23/2019 16:23
Lab File ID: 102319.B\P19501.D
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1
Instrument: 70MSV8 Percent Moisture:

CAS NO.	COMPOUND	RT	EST. CONC. UNITS: ppbv	Q
	No TICs Found			

SAMPLE NO.

11B

FORM I INORGANIC-1

INORGANIC ANALYSIS DATA SHEET

Total + Diss

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260006 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time	
7429-90-5	Aluminum	3540		ug/L	1	10/28/2019 14:57	
7429-90-5	Aluminum, Dissolved	<200	U	ug/L	1	11/06/2019 13:04	
7440-36-0	Antimony	<60.0	U	ug/L	1	10/28/2019 14:57	
7440-36-0	Antimony, Dissolved	<60.0	U	ug/L	1	11/06/2019 13:04	UJ
7440-38-2	Arsenic	<10.0	U	ug/L	1	10/28/2019 14:57	
7440-38-2	Arsenic, Dissolved	<10.0	U	ug/L	1	11/06/2019 13:04	
7440-39-3	Barium	<200	U	ug/L	1	10/28/2019 14:57	
7440-39-3	Barium, Dissolved	<200	U	ug/L	1	11/06/2019 13:04	
7440-41-7	Beryllium	<5.0	U	ug/L	1	10/28/2019 14:57	
7440-41-7	Beryllium, Dissolved	<5.0	U	ug/L	1	11/06/2019 13:04	
7440-42-8	Boron	<50.0	U	ug/L	1	10/28/2019 14:57	
7440-42-8	Boron, Dissolved	<50.0	U	ug/L	1	11/06/2019 13:04	
7440-43-9	Cadmium	<2.5	U	ug/L	1	10/28/2019 14:57	
7440-43-9	Cadmium, Dissolved	<2.5	U	ug/L	1	11/06/2019 13:04	
7440-70-2	Calcium	16800		ug/L	1	10/28/2019 14:57	
7440-70-2	Calcium, Dissolved	13500		ug/L	1	11/06/2019 13:04	
7440-47-3	Chromium	19.0		ug/L	1	10/28/2019 14:57	
7440-47-3	Chromium, Dissolved	<10.0	U	ug/L	1	11/06/2019 13:04	
7440-48-4	Cobalt	<50.0	U	ug/L	1	10/28/2019 14:57	
7440-48-4	Cobalt, Dissolved	<50.0	U	ug/L	1	11/06/2019 13:04	
7440-50-8	Copper	<25.0	U	ug/L	1	10/28/2019 14:57	
7440-50-8	Copper, Dissolved	<25.0	U	ug/L	1	11/06/2019 13:04	
7439-89-6	Iron	11600		ug/L	1	10/28/2019 14:57	J
7439-89-6	Iron, Dissolved	32.5		ug/L	1	11/06/2019 13:04	
7439-92-1	Lead	19.5		ug/L	1	10/28/2019 14:57	
7439-92-1	Lead, Dissolved	<5.0	U	ug/L	1	11/06/2019 13:04	
7439-95-4	Magnesium	6210		ug/L	1	10/28/2019 14:57	
7439-95-4	Magnesium, Dissolved	4150		ug/L	1	11/06/2019 13:04	
7439-96-5	Manganese	369		ug/L	1	10/28/2019 14:57	
7439-96-5	Manganese, Dissolved	181		ug/L	1	11/06/2019 13:04	
7440-02-0	Nickel	<40.0	U	ug/L	1	10/28/2019 14:57	
7440-02-0	Nickel, Dissolved	<40.0	U	ug/L	1	11/06/2019 13:04	
7440-09-7	Potassium	<5000	U	ug/L	1	10/28/2019 14:57	
7440-09-7	Potassium, Dissolved	<5000	U	ug/L	1	11/06/2019 13:04	
7782-49-2	Selenium	<10.0	U	ug/L	1	10/28/2019 14:57	
7782-49-2	Selenium, Dissolved	<10.0	U	ug/L	1	11/06/2019 13:04	
7440-22-4	Silver	<10.0	U	ug/L	1	10/28/2019 14:57	UJ
7440-22-4	Silver, Dissolved	<10.0	U	ug/L	1	11/06/2019 13:04	UJ
7440-23-5	Sodium	10500		ug/L	1	10/28/2019 14:57	
7440-23-5	Sodium, Dissolved	10300		ug/L	1	11/06/2019 13:04	J

SAMPLE NO.

11B

FORM I INORGANIC-2

INORGANIC ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260006 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
7440-28-0	Thallium	<10.0	U	ug/L	1	10/28/2019 14:57
7440-28-0	Thallium, Dissolved	<10.0	U	ug/L	1	11/06/2019 13:04
7440-62-2	Vanadium	<50.0	U	ug/L	1	10/28/2019 14:57
7440-62-2	Vanadium, Dissolved	<50.0	U	ug/L	1	11/06/2019 13:04
7440-66-6	Zinc	39.4		ug/L	1	10/28/2019 14:57
7440-66-6	Zinc, Dissolved	<20.0	U	ug/L	1	11/06/2019 13:04

SAMPLE NO.

11B

FORM I INORGANIC-1

INORGANIC ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260006 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
	Alkalinity, Total as CaCO3	40.4		mg/L	1	10/24/2019 19:38
	BOD, 5 day	<4.0	U	mg/L	2	10/27/2019 09:40
	Chemical Oxygen Demand	165		mg/L	1	10/28/2019 13:40
14797-55-8	Nitrate as N	0.69		mg/L	1	10/23/2019 03:22
7727-37-9	Nitrate-Nitrite (as N)	0.69		mg/L	1	10/23/2019 03:22
14797-65-0	Nitrite as N	<0.050	U	mg/L	1	10/22/2019 23:15
7664-41-7	Nitrogen, Ammonia	0.87		mg/L	1	11/01/2019 15:45
7727-37-9	Nitrogen, Kjeldahl, Total	0.59	B	mg/L	1	11/05/2019 12:22
	Phenolics, Total	11.6		ug/L	1	10/31/2019 11:31
	Tot Hardness asCaCO3 (SM 2340B	70.0		mg/L	1	11/05/2019 20:17
7440-44-0	Total Organic Carbon	16.7		mg/L	1	10/31/2019 19:23

no data qual (pc)

SAMPLE NO.

11B

FORM I INORGANIC-1

INORGANIC ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260006 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
24959-67-9	Bromide	<0.50	U	mg/L	1	10/29/2019 01:38
16887-00-6	Chloride	13.9		mg/L	1	10/29/2019 01:38
14808-79-8	Sulfate	20.0		mg/L	1	10/29/2019 01:38

no data quals RC

SAMPLE NO.

MW-8

FORM I INORGANIC-1

INORGANIC ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260008 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
	Alkalinity, Total as CaCO3	52.0		mg/L	1	10/24/2019 20:20
	BOD, 5 day	<4.0	U	mg/L	2	10/27/2019 09:44
	Chemical Oxygen Demand	12.4		mg/L	1	10/28/2019 13:42
14797-55-8	Nitrate as N	0.65		mg/L	1	10/23/2019 03:25
7727-37-9	Nitrate-Nitrite (as N)	0.65		mg/L	1	10/23/2019 03:25
14797-65-0	Nitrite as N	<0.050	U	mg/L	1	10/22/2019 23:17
7664-41-7	Nitrogen, Ammonia	<0.10	U	mg/L	1	11/01/2019 15:47
7727-37-9	Nitrogen, Kjeldahl, Total	<0.10	U B	mg/L	1	11/05/2019 12:26
	Phenolics, Total	<5.0	U	ug/L	1	11/04/2019 12:05
	Tot Hardness asCaCO3 (SM 2340B	80.0		mg/L	1	11/05/2019 20:40
7440-44-0	Total Organic Carbon	1.3		mg/L	1	10/31/2019 19:53

SAMPLE NO.

MW-8

FORM I INORGANIC-1

INORGANIC ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York SDG No. : 70109260 Contract: NORTH SEA LANDFILL 10/21

Lab Sample ID: 70109260008 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
	Total Dissolved Solids	103		mg/L	1	10/24/2019 10:09

no data gaps

APPENDIX C

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

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

LAB USE ONLY- Af

WO# : 70109260

ALL :

70109260

Company: P.W Grosser Consulting	Billing Information: Town of Southampton
Address: 630 Johnson ave. Suite 7 Bohemia NY	
Report To: Derek Erskine	Email To: DerekE@pwgrosser.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: SHP1901 - North Sea Landfill	State: NY County/City: Suffolk / Southampton Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET
Phone: 631-589-6353 Email: DerekE@pwgrosser.com	Site/Facility ID #:
Collected By (print): NR/CA	Purchase Order #: Quote #:
Collected By (signature): [signature]	Turnaround Date Required: Standard
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No
DW PWS ID #:
DW Location Code:
Immediately Packed on Ice: [✓] Yes [ ] No
Field Filtered (if applicable): [ ] Yes [✓] No
Analysis:

Container Preservative Type
Lab Project Manager: JSA

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

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

Customer Sample ID	Matrix *	Comp / Grab	Collected Date	Collected Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	BOD, Br, Cl, SO4, Alk, TDS, NO	COD, NH3, NO3, Phenols, TKN	Routine metals + Hardness	TOC	Volatiles	Filtered metals	Baseline Metals + Hardness	Lab Sample # / Comments
1A	GW	G	10.21.19	1315				6	X	X	X	X				001
1B				1300				6	X	X	X	X				002
1C				1235				6	X	X	X	X				003
DUP				xx				6	X	X	X	X				004
11A				850				8	X	X		X	X		X	005
11B				920				9	X	X		X	X	X	X	006
MW-9				1025				6	X	X	X	X				007
MW-8/MS/MSD				1100				[illegible]	X	X	X	X				008
12A				1430				6	X	X	X	X				009
12B	↓	↓	↓	1415				6	X	X	X	X				010

Lab Profile/Line:

Lab Sample Receipt Checklist:

- Custody Seals Present/Intact Y (N) NA
- Custody Signatures Present (Y) N NA
- Collector Signature Present (Y) N NA
- Bottles Intact (Y) N NA
- Correct Bottles (Y) N NA
- Sufficient Volume (Y) N NA
- Samples Received on Ice (Y) N NA
- VOA - Headspace Acceptable (Y) N NA
- USDA Regulated Soils Y N (NA)
- Samples in Holding Time (Y) N NA
- Residual Chlorine Present Y N (NA)
- Cl Strips:
- Sample pH Acceptable (Y) N NA
- pH Strips: HC803463
- Sulfide Present Y N (NA)
- Lead Acetate Strips:

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

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

Packing Material Used:

Lab Tracking #: 2404304

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

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

Lab Sample Temperature Info:
Temp Blank Received: Y (N) NA
Therm ID#: TH091
Cooler 1 Temp Upon Receipt: 5.6 oC
Cooler 1 Therm Corr. Factor: 0.2 oC
Cooler 1 Corrected Temp: 5.8 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] PWGC	10.21.19 1640	[signature]	10/22/19 11:08
[signature]	10/22/19 1154	[signature] Pace	10/22/19 11:54

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

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

Non Conformance(s): YES / (NO)

Page: 1 of: 2

1221011812

PM: JSA Due Date: 11/05/19
CLIENT: TOS

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Doc

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed ac

Page: 1 of 1

Section A Required Client Information:

- Company: P.W. Grosser Consulting
- Address: 630 Johnson ave. st. 7
- Bohemia NY 11716
- Email To: DerekE@pwgrosser.com
- Phone: 631-589-6353 Fax:
- Requested Due Date/TAT:

Section B Required Project Information

- Report To:
- Copy To:
- Purchase Order No.:
- Project Name: North Sea Landfill
- Project Number: SHP1901

Section C Invoice Information:

- Attention:
- Company Name: Town of Southampton
- Address: ↓
- Pace Quote Reference:
- Pace Project Manager:
- Pace Profile #:

REGULATORY AGENCY

- NPDES
- GROUND WATER
- DRINKING WATER
- UST
- RCRA
- OTHER

Site Location STATE: Ny

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Preservatives: Unpreserved, H_2SO_4, HNO_3, HCl, NaOH, $Na_2S_2O_3$, Methanol, Other

Requested Analysis Filtered (Y/N) — Analysis Test: (1) Cl SO4 Alk; (2) TDS NO3; (3) NH3 ...; (4) metals; (5) TOC; (6) Filtered Metals; (7) Baseline Metals; (8) Arsenic

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Residual Chlorine (Y/N)	Pace Project No./Lab I.D.
1	4C	GW	G	10-22-19	1400					X	X	X	X	X					014
2	4B	↓	↓	↓	1430					X	X	X	X	X					015
3	4A				1500					X	X	X	X	X					016
4	LEA-Secondary				810					X	X	X	X	X			X		017
5	LEA-Primary				800					X	X	X	X	X	X		X		018
6	3A				1300					X	X	X	X	X					019
7	6AR				930					X	X	X		X		X			020
8	6B				1000					X	X	X		X		X			021
9	3C				1200					X	X	X	X	X					022
10	3B	↓	↓	↓	1240					X	X	X	X	X					023
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nick Russell PWGC	10-22-19	1600	W Kelly	10/23/19	1030	
	W Kelly	10/23/19	1125	[signature]	10/23/19	11.25	3.0
							2.1

SAMPLER NAME AND SIGNATURE

- PRINT Name of SAMPLER: Nick Russell
- SIGNATURE of SAMPLER: [signature]
- DATE Signed (MM/DD/YY): 10-22-19

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month ... invoices not paid within 30 days

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

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

LAB # WO#:70109260 r Number

PM: JSA Due Date: 11/05/19

CLIENT: TOS

Y

Company: P.W. Grosser Consulting	Billing Information: Town of Southampton
Address: 670 Johnson Ferry Rd St. 7 Boheim NY	
Report To: Derek Ersbak	Email To: DerekE@pwgrosser.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: SHP 1701 - North Sea Landfill	State: NY County/City: / Time Zone Collected: [ ]PT [ ]MT [ ]CT [ ]ET
Phone: 631-589-6353 Email: DerekE@pwgrosser.com	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Nam Kyser/CA	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

Container Preservative Type

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

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: BOD, Br, Cl, SO4, Alk, TDS, NO	COD NH3, NO3, Phenols, TKN	Routine Metals + Hardness	TOC	Volatiles	Lab Profile/Line:
Equipment Blank	OT	G	10/21/19	1500				6	X	X	X	X		011
Trip Blank	OT	G	↓	~				2					X	012

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips: HC560341/63			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

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

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

Lab Tracking #: 2434272

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

Lab Sample Temperature Info:
Temp Blank Received: Y (N) NA
Therm ID#: TH091
Cooler 1 Temp Upon Receipt: 5.6 oC
Cooler 1 Therm Corr. Factor: 0.2 oC
Cooler 1 Corrected Temp: 5.8 oC
Comments:

Relinquished by/Company: (Signature) Nam Kyser/Pace	Date/Time: 10.21.19 1000	Received by/Company: (Signature)	Date/Time: 10/22/19 11:54
Relinquished by/Company: (Signature)	Date/Time: 10/22/19 11:54	Received by/Company: (Signature)	Date/Time: 10/22/19 11:54
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

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

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

Non Conformance(s): YES / (NO)

Page: 2 of: 2

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APPENDIX B
WELL INSPECTION CHECKLISTS

P.W. GROSSER CONSULTING, INC.
P.W. GROSSER CONSULTING ENGINEER & HYDROGEOLOGIST, P.C.
PHONE: 631.589.6353
PWGROSSER.COM
630 JOHNSON AVENUE, STE 7
BOHEMIA, NY 11716
LONG ISLAND • MANHATTAN • SARATOGA SPRINGS • SYRACUSE • SEATTLE • SHELTON

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	1A	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 50 F

WELL EXTERIOR CONDITIONS

CONCRETE PAD	Yes	No	Remarks
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	103.1
DEPTH TO BOTTOM (FEET)	110.0
PID (ppm)	0.0

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	1B	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 60 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	104.3
DEPTH TO BOTTOM (FEET)	200.0
PID (ppm)	0.0

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	1C	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 60 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	105.6
DEPTH TO BOTTOM (FEET)	200.0
PID (ppm)	0.0

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	3A	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	47.35
DEPTH TO BOTTOM (FEET)	60.52
PID (ppm)	0.0

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	3B	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	44.00
DEPTH TO BOTTOM (FEET)	113.0
PID (ppm)	0.0

PWGC
CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	3C	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	44.80
DEPTH TO BOTTOM (FEET)	180.0
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	4A	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	13.30
DEPTH TO BOTTOM (FEET)	30.83
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	4B	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	13.54
DEPTH TO BOTTOM (FEET)	80.50
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	4C	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	9.12
DEPTH TO BOTTOM (FEET)	151.5
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	6AR	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		missing J-Plug
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	90.70
DEPTH TO BOTTOM (FEET)	111.5
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	6B	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		Clear overgrown vegetatic

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	93.20
DEPTH TO BOTTOM (FEET)	145.0
PID (ppm)	0.0

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WELL INSPECTION CHECKLIST

Well No.	7A	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 60 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:		X	
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	82.43
DEPTH TO BOTTOM (FEET)	96.30
PID (ppm)	0.0

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WELL INSPECTION CHECKLIST

Well No.	7B	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:		X	
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	82.50
DEPTH TO BOTTOM (FEET)	140.7
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	7C	Date	10/22/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:		X	
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	83.81
DEPTH TO BOTTOM (FEET)	180.1
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	8	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Clear, 60 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	76.80
DEPTH TO BOTTOM (FEET)	83.90
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	9	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Clear, 60 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	73.90
DEPTH TO BOTTOM (FEET)	85.20
PID (ppm)	0.0

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WELL INSPECTION CHECKLIST

Well No.	11A	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	71.40
DEPTH TO BOTTOM (FEET)	84.50
PID (ppm)	0.0

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WELL INSPECTION CHECKLIST

Well No.	11B	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Clear, 60 F

WELL EXTERIOR CONDITIONS

CONCRETE PAD	Yes	No	Remarks
Intact:		X	
Cracked:	X		
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK		X	
Casing/Manhole - Intact:		X	
Lock - Intact:		X	
WELL CASING (STICKUP) STRAIGHT			Not Stickup
DESIGNATED MEASURING POINT	X		
WELL IS PROTECTED		X	
WELL IS CLEARLY MARKED		X	

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	68.80
DEPTH TO BOTTOM (FEET)	124.4
PID (ppm)	0.0

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CLIENT DRIVEN SOLUTIONS

WELL INSPECTION CHECKLIST

Well No.	12A	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	79.20
DEPTH TO BOTTOM (FEET)	91.10
PID (ppm)	0.0

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WELL INSPECTION CHECKLIST

Well No.	12B	Date	10/21/2019
Inspected By	NR/CA	Weather Conditions	Cloudy, 55 F

WELL EXTERIOR CONDITIONS

	Yes	No	Remarks
CONCRETE PAD			
Intact:	X		
Cracked:		X	
Missing:		X	
PONDING OF WATER AROUND WELL		X	
PROTECTIVE CASING/MANHOLE/LOCK	X		
Casing/Manhole - Intact:	X		
Lock - Intact:	X		
WELL CASING (STICKUP) STRAIGHT	X		
DESIGNATED MEASURING POINT		X	
WELL IS PROTECTED	X		
WELL IS CLEARLY MARKED	X		

INTERIOR WELL CONDITIONS

DEPTH TO WATER (FEET)	78.00
DEPTH TO BOTTOM (FEET)	108.8
PID (ppm)	0.0

APPENDIX C
MONITORING WELL SAMPLING LOGS

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WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	1A / Town of Southhampton		
SAMPLE I.D.	MW-1A		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	13:15
WELL USE	Monitoring		
STATIC WATER ELEVATION	103.1	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	110.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	2 minutes
CASING VOLUMES REMOVED	3	GALLONS	11
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.35	6.37	6.32	6.30	6.29
COND	0.473	0.528	0.528	0.524	0.522
T	13.88	13.24	12.91	12.77	12.77
ORP	118	118	119	119	119
TURB	5.6	5.2	5.3	5.4	3.9
D.O.	9.01	8.63	8.51	8.32	8.24

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	1B / Town of Southhampton		
SAMPLE I.D.	MW-1B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	13:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	104.3	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	200.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	21 minutes
CASING VOLUMES REMOVED	3	GALLONS	106
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.01	6.07	5.97	5.69	5.89
COND	0.070	0.064	0.071	0.070	0.07
T	12	12.12	12.16	12.13	12
ORP	116	130	140	154	143
TURB	0.0	0.0	0.0	0.0	0.0
D.O.	9.71	9.80	8.89	8.95	9.48

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	1C / Town of Southhampton		
SAMPLE I.D.	MW-1C / DUP001		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	12:35
WELL USE	Monitoring		
STATIC WATER ELEVATION	105.6	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	200.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	38 minutes
CASING VOLUMES REMOVED	3	GALLONS	190
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.00	6.49	6.52	6.57	6.56
COND	0.085	0.084	0.084	0.084	0.084
T	12.68	12.80	12.84	12.78	12.76
ORP	34	24	95	91	96
TURB	13.0	6.4	0.0	0.0	0.0
D.O.	10.16	10.41	9.29	8.48	8.38

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	3A / Town of Southhampton		
SAMPLE I.D.	MW-3A		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	13:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	47.35	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	60.52	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	5 minutes
CASING VOLUMES REMOVED	3	GALLONS	25
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.63	6.83	6.70	6.58	6.55
COND	0.313	0.306	0.304	0.303	0.303
T	9.66	9.91	10.04	10.10	10.14
ORP	-34	-22	2	22	24
TURB	306	144	76.1	48.6	36.7
D.O.	9.61	7.81	5.90	4.80	4.82

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	3B / Town of Southhampton		
SAMPLE I.D.	MW-3B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	13:45
WELL USE	Monitoring		
STATIC WATER ELEVATION	44.00	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	113.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	27 minutes
CASING VOLUMES REMOVED	3	GALLONS	136
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.28	6.15	6.10	6.12	6.11
COND	0.227	0.253	0.283	0.282	0.281
T	7.81	7.78	8.51	8.52	8.61
ORP	-9	-28	-53	-55	-54
TURB	242	44.1	0.0	0.0	0.0
D.O.	0.48	0.40	0.46	0.045	0.044

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	3C / Town of Southhampton		
SAMPLE I.D.	MW-3C/MS/MSD		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	12:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	44.80	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	180.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	55 minutes
CASING VOLUMES REMOVED	3	GALLONS	272
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.46	6.23	6.69	6.70	6.71
COND	0.126	0.128	0.135	0.128	0.126
T	7.79	9.55	10.55	10.74	10.75
ORP	160	162	100	144	147
TURB	0.0	0.0	0.0	0.0	0.0
D.O.	4.02	1.87	2.30	3.15	3.22

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WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	4A / Town of Southhampton		
SAMPLE I.D.	MW-4A		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	15:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	13.30	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	30.83	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	7 minutes
CASING VOLUMES REMOVED	3	GALLONS	35
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.63	5.49	5.22	4.91	4.75
COND	0.173	0.173	0.172	0.172	0.171
T	12.49	12.48	12.66	12.84	12.91
ORP	-22	34	85	0.310	0.570
TURB	20.3	43.5	22.2	58.2	48.2
D.O.	6.18	4.96	5.04	4.55	4.69

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WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	4B / Town of Southhampton		
SAMPLE I.D.	MW-4B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	14:30
WELL USE	Monitoring		
STATIC WATER ELEVATION	13.54	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	80.50	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	25 minutes
CASING VOLUMES REMOVED	3	GALLONS	134
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.9	6.28	6.28	6.28	6.29
COND	0.016	0.156	0.204	0.251	0.252
T	12.18	12.44	12.45	12.47	12.48
ORP	0	50	-20	-49	-50
TURB	0.0	0.0	0.0	0.0	0.0
D.O.	0.600	0.000	0.000	0.000	0.000

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WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	4C / Town of Southhampton		
SAMPLE I.D.	MW-4C		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	14:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	9.12	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	151.5	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	56 minutes
CASING VOLUMES REMOVED	3	GALLONS	282
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.77	6.59	6.65	6.80	6.83
COND	0.381	0.379	0.410	0.417	0.412
T	12.17	12.76	12.69	12.64	12.65
ORP	41	54	40	-8	-7
TURB	4.90	20.0	32.2	14.2	12.5
D.O.	1.65	0.420	18.8	33.3	3.13

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	6AR / Town of Southhampton		
SAMPLE I.D.	MW-6AR		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	9:30
WELL USE	Monitoring		
STATIC WATER ELEVATION	90.70	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 Inches		
TOTAL WELL DEPTH	111.5	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	7 minutes
CASING VOLUMES REMOVED	3	GALLONS	35
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine Parameters + Baseline Metals	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.04	6.17	6.32	5.66	5.55
COND	0.134	0.128	0.126	0.124	0.124
T	11.94	12.30	12.40	12.39	12.39
ORP	159	150	145	170	124
TURB	22.9	212	39.5	8.30	10.5
D.O.	11.02	7.47	7.39	6.88	6.91

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	6B / Town of Southhampton		
SAMPLE I.D.	MW-6B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	10:40
WELL USE	Monitoring		
STATIC WATER ELEVATION	93.20	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	145.0	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	20 minutes
CASING VOLUMES REMOVED	3	GALLONS	100
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine Parameters + Baseline Metals	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	5.59	5.60	5.67	5.62	5.60
COND	0.084	0.084	0.085	0.085	0.084
T	11.83	11.94	11.99	12.03	12.00
ORP	171	169	170	167	165
TURB	0.0	0.0	0.0	0.0	0.0
D.O.	10.62	10.75	10.77	10.61	10.64

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	MW-8/ Town of Southhampton		
SAMPLE I.D.	MW-8		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	11:00
WELL USE	Monitoring		
STATIC WATER ELEVATION	76.80	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	83.90	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	3 minutes
CASING VOLUMES REMOVED	3	GALLONS	15
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	None
PID (ppm)	0.0		
ANALYSIS	Routine Parameters	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.12	6.22	5.86	5.82	5.86
COND	0.152	0.134	0.154	0.154	0.156
T	12.20	12.21	12.17	12.14	12.14
ORP	85	93	100	106	92
TURB	0.031	10.8	47.3	38.2	42.8
D.O.	7.20	6.70	6.34	6.24	6.46

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	MW-9/ Town of Southhampton		
SAMPLE I.D.	MW-9		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	10:25
WELL USE	Monitoring		
STATIC WATER ELEVATION	73.90	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	85.70	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	5 minutes
CASING VOLUMES REMOVED	3	GALLONS	22
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	None
PID (ppm)	0.0		
ANALYSIS	Routine Parameters	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.47	6.48	6.26	6.10	6.14
COND	0.100	0.097	0.094	0.090	0.092
T	12.34	12.61	12.75	12.81	12.82
ORP	28	39	58	75	72
TURB	650	300	135	73.7	42.8
D.O.	8.91	8.53	8.33	8.33	8.28

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	11A / Town of Southhampton		
SAMPLE I.D.	MW-11A		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	8:50
WELL USE	Monitoring		
STATIC WATER ELEVATION	71.40	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	84.50	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	25 minutes
CASING VOLUMES REMOVED	4	GALLONS	125
SAMPLE APPEARANCE	Clear/Slight red tinge	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine & Baseline VOCs Filtered Metals	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.22	6.14	6.31	6.07	6.09
COND	0.332	0.330	0.310	0.31	0.32
T	13.22	13.24	13.02	13	13.1
ORP	61	33	2	8	-5
TURB	0.0	0.0	129	48.2	35.2
D.O.	2.24	2.08	4.04	3.11	4.28

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	11B / Town of Southhampton		
SAMPLE I.D.	MW-11B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	9:20
WELL USE	Monitoring		
STATIC WATER ELEVATION	68.80	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	124.4	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	20 minutes
CASING VOLUMES REMOVED	3	GALLONS	100
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine & Baseline VOCs	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.31	6.80	6.97	6.65	6.62
COND	0.239	0.136	0.140	0.152	0.156
T	12.20	12.33	12.34	12.38	12.42
ORP	-137	-127	-94	-97	-71
TURB	12.8	514.0	535.0	586.0	587.0
D.O.	3.07	4.71	6.85	6.68	6.64

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	12A / Town of Southhampton		
SAMPLE I.D.	MW-12A		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	15:40
WELL USE	Monitoring		
STATIC WATER ELEVATION	79.20	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	91.10	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	6 minutes
CASING VOLUMES REMOVED	3	GALLONS	22
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.32	6.37	6.32	6.20	6.14
COND	0.332	0.315	0.310	0.307	0.306
T	12.53	12.52	12.59	12.61	12.63
ORP	51	58	68	78	81
TURB	456	62.5	31.4	27.3	27.5
D.O.	1.63	0.89	0.44	0.66	0.68

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CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	12B / Town of Southhampton		
SAMPLE I.D.	MW-12B		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/21/2019	TIME SAMPLED	14:15
WELL USE	Monitoring		
STATIC WATER ELEVATION	78.00	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	4 Inches		
TOTAL WELL DEPTH	108.8	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	Submersible Pump	SAMPLE METHOD	Submersible Pump
PURGE RATE	5 gallons per minute	PURGE TIME	11 minutes
CASING VOLUMES REMOVED	3	GALLONS	55
SAMPLE APPEARANCE	Clear	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine	DATE SHIPPED	10/22/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH	6.28	6.36	6.35	6.29	6.26
COND	0.325	0.334	0.343	0.346	0.343
T	12.74	12.69	12.54	12.56	12.57
ORP	66	74	79	87	93
TURB	0.0	0.0	0.0	0.0	0.0
D.O.	0.450	0.440	0.350	0.120	0.030

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	LEA-PRI / Town of Southhampton		
SAMPLE I.D.	LEA-PRI		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	8:00
WELL USE	NA		
STATIC WATER ELEVATION	NA	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	NA Inches		
TOTAL WELL DEPTH	NA	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	NA	SAMPLE METHOD	Bailer
PURGE RATE	NA	PURGE TIME	NA
CASING VOLUMES REMOVED	NA	GALLONS	NA
SAMPLE APPEARANCE	Slightly turbid	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine Parameters + Arsenic Filtered Metals	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH					6.91
COND					1.75
T					16.84
ORP					-38
TURB					0.00
D.O.					3.56

PWGC
CLIENT DRIVEN SOLUTIONS

WELL SAMPLING LOG

CLIENT/PROJECT No.	Town of Southhampton / SHP1901		
WELL No./OWNER	LEA-SEC / Town of Southhampton		
SAMPLE I.D.	LEA-SEC		
SAMPLING POINT	TOC	SAMPLED BY	NR/CA
DATE SAMPLED	10/22/2019	TIME SAMPLED	8:10
WELL USE	NA		
STATIC WATER ELEVATION	NA	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	NA Inches		
TOTAL WELL DEPTH	NA	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGE METHOD	NA	SAMPLE METHOD	Bailer
PURGE RATE	NA	PURGE TIME	NA
CASING VOLUMES REMOVED	NA	GALLONS	NA
SAMPLE APPEARANCE	Slightly turbid	ODORS OBSERVED	N/A
PID (ppm)	0.0		
ANALYSIS	Routine Parameters + Arsenic	DATE SHIPPED	10/23/2019

SAMPLING PARAMETERS

	Initial	1 Vol	2 Vol	3 Vol	Pre-sampling
pH					7.06
COND					0.009
T					19.27
ORP					117
TURB					0.00
D.O.					9.00

APPENDIX D
6 NYCRR PART 360-2: LANDFILLS

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New York State

DEC

Division of Solid & Hazardous Materials

6 NYCRR Part 360
Solid Waste Management Facilities
Title 6 of the Official Compilation of Codes, Rules and Regulations

Revised November 24, 1999

Reprinted March 2001

New York State Department of Environmental Conservation

George E. Pataki, ***Governor*** **Erin M. Crotty,** ***Acting Commissioner***

6 NYCRR PART 360

SOLID WASTE MANAGEMENT FACILITIES

TABLE OF CONTENTS

PREFACE

Organization and Numbering of Statutes and Regulations

The Environmental Conservation Law (ECL) is Chapter 43-B of the Consolidated Laws of New York.

Numbering system in the ECL:

Example

Article 25
Title 19
Section 25-1910
subdivision 25-1910.5
paragraph 25-1910.5(a)

This may be written as ECL 25-1910.5(a)

The regulations of the department are Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR).

Numbering system in the department's regulations:

Example

Title 6
Part 360
Subpart 360-2
section 360-2.13
subdivision 360-2.13(k)
paragraph 360-2.13(k)(3)
subparagraph 360-2.13(k)(3)(iii)
clause 360-2.13(k)(3)(iii)(*b*)
subclause 360-2.13(k)(3)(iii)(*b*)(*1*)
item 360-2.13(k)(3)(iii)(*b*)(*1*)(*i*)

This may be written as 6 NYCRR Part 360-2.13(k)(3)(iii)(*b*)(*1*)(*i*)

This numbering system is described in the preface to the department's regulations, and in the regulations of the Department of State (19 NYCRR 261.4(b)).

service area under local laws or ordinances adopted or to be adopted under section 120-aa of the General Municipal Law.

(e) Supervision and certification of construction. The construction of a solid waste management facility and each stage of one must be undertaken under the supervision of an individual licensed to practice engineering in the State of New York. Upon completion of construction, that individual must certify in writing that the construction is in accordance with the terms of the applicable permit and tested in accordance with generally accepted engineering practices. Except as specified elsewhere in this Part, this certification must be submitted to the department within three months after completion of construction and must include as-built plans. The operator must notify the department, in writing, of the date when solid waste will be first received at the facility.

(f) Cessation of construction or operation activities. If construction or operation activities started under a permit issued pursuant to this Part cease for a period of 12 consecutive months, the permit automatically expires on the last day of the 12th month following cessation of activities. There is no automatic expiration when the cessation of construction or operation is caused by factors beyond the reasonable control of the permittee, as determined by the department, or when such cessation is in accordance with the provisions of the permit.

(g) Department inspection of activities. The permittee must authorize the commissioner or authorized department staff, after presentation of department credentials, to undertake inspections in accordance with subdivision 360-1.4(b) of this Part.

(h) Recyclables recovery. In the case of a permit relating to a landfill (other than one used exclusively for ash residue, clean fill or construction and demolition debris), a solid waste incinerator (other than one used exclusively to incinerate regulated medical waste), a refuse-derived fuel processing facility, a construction and demolition debris processing facility, a mixed solid waste composting facility or a transfer station (other than one used exclusively for transfer of regulated medical waste), the permit must contain a condition that the permittee must not accept at the facility solid waste which was generated within a municipality that has either not completed a comprehensive recycling analysis or is not included in another municipality's comprehensive recycling analysis satisfying the requirements of subdivision 360-1.9(f) of this Part which has been approved by the department and implemented the recyclables recovery program determined to be feasible by the analysis.

(i) Approved design capacity. Every permit must set forth the facility's approved design capacity.

Section 360-1.12 Financial assurance.

(a) Applicability.

(1) In addition to any financial assurance requirements specifically addressed in a Subpart of this Part, the department may require a form of financial assurance, acceptable to the department, from a permit holder, and conditioned upon compliance with the terms of the permit issued to such holder pursuant to this Part.

(2) A form of financial assurance, acceptable to the department, will be required to cover the cost of having the facility properly closed for facilities where the operator and the owner are not the same person.

(3) A form of financial assurance, acceptable to the department, may be required from registered facilities.

(b) Liability coverage. A form of financial assurance for claims arising out of injury to persons or property, relative to either sudden and accidental occurrences or non-sudden and accidental occurrences, may be required for solid waste management facilities. Such financial assurance may be in the form of liability insurance, self-insurance or other form acceptable to the department. The amount of such financial assurance is to be set by the department.

(c) Forms of financial assurance. Section 373-2.8 of this Title provides guidance on the criteria and wording of financial assurance instruments that the department will consider in assessing the acceptability of financial assurance mechanisms.

Section 360-1.13 Research, development and demonstration permits.

(a) Permit. The department may issue a research, development and demonstration permit for any solid waste management facility proposing to utilize an innovative and experimental solid waste management technology or process, including a beneficial use demonstration project. The application for such

permit must clearly demonstrate adequate protection of public health and the environment and be consistent with federal and State laws and regulations and this Part. A permit issued under this section must not be for an activity of a continuing nature. The department may, at its discretion, waive or modify some or all of the application requirements for permits issued under this section.

(b) Permit application. An application for a permit issued under this section must:

(1) describe the proposed activity in detail;

(2) describe how the applicant intends to provide for the receipt and treatment or disposal by the proposed facility of only those types and quantities of solid waste necessary to determine the efficiency and performance capabilities of the technology or process and the effects of such technology or process on human health and the environment; and how the applicant intends to protect human health and the environment in the conduct of the project; and

(3) state that the applicant will provide, on a timely basis, the department with any information obtained as a result of the activity undertaken under the permit. The information must be submitted in accordance with schedules identified in the permit.

(c) Permit restrictions. The permit must:

(1) provide for the construction of facilities as necessary, and for the operation of the facility for not longer than one year (unless renewed as provided in subdivision (d) of this section);

(2) provide for the receipt and treatment or disposal by the facility of only those types and quantities of solid waste that the department determines necessary to determine, the efficiency and performance capabilities of the technology or process and the effects of such technology or process on human health and the environment;

(3) include such requirements as the department determines necessary to protect human health and the environment (including, but not limited to requirements regarding monitoring, operation, financial assurance and closure, and such requirements as the department deems necessary regarding testing and providing of information to the commissioner about the operation of the facility); and

(4) provide that the commissioner, without affording the permittee a prior opportunity for a hearing, may order an immediate termination of all operations at the facility at any time the commissioner determines that termination is necessary to protect human health and the environment, provided that the permittee is provided an opportunity for a hearing on the termination issue no later than 10 days after the issuance of the order and a decision is rendered no more than 20 days after the close of the hearing record. Nothing in this Part shall preclude or affect the commissioner's authority to issue summary abatement orders under section 71-0301 of the ECL or to take emergency actions summarily suspending a permit under section 401.3 of the State Administrative Procedure Act.

(d) Renewal. Permits issued under this section may be renewed not more than three times, unless the permittee demonstrates to the satisfaction of the department that a longer time period is required to adequately assess the long-term environmental effects of the technology or process being studied under authority of the permit. Each renewal period will not exceed one year and will be conditioned upon compliance with this section.

Section 360-1.14 Operational requirements for all solid waste management facilities.

(a) Applicability. Except as elsewhere provided in this Part, any person who designs, constructs, maintains or operates any solid waste management facility subject to this Part must do so in conformance with the requirements of this section.

(b) Water.

(1) Solid waste must not be deposited in, and must be prevented from, entering surface waters or groundwaters.

(2) Leachate. All solid waste management facilities must be constructed, operated and closed in a manner that minimizes the generation of leachate that must be disposed of and prevent the migration of leachate into surface and groundwaters. Leachate must not be allowed to drain or discharge into surface water except pursuant to a State Pollutant Discharge Elimination System permit and must not cause or contribute to contravention of groundwater quality standards established by the department pursuant to ECL section 17-0301.

(c) Public access. Public access to facilities and receipt of solid waste may occur only when an attendant is on duty. This provision does not apply to

combustion-powered equipment used at the facility. Sound levels for such equipment must not exceed 80 decibels (A) at a distance of 50 feet from the operating equipment.

(q) Open burning. Open burning at a solid waste management facility is prohibited, except for the infrequent burning of agricultural wastes, silvicultural wastes, land clearing debris (excluding stumps), diseased trees or debris from emergency cleanup operation, pursuant to a restricted burning permit issued by the department. Measures must be taken immediately to extinguish any non-permitted open burning and the department must be notified that it has occurred.

(r) Department-approved facilities. Solid waste resulting from industrial or commercial operations, sludge, and septage must be processed, disposed, used or otherwise managed only at facilities that the department has specifically approved for such management of that specific waste.

(s) Emergency numbers. Telephone numbers to emergency response agencies such as the local police department, fire department, ambulance and hospital must be conspicuously posted in all areas where telephones are available for use at the facility.

(t) Facilities. Where operating personnel are required, certain facilities must be provided (except in the case of composting facilities using aerated static pile or windrow techniques and land application facilities). These facilities include adequately heated and lighted shelters, a safe drinking water supply, sanitary toilet facilities and radio or telephone communication.

(u) Facility operator requirements.

(1) Except as otherwise specified in a Subpart of this Part pertaining to a specific type of solid waste management facility, the facility operator, during all hours of operation, must have available for use, a copy of the permit issued pursuant to this Part, including conditions, a copy of the operation and maintenance report, the contingency plan and the most recent annual report.

(2) Operation of every landfill, and other solid waste management facilities as directed by the department, must be conducted under the direction of a facility operator. The facility operator must attend and successfully complete within 12 months from their date of employment, a course of instruction in solid waste management procedures relevant to the facility at which the facility operator is employed. The course must be provided or approved by the department. The department will issue a certificate of attendance to each individual successfully completing the course. Attendance at a department-approved course before the effective date of this Part will adequately satisfy these training requirements.

(v) Salvaging. Salvaging, if permitted by the facility owner or operator, must be controlled by the facility owner or operator within a designated salvage area and must not interfere with facility operations or create hazards or nuisances.

(w) Closure. The owner or operator of any active or inactive solid waste management facility must, upon termination of use, properly close that facility and must monitor and maintain such closure so as to minimize the need for further maintenance or corrective actions and to prevent or remedy adverse environmental or health impacts such as, but not limited to, contravention of surface water and groundwater quality standards, gas migration, odors and vectors. Termination of use includes those situations where a facility has not received solid waste for more than one year, unless otherwise provided by permit, or if the permit has expired. Termination of use also results from permit denial or order of the commissioner or of a court. Specific closure measures which may also include corrective actions as specified in this Part are subject to approval by the department.

Section 360-1.15 Beneficial use.

(a) Applicability.

(1) This section applies to materials that, before being beneficially used (as determined by the department), were solid waste. This section does not apply to solid wastes subject to regulation under Subpart 360-4 of this Part, except in the manner identified in subdivision 360-1.15(b) of this Part.

(2) Beneficial use determinations granted by the department before the effective date of this section shall remain in effect, subject to all conditions contained therein, unless specifically addressed by subsequent department action.

(b) Solid waste cessation. The following items are not considered solid waste for the purposes of this Part when used as described in this subdivision:

(1) materials identified in subparagraphs 371.1(e)(1)(vi)-(viii) of this Title that cease to be solid waste under the conditions identified in those subparagraphs:

(2) compost and other distribution and marketing (D&M) products that satisfy the applicable requirements under Subpart 360-5 of this Part;

(3) unadulterated wood, wood chips, or bark from land clearing, logging operations, utility line clearing and maintenance operations, pulp and paper production, and wood products manufacturing, when these materials are placed in commerce for service as mulch, landscaping, animal bedding, erosion control, wood fuel production, and bulking agent at a compost facility operated in compliance with Subpart 360-5 of this Part;

(4) uncontaminated newspaper or newsprint when used as animal bedding;

(5) uncontaminated glass when used as a substitute for conventional aggregate in asphalt or subgrade applications;

(6) tire chips when used as an aggregate for road base materials or asphalt pavements in accordance with New York State Department of Transportation standard specifications, or whole tires or tire chips when used for energy recovery;

(7) uncontaminated soil which has been excavated as part of a construction project, and which is being used as a fill material, in place of soil native to the site of disposition;

(8) nonhazardous, contaminated soil which has been excavated as part of a construction project, other than a department-approved or undertaken inactive hazardous waste disposal site remediation program, and which is used as backfill for the same excavation or excavations containing similar contaminants at the same site. Excess materials on these projects are subject to the requirements of this Part. (Note: use of in-place and stockpiled soil from a site being converted to a realty subdivision, as defined by the Public Health Law (10 NYCRR 72), must be approved by the local health department.);

(9) nonhazardous petroleum contaminated soil which has been decontaminated to the satisfaction of the department and is being used in a manner acceptable to the department;

(10) solid wastes which are approved in advance, in writing, by the department for use as daily cover material or other landfill liner or final cover system components pursuant to the provisions of subdivision 360-2.13(w) of this Part when these materials are received at the landfill;

(11) recognizable, uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil and rock placed in commerce for service as a substitute for conventional aggregate;

(12) nonhazardous petroleum contaminated soil when incorporated into asphalt pavement products by a producer authorized by the department;

(13) unadulterated wood combustion bottom ash, fly ash, or combined ash when used as a soil amendment or fertilizer, provided the application rate of the wood ash is limited to the nutrient need of the crop grown on the land on which the wood ash will be applied and does not exceed 16 dry tons per acre per year;

(14) coal combustion bottom ash placed in commerce to serve as a component in the manufacture of roofing shingles or asphalt products; or as a traction agent on roadways, parking lots and other driving surfaces;

(15) coal combustion fly ash or gas scrubbing by-products placed in commerce to serve as an ingredient to produce light weight block, light weight aggregate, low strength backfill material, manufactured gypsum or manufactured calcium chloride; and

(16) coal combustion fly ash or coal combustion bottom ash placed in commerce to serve as a cement or aggregate substitute in concrete or concrete products; as raw feed in the manufacture of cement; or placed in commerce to serve as structural fill within building foundations when placed above the seasonal high groundwater table.

(c) Special reporting requirements. No later than 60 days after the first day of January following each year of operation, the generator of coal combustion ash must submit a report to the department that identifies the respective quantities of coal combustion bottom ash, fly ash, and gas scrubbing by-products it generated during the calendar year to which it pertains and, with respect to coal combustion bottom ash, how much was sent to a manufacturer of roofing shingles or asphalt products, how much was used as a traction

agent on roadways, parking lots, and other driving surfaces, how much was sent to a manufacturer of cement, concrete or concrete products, and how much was used as structural fill; and, with respect to coal combustion fly ash and to gas scrubbing by-products, how much was used to produce light weight block, light weight aggregate, low strength backfill material (flowable fill), manufactured gypsum or manufactured calcium chloride.

(d) Case-specific beneficial use determinations.

(1) The generator or proposed user of a solid waste may petition the department, in writing, for a determination that the solid waste under review in the petition may be beneficially used in a manufacturing process to make a product or as an effective substitute for a commercial product. Unless otherwise directed by the department, the department may not consider any such petition unless it provides the following:

(i) a description of the solid waste under review and its proposed use;

(ii) chemical and physical characteristics of the solid waste under review and of each type of proposed product;

(iii) a demonstration that there is a known or reasonably probable market for the intended use of the solid waste under review and of all proposed products by providing one or more of the following:

(*a*) a contract to purchase the proposed product or to have the solid waste under review used in the manner proposed;

(*b*) a description of how the proposed product will be used;

(*c*) a demonstration that the proposed product complies with industry standards and specifications for that product; or

(*d*) other documentation that a market for the proposed product or use exists; and

(iv) a demonstration that the management of the solid waste under review will not adversely affect human health and safety, the environment, and natural resources by providing:

(*a*) a solid waste control plan that describes the following:

(*1*) the source of the solid waste under review, including contractual arrangements with the supplier;

(*2*) procedures for periodic testing of the solid waste under review and the proposed product to ensure that the proposed product's composition has not changed significantly;

(*3*) the disposition of any solid waste which may result from the manufacture of the product into which the solid waste under review is intended to be incorporated;

(*4*) a description of the type of storage (e.g., tank or pile) and the maximum anticipated inventory of the solid waste under review (not to exceed 90 days) before being used;

(*5*) procedures for run-on and run-off control of the storage areas for the solid waste under review; and

(*6*) a program and implementation schedule of best management practices designed to minimize uncontrolled dispersion of the solid waste under review before and during all aspects of its storage as inventory and/or during beneficial use; and

(*b*) a contingency plan that contains the information and is prepared in accordance with subdivision 360-1.9(h) of this Part.

(2) The department will determine in writing, on a case-by-case basis, whether the proposal constitutes a beneficial use based on a showing that all of the following criteria have been met:

(i) the essential nature of the proposed use of the material constitutes a reuse rather than disposal;

(ii) the proposal is consistent with the solid waste management policy contained in section 27-0106 of the ECL;

(iii) the material under review must be intended to function or serve as an effective substitute for an analogous raw material or fuel. When used as a fuel, the material must meet the requirements of paragraph 360-3.1(c)(4) of this Part and the facility combusting the material must comply with the registration requirements in subdivision 360-3.1(c) of this Part, if appropriate;

(iv) for a material which is proposed for

incorporation into a manufacturing process, the material must not be required to be decontaminated or otherwise specially handled or processed before such incorporation, in order to minimize loss of material or to provide adequate protection, as needed, of public health, safety or welfare, the environment or natural resources;

(v) whether a market is existing or is reasonably certain to be developed for the proposed use of the material under review or the product into which the solid waste under review is proposed to be incorporated; and

(vi) other criteria as the department shall determine in its discretion to be appropriate.

(3) The department will either approve the petition, disapprove it, or allow the proposed use of the solid waste under review subject to such conditions as the department may impose. When granting a beneficial use determination, the department shall determine, on a case-by-case basis, the precise point at which the solid waste under review ceases to be solid waste. Unless otherwise determined for the particular solid waste under review, that point occurs when it is used in a manufacturing process to make a product or used as an effective substitute for a commercial product or used as a fuel for energy recovery. As part of its petition, the petitioner may request that such point occur elsewhere. In such a request, the petitioner must include a demonstration that there is little potential for improper disposal of the material or little potential for the handling, transportation, or storage of the solid waste under review to have an adverse impact upon the public health, safety or welfare, the environment or natural resources.

(4) The department may revoke any determination made under this subdivision if it finds that one or more of the matters serving as the basis for the department's determination was incorrect or is no longer valid or the department finds that there has been a violation of any condition that the department attached to such determination.

perform in the same manner as the component specified in this section. When the equivalent design involves the substitution of waste materials for components of the landfill's liner or final cover system; and where it can be demonstrated that these material substitutions are within the landfill's environmental containment system (i.e. below the upper most layer of the barrier layer of the final cover and above the secondary composite liner), such equivalency determinations are not subject to the variance requirements of this Part and this use is consistent with the beneficial use provision of paragraph 360-1.15(b)(10) of this Part. It is highly recommended that the applicant discuss equivalent component design proposals with the department in a preapplication conference.

Section 360-2.14 Industrial/commercial waste monofills and solid waste incinerator ash residue monofills.

(a) Industrial/commercial waste monofills. Monofills used solely for the disposal of solid waste resulting from industrial or commercial operations are subject to all requirements of this Subpart, unless the applicant demonstrates that specific landfill requirements in this Subpart are not necessary for the solid waste to be disposed of at the subject facility. The requirements in this Subpart may be modified on a case-specific basis. The department may impose additional or less stringent requirements on these monofills, based on the pollution potential of the waste. Pollution potential shall be based upon the volume and the physical, chemical, and biological properties of the solid waste, and, its variability. Changes in the monofill's design may include, but not be limited to, modifications to the leachate collection system, low permeability liners, and low permeability cover system designs. For those facilities where the applicant can demonstrate to the department that a specific regulatory requirement contained in either sections 360-2.13, 2.15 or 2.17 of this Subpart are not applicable as discussed in this subdivision, the need for a formal variance is waived. Alternative liner system designs for industrial waste monofills must demonstrate the following:

(1) In the case where an alternative liner system is proposed for an industrial waste monofill, a demonstration must be made as to the proposed liner's ability to adequately prevent a negative impact on groundwater and must address the following factors: the volume and physical and chemical composition of the leachate that will be generated at the disposal facility; the climatological conditions in the vicinity of the proposed site; and the hydrogeologic characteristics of the proposed site. The demonstration must include an assessment of leachate quality and quantity, anticipated liner system leakage to the subsurface and related contaminant transport to the closest environmental monitoring point. The demonstration should focus on developing an accurate profile of leachate quality and production rates sufficient to be used in evaluating its fate and transport from the point of release to the first point of environmental monitoring in order to determine whether leachate constituents can be expected to exceed the State's groundwater quality standards. It must be demonstrated that the industrial wastes' chemical characterization be accurately defined and that there are no reasons to anticipate significant changes in the concentrations of compounds that could increase the wastes' pollution potential in the future. The demonstration must include chemical compatibility test data run on the proposed liner and/or leachate collection and removal system materials with representative waste leachate, using an appropriate permeameter test to determine potential changes in the permeability of the proposed liner. The demonstration must include an estimate of the volumetric release of leachate from the proposed liner design based on analytical approaches supported by empirical data and/or be verified from other existing operational facilities of similar design. A dilution calculation must then be modelled to evaluate the impacts of the characterized leachate on groundwater quality based upon the calculated liner system's leakage rate.

(2) Paper mill sludge monofills. The minimum components of the liner system, monofill closure, operation requirements and the environmental monitoring plan for paper mill sludge landfills must consist of the following:

(i) Components of liner system. A single composite liner system is the minimal level of containment that the department will accept for paper mill sludge monofills. The composite liner system must consist of a minimum of two components, an upper geomembrane liner placed directly above a low permeability soil layer. A leachate collection and removal system must be located over the composite liner. The construction of each of the components must be in conformance with the appropriate requirements of section 360-2.13 of this Subpart unless expressly stated otherwise in this paragraph. The department may require additional liner components to the single composite liner or other restrictions depending upon the waste expected to be produced, monitorability of the site and/or other site conditions.

(ii) The soil component of the composite

NYS DEC **REGION 1**

COUNTY **Suffolk**

Babylon Southern Ashfill **52A01**

OWNER TYPE: Municipal
REGULATORY STATUS: Permit
OWNER: Town of Babylon
ADDRESS: 200 East Sunrise Hwy
(MAILING) Lindenhurst NY 11757
PHONE: (516) 957-3072
WASTE TYPE: RR Ash

360 PERMIT NUMBER: 1472000778000010
PERMIT ISSUED: 05/04/97
PERMIT EXPIRES: 05/03/02
CONTACT: Ronald Kluesener
ADDRESS: Gleam Street
West Babylon NY 11704
PHONE: (631) 422-7640
UTMEAST: 636645 UTMNORTH: 4510592

Brookhaven SLF Cell 5 **52A03**

OWNER TYPE: Municipal
REGULATORY STATUS: Permit
OWNER: Town of Brookhaven
ADDRESS: 3233 Route 112
(MAILING) Medford NY 11763
PHONE: (516) 451-6224
WASTE TYPE: RR Ash

360 PERMIT NUMBER: 1472200030000040
PERMIT ISSUED: 11/17/98
PERMIT EXPIRES: 08/31/05
CONTACT: Dennis Lynch
ADDRESS: 3233 Route 112
Medford NY 11763
PHONE: (516) 451-6224
UTMEAST: 674593 UTMNORTH: 4518097

Northern U **52A39**

OWNER TYPE: Municipal
REGULATORY STATUS: Permit
OWNER: Town of Babylon
ADDRESS: 200 East Sunrise Highway
(MAILING) Lindenhurst NY 11757
PHONE: (516) 957-3072
WASTE TYPE: RR Ash

360 PERMIT NUMBER: 1472000628000010
PERMIT ISSUED: 10/19/94
PERMIT EXPIRES: 04/30/05
CONTACT: Ronald Kluesener
ADDRESS: 200 East Sunrise Highway
Lindenhurst NY 11757
PHONE: (631) 422-7640
UTMEAST: 637078 UTMNORTH: 4510803

NYS DEC **REGION 3**

COUNTY **Westchester**

Sprout Brook LF **60A20**

OWNER TYPE: County
REGULATORY STATUS: Permit
OWNER: Westchester County DPW
ADDRESS: 270 North Avenue
(MAILING) New Rochelle NY 10801
PHONE: (914) 637-3000
WASTE TYPE: Bottom Ash, Fly Ash, RR Ash

360 PERMIT NUMBER: 3552200097000020
PERMIT ISSUED: 10/01/97
PERMIT EXPIRES: 10/01/02
CONTACT: mario Parise
ADDRESS: Old Albany Post Road
Peekskill NY 10601
PHONE: (914) 637-3000
UTMEAST: 590560 UTMNORTH: 4573986

NYS DEC **REGION 3**

COUNTY **Orange**

Central Hudson Gas & Elec **36N01**

OWNER TYPE: Private
REGULATORY STATUS: Permit
OWNER: Central Hudson Gas & Elec
ADDRESS: 992 River Road
(MAILING) Newburgh NY 12550
PHONE: (914) 452-2000
WASTE TYPE: Coal Ash

360 PERMIT NUMBER: 3334600011000018
PERMIT ISSUED: 05/09/00
PERMIT EXPIRES: 05/09/05
CONTACT: Mark McLean
ADDRESS: 992 River Road
Newburgh NY 12550
PHONE: (914) 563-4805
UTMEAST: 585953 UTMNORTH: 4603521

COUNTY **Rockland**

Tomkins Cove Ash Facility **44N07**

OWNER TYPE: Private
REGULATORY STATUS: None
OWNER: Orange & Rockland Utility
ADDRESS: One Blue Hill Plaza
(MAILING) Pearl River NY 10965
PHONE: (914) 577-2582
WASTE TYPE: Coal Ash, Ash Residue

360 PERMIT NUMBER: 3392800039000010
PERMIT ISSUED: 06/30/94
PERMIT EXPIRES: 06/30/99
CONTACT: C.A. Herbst
ADDRESS: One Blue Hill Plaza
Pearl River NY 10965
PHONE: (914) 786 8150
UTMEAST: 585526 UTMNORTH: 4567869

NYS DEC **REGION 6**

COUNTY **Jefferson**

Deferiet Paper **23N06**

OWNER TYPE: Private
REGULATORY STATUS: Permit
OWNER: Deferiet Paper Company
ADDRESS: 400 Anderson Avenue
(MAILING) Deferiet NY 13628
PHONE: (315) 493-3540
WASTE TYPE: Coal Ash, Paper Sludge, Coal Rejects, Wood Yard Debris

360 PERMIT NUMBER: 6224000030000000
PERMIT ISSUED: 02/15/94
PERMIT EXPIRES: 11/01/03
CONTACT: Todd Furnia
ADDRESS: 400 Anderson Avenue
Deferiet NY 13628
PHONE: (315) 493-3540
UTMEAST: 439729 UTMNORTH: 4884523

DANC Landfill **23S13**

OWNER TYPE: Municipal
REGULATORY STATUS: Permit
OWNER: Develop. Authority N. Country
ADDRESS: 317 Washington Street
(MAILING) Watertown NY 13601
PHONE: (315) 785-2592
WASTE TYPE: Residential, Demo, Asbestos, Indus, Coal Ash, Cont. Soil, Sludge

360 PERMIT NUMBER: 6225200007000006
PERMIT ISSUED: 02/27/96
PERMIT EXPIRES: 02/27/06
CONTACT: E. William Seifried
ADDRESS: NYS Route 177
Rodman NY 13682
PHONE: (315) 232-3236
UTMEAST: 427037 UTMNORTH: 4852232

NYS DEC **REGION 7**

COUNTY **Broome**

Weber Ash Disposal Site **04N08**

OWNER TYPE: Private
REGULATORY STATUS: Consent Order
OWNER: AES Creative Resources
ADDRESS: 720 Riverside Dr.
(MAILING) Johnson City NY 13790
PHONE: (607) 729-6950
WASTE TYPE: Coal Ash, Sludge

360 PERMIT NUMBER: 7033200020000010
PERMIT ISSUED: 10/01/80
PERMIT EXPIRES: 09/30/83
CONTACT: Peter Huff
ADDRESS: 720 Riverside Dr.
Johnson City NY 13790
PHONE: (607) 729-6950
UTMEAST: 431941 UTMNORTH: 4673115

COUNTY **Tompkins**

Cayuga **55N02**

OWNER TYPE:	Private			360 PERMIT NUMBER:	7503200069000010
REGULATORY STATUS:	Permit			PERMIT ISSUED:	04/17/97
				PERMIT EXPIRES:	04/17/02
OWNER:	AES Cayuga, L.L.C.			CONTACT:	Daniel Hill
ADDRESS:	228 Cayuga Drive			ADDRESS:	Milliken Road
(MAILING)	Lansing	NY	14882		NY
PHONE:	(607) 533-7913			PHONE:	(607) 533-7913
WASTE TYPE:	Coal Ash, Sludge			UTMEAST:	366998 UTMNORTH: 4718715

NYS DEC **REGION 9**

COUNTY **Chautauqua**

Chautauqua Landfill **07S12**

OWNER TYPE:	County			360 PERMIT NUMBER:	906360000600013
REGULATORY STATUS:	Permit			PERMIT ISSUED:	07/22/99
				PERMIT EXPIRES:	07/23/09
OWNER:	County of Chautauqua DPW			CONTACT:	Theodore Osborne
ADDRESS:	Grace Office Building			ADDRESS:	3889 Towerville Road
(MAILING)	Mayville	NY	14757		Jamestown NY 14701-9653
PHONE:	(716) 985-4211			PHONE:	(716) 985-4785
WASTE TYPE:	Residential, C&D, Asbestos, Sludge, Industrial, Cont.Soil, Coal Ash			UTMEAST:	143329 UTMNORTH: 4681819

COUNTY **Niagara**

Niagara Recycling Inc. **32S11**

OWNER TYPE:	Private			360 PERMIT NUMBER:	9291100119000050
REGULATORY STATUS:	Permit			PERMIT ISSUED:	04/25/95
				PERMIT EXPIRES:	04/30/05
OWNER:	BFI (Allied Waste)			CONTACT:	David Hanson
ADDRESS:	P.O. Box 344 LPO			ADDRESS:	56th St. & Niagara Falls Blvd.
(MAILING)	Niagara Falls	NY	14304-0344		Niagara Falls NY 14304-0344
PHONE:	(716) 285-3344			PHONE:	(716) 285-3344
WASTE TYPE:	Industrial, C&D, RR & Coal Ash, Sludge, Asbestos, Cont. Soil, MSW			UTMEAST:	175230 UTMNORTH: 4779955

Modern Landfill **32S30**

OWNER TYPE:	Private			360 PERMIT NUMBER:	9292400016000310
REGULATORY STATUS:	Permit			PERMIT ISSUED:	12/29/95
				PERMIT EXPIRES:	12/31/05
OWNER:	Modern Landfill, Inc.			CONTACT:	James Goehrig
ADDRESS:	P.O. Box 209			ADDRESS:	Fletcher & Harold Roads
(MAILING)	Model City	NY	14107-0209		Model City NY 14107-0209
PHONE:	(716) 754-8226			PHONE:	(716) 754-8226
WASTE TYPE:	MSW, Industrial, Asbestos, Sludge, RR & Coal Ash, C&D, Cont. Soil			UTMEAST:	176999 UTMNORTH: 4792194

DEC FACILITY NUMBER	FACILITY NAME	LINER TYPE S	SC	D	DC
36N01	Central Hudson Gas & Elec	.F.	.F.	.F.	.T.
44N07	Tomkins Cove Ash Facility	.F.	.F.	.F.	.F.
23N06	Deferiet Paper	.F.	.T.	.F.	.F.
23S13	DANC Landfill	.F.	.F.	.F.	.T.
04N08	Weber Ash Disposal Site	.T.	.F.	.F.	.F.
55N02	Cayuga	.F.	.F.	.F.	.T.
07S12	Chautauqua Landfill	.F.	.F.	.F.	.T.
32S11	Niagara Recycling Inc.	.F.	.F.	.F.	.T.
32S30	Modern Landfill	.F.	.F.	.F.	.T.

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(Statutory authority: Environmental Conservation Law, Sections 1-0101, 3-0301, 8-0113,19-0301, 19-0306, 23-2305, 23-2307, 27-0101, 27-0106, 27-0107, 27-0109, 27-0305, 27-0703, 27-0704, 27-0705, 27-0911, 27-1317, 27-1515, 52-0107, 52-0505, and 70-0107)

[Effective Date December 31, 1988]

[Amendment Dates:
Revised Effective March 27, 1990; with promulgation of new Subpart 15: Grants for Comprehensive Solid Waste Management Planning.
Revised Effective May 28, 1991; With repeal of existing Subpart 9 and promulgation of new Subpart 9: State Assistance for Municipal Landfill Closure Projects
Revised Effective January 25, 1992; With repeal of existing Subpart 10 and promulgation of new Subpart10: Regulated Medical Waste Storage, Transfer, and Disposal, and new Subpart 17 Regulated Medical Waste Treatment Facilities.
Revised/Enhanced Effective October 9, 1993; with adoption of amendments to existing Subparts 1 through 17
Revised Effective December 14, 1994; with adoption of amendments to existing Subpart 9: State Assistance for Municipal Landfill Closure Projects
Revised Effective January 14, 1995; With repeal of existing Subpart 14 and promulgation of new Subpart 14: Used Oil.
Revised Effective November 26, 1996; With adoption of amendments to existing Subparts 1, 2, 3, 7, 11, 14, and 17

Revised Effective September 29, 1997; With adoption of amendments to existing Subpart 9
Revised Effective November 21, 1998; With adoption of amendments to existing Subpart 2
Revised Effective November 24, 1999; With adoption of amendments to existing Subparts 2, 3, 4, 5, 9, 11, 14, and 16]

[This is page 2 of 3 of this Subpart. A complete list of Subparts in this regulation appears in the Chapter 4 contents page.]

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Sec.

§360-2.11 Hydrogeologic report.

The hydrogeologic report must define the landfill site geology and hydrology and relate these factors to regional and local hydrogeologic patterns; define the critical stratigraphic section for the site; provide an understanding of groundwater and surface water flow at the site sufficient to determine the suitability of the site for a landfill; establish an environmental monitoring system capable of readily detecting a contaminant release from the facility and determining whether the site is contaminating surface or subsurface waters; and form the basis for design of the facility and contingency plans relating to ground or surface water contamination or gas migration as required in section 360-2.10 of this Subpart. The scope and extent of investigations necessary in the hydrogeologic report will vary based upon the hydrogeologic complexity of the site and the ability of the site to restrict contaminant migration. Additionally, the hydrogeologic report must define the engineering properties of the site as necessary for

proper design and construction of any facilities proposed to be built at the site.

(a) Requirements of the site investigation plan. The site investigation plan must clearly define all methods used in investigating the hydrogeologic conditions of the site, the scope of the intended investigation, and any specific hydrogeologic questions to be addressed. The applicant is strongly encouraged to develop a draft version of the plan for review by the department before starting the hydrogeologic investigation that begins to define the critical stratigraphic section, and to keep the department informed of the findings and subsequent investigative proposals as the study proceeds. The final version of the plan, included in the hydrogeologic report section of the permit application, must fully describe all methods of investigation used. Unless otherwise approved by the department, the plan must comply with the following:

(1) General requirements for all methods used. In obtaining the required hydrogeologic information, the applicant must employ current, standard, and generally accepted procedures. All work must be done in accordance with applicable American Society for Testing Materials standards or current and appropriate U.S. Environmental Protection Agency and department guidance documents. Alternative or innovative methodologies may be approved by the department; however, the department may initially require redundant technologies to prove the reliability of a new methodology. All procedures must be conducted under the supervision of a qualified groundwater scientist having experience in similar hydrogeologic investigations, in a manner that ensures accuracy of the data and precludes environmental degradation. The location of all installations, geophysical and geochemical surveys, and seismic lines for the proposed investigation must be shown on a map with the same scale and coordinate grid system used on the engineering plans (see section 360-1.9[e] of this Part).

(2) Literature search. A comprehensive search must be made for pertinent and reliable information concerning regional and site specific hydrogeologic conditions. The literature search must include, as available, records and reports of the New York State Department of Health, the New York State Department of Transportation, the U.S. Soil Conservation Service, and the New York State Geological Survey; basin planning reports, groundwater bulletins, water supply papers, professional papers and other open file reports of the U.S. Geological Survey; bulletins, circulars, map and chart series, memoirs and other publications of the New York State Geologic Survey; publications and bulletins of the Geological Society of America and other professional organizations; and publications of the U.S. Environmental Protection Agency and the department, college and university reports; and aerial photography or remotely sensed imagery.

(3) Surficial geologic mapping. The site must be mapped to determine the distribution of surficial deposits on and surrounding the site based upon information from the hydrogeologic investigation, field evaluations, and field confirmation of all interpretations made on the site itself.

(4) Test pits. Test pits may be used to determine shallow stratigraphy. The test pits must not create a health or safety hazard and must be logged by a geologist or geotechnical engineer with experience in similar hydrogeologic investigations. Logs must include: elevations; surface features before excavation; depth of the test pit and of all relevant horizons or features; moisture content of units; standard soil classifications (including the Unified Soil Classification System), stratigraphy, soil structure, bedrock lithology, brittle, or

secondary structures in soil and bedrock; and a sketch showing these features for each test pit constructed. Test pits must be promptly backfilled and compacted with excavated materials. The department may require that, if a test pit is dug, undisturbed soil samples be taken and tested in accordance with subparagraph (9)(ii) of this subdivision.

(5) Water well surveys. A survey of public and private water wells within one mile downgradient and one-quarter mile upgradient of the proposed site must be conducted. Surveys must obtain, where available, the location of wells, which must be shown on a map with their approximate elevation and depth, name of owner, age and usage of the well; stratigraphic unit screened; well construction; static water levels; well yield; perceived water quality; and any other relevant data which can be obtained.

(6) Geophysical and geochemical surveys. The department may require the use of geophysical and geochemical methods, such as electromagnetic, resistivity, seismic surveys, remote sensing surveys, downhole geophysics, isotope geochemistry, and soil gas analysis, where necessary to justify the interpretations and conclusions of the site investigation report and to provide information between boreholes, and aid in the siting of wells.

(7) Tracer studies. The department may require the use of tracer studies to aid in understanding groundwater flow or to otherwise assist in devising an effective environmental monitoring plan.

(i) Where sites overlie weathered limestone or dolostone bedrock or where karst environments cannot be avoided, the department may require tracer studies before finalizing the bedrock monitoring plan. Tracer studies must identify, in specific detail, areas of groundwater flow from the facility attributed to secondary permeability, recharge and discharge areas on and surrounding the site, storage of groundwater, and variations of water quality seasonally and during high and low flow periods.

(ii) Where a site is otherwise unmonitorable because of existing contamination, the department may allow the use of tracers to aid in monitoring.

(8) Monitoring wells and piezometers.

(i) Construction in general.

(a) Monitoring wells and piezometers must define the three-dimensional flow system within the critical stratigraphic section to justify the interpretations and conclusions of the hydrogeologic report.

(b) Construction techniques must be appropriate to ensure that groundwater samples and head level measurements characterize discrete stratigraphic intervals; and to prevent leakage of groundwater or contaminants along the well annulus. If leakage is detected, it must be corrected or the well abandoned.

(c) Monitoring wells and piezometers may be placed individually or as well clusters. Well clusters consist of individual wells at varying depths in close proximity, each installed in its own boring. Multiple wells placed into one large borehole are prohibited unless prior department approval in writing is obtained.

(d) Soil borings, soil samples, and rock cores must characterize each stratigraphic unit within the critical stratigraphic section to justify the interpretations and conclusions

of the hydrogeologic report.

(e) Every precaution must be taken during drilling and construction of monitoring wells to avoid introducing contaminants into a borehole. Only potable water of known chemistry may be used in drilling monitoring wells or piezometers unless otherwise approved by the department.

(f) All equipment placed into the boring must be properly decontaminated before use at the site and between boreholes. The initial cleaning at the site must ensure that no contaminants from the last site drilled will be introduced into the borings. All equipment must be steam cleaned between holes. Where possible, upgradient wells should be drilled first.

(g) Use of drilling muds is to be avoided unless prior department approval in writing is granted. If drilling muds are used, the material used must avoid the introduction of stray contaminants. Drilling muds must not be used within 10 feet of the screened interval.

(h) Air systems and drilling lubricants must not introduce contaminants into the borehole.

(i) Well borings must have an inside diameter at least two inches larger than the outside diameter of the casing and screen to ensure that a tremie may be properly used.

(j) Wells and borings must not be placed through or into waste unless prior department approval has been granted and sufficient safety precautions are employed. If waste is encountered unexpectedly during drilling, drilling of that boring must cease, the hole properly abandoned with cuttings properly disposed of and the department notified.

(ii) Construction of monitoring wells and piezometers.

(a) Well screens and risers must be constructed of materials selected to last for the required monitoring period of the facility without contributing contaminants to, or removing contaminants from, the groundwater. All materials used are subject to department approval. Joints, caps, and end plugs are to be secured by welds, threads with teflon tape, or force fittings. Solvents and glues or other adhesives are prohibited. Caps must be vented to allow for proper pressure equalization. The inside diameter of each well screen or riser pipe must be nominally two inches in diameter and must allow for proper development, survey and sampling equipment to be used within the screen and casing. A permanent mark should be made at the top of the riser pipe to provide a datum for subsequent water level measurements.

(b) Unless otherwise approved by the department, well screens are required for all wells and piezometers. All screens used must be factory constructed non-solvent welded/bonded continuous slot wire wrap screens of a material appropriate for long-term monitoring without contributing contaminants to or removing contaminants from the groundwater. The slot size of the screen must be compatible with the sand pack. Water table variations, site stratigraphy, expected contaminant behavior, and groundwater flow must be considered in determining the screen length, materials, and position. Where existing contamination is suspected or known, down hole geophysical

techniques may be required by the department to aid in selecting well screen elevations.

(c) The sand pack surrounding the well screen must consist of clean,inert, siliceous material. Grain size must be based upon a representative sieve analysis of the zone to be screened. The sand pack must minimize the amount of fine materials entering the well and must not inhibit water inflow to the well. The sand pack must be placed in the annular space around the well screen and extend two feet or 20 percent of the screen length (whichever is greater) above the top, and six inches below the bottom, of the screen. The sand pack material must be placed using the tremie method or another method approved by the department and must avoid bridging. The sand pack must be checked for proper placement. A finer grained sand pack material (100 percent passing the No. 30 sieve and less than two percent passing the No. 200 sieve) six inches thick must be placed at the top of the sand pack between the sand and the bentonite seal.

(d) Bentonite must be placed above the sand pack using the tremie or other approved method to form a seal at least three feet thick. A 6 to 12 inch fine grained sand pack must be placed above the bentonite seal to minimize grout infiltration. If pellets or chips are used, sufficient time should be allotted to allow for full hydration of the bentonite prior to emplacement of overlying materials.

(e) Grout of cement/bentonite, bentonite alone, or other suitable, low permeability material, if approved by the department, must completely fill the remaining annular space to the surface seal. The grout mixture must set up without being diluted by formation water, and must displace water in the annular space to ensure a continuous seal. The grout mixture must be placed under pressure using a tremie or other method approved by the department. Auger flights or casing must be left in the hole before grouting to prevent caving. The cement used must be appropriate for the groundwater chemistry of the site.

(f) A protective steel casing, at least two inches larger in diameter than the well casing, must be placed over the well casing or riser pipe and secured in a surface well seal to adequately protect the well casing. A distinctive, readily visible marker must be permanently affixed to the protective casing or near the well to identify the well number and ensure visibility even in periods of high snow cover. A drain hole must be drilled at the base of the protective casing. A vent hole must be located near the top of the protective casing to prevent explosive gas build up and to allow water levels to respond naturally to barometric pressure changes. The annulus of the protective casing should be filled with gravel. A locking cap must be installed with one to two inches clearance between the top of the well cap and the bottom of the locking cap when in the locked position and a weather resistant padlock must be placed on the protective casing and duplicate keys provided to the department.

(g) A concrete surface seal designed to last throughout the planned life of the monitoring well must be constructed. The surface seal must extend below the frost depth to prevent potential well damage. The top of the seal must be constructed by pouring the concrete into a pre-built form with a minimum of three foot long sides. The seal must be designed to prevent surface runoff from ponding and entering the well casing. In areas where traffic may cause damage to the well, bumperguards or other

suitable protection for the well is required. Any damaged or deteriorated surface seals must be reported to the department and repaired or replaced in an appropriate manner. The department may allow alternate designs when documentation is presented which demonstrates the intent of the regulations.

(h) Where under the circumstances of a particular situation the department believes that the methods identified in this section are inadequate, it may require that additional measures be taken to prevent migration of contaminants along the annulus of the well or to protect the well.

(i) Alternative construction methods for piezometers and wells which are not to be part of the environmental monitoring plan may be approved by the department if those methods meet the requirements set forth in clause (i)(b) of this paragraph.

(iii) Well and piezometer development. All wells and piezometers must be developed as soon as possible after installation, but not before the well seal and grout have set. Water must not be introduced into the well for development, except with approval of the department. Any contaminated water withdrawn during development must be properly managed. Development must not disturb the strata above the water-bearing zone or damage the well. The entire saturated screened interval must be developed. The department may require multiple attempts at well development to increase the likelihood that sediment free water can be obtained. Development methods should be appropriate for conditions/stratigraphy encountered. Placement of screens in a fine grained strata may require gentle development techniques to avoid pulling sediment into the well. The selected method must minimize to the greatest extent possible the amount of turbidity in the well.

(iv) Survey. The locations and elevations of all existing and abandoned test pits, soil borings, monitoring wells, and piezometers must be surveyed to obtain their precise location and plotted on a map in the hydrogeologic report. The vertical location of the ground surface and the mark made on the top of the monitoring well and piezometer risers must be accurately measured to the nearest 100th foot.

(v) Replacement of wells. All wells must be properly protected to ensure their integrity throughout the active and post-closure period of the facility. If, in the opinion of the department, water quality or other data show that the integrity of a well is lost, the well must be replaced and sampled within a time period acceptable to the department (but not to exceed 120 days) after written notification by the department. The initial sample for the replacement well must be analyzed for baseline parameters in the Water Quality Analysis Tables in this section.

(vi) Abandonment of wells. All soil borings or rock cores which are not completed as monitoring wells or piezometers and other abandoned wells must be fully sealed in a manner appropriate for the geologic conditions to prevent contaminant migration through the borehole. Generally, such sealing must include:

(a) Overboring or removal of the casing to the greatest extent possible, followed by perforation of any casing left in place. All casing and well installations in the upper five feet of the boring, or within five feet of the proposed level of excavation, must be removed.

(b) Sealing by pressure injection with cement bentonite grout, using a tremie pipe or

other method acceptable to the department, must extend the entire length of the boring to five feet below the ground surface or the proposed excavation level. The screened interval of the borehole must be sealed separately and tested to ensure its adequacy before sealing the remainder of the borehole. Where the surrounding geologic deposits are highly permeable, alternate methods of sealing may be required to prevent the migration of the grout into the surrounding geologic formation. The upper five feet must be backfilled with appropriate native materials compacted to avoid settlement.

(c) The sealed site must be restored to a safe condition. The site must be inspected periodically after sealing for settlement or other conditions which require remediation.

(9) Geologic sampling.

(i) All borings and rock cores must be sampled continuously to the base of the critical stratigraphic section. For well clusters, continuous samples must be collected from the surface to the base of the deepest well. Other wells in the cluster must be sampled at all stratigraphic changes, and at the screened interval. At sites where the geology is not of a complex nature the department may allow a reduction in the number of wells requiring continuous sampling. Soil borings must be sampled using the split spoon method and bedrock or boulders must be sampled by coring with standard size NX or larger diameter core bits. Samples must be retained in labeled glass jars or wooden core boxes. All samples must be securely stored and accessible throughout the life of the facility. The location of the storage area must be designated in the operation and maintenance plan for the facility.

(ii) A representative number of undisturbed samples must be collected from test pits and soil borings using appropriate methods to identify the soil characteristics of all cohesive soil units. Such samples must be analyzed in the laboratory for: Atterberg limits; gradation curves by sieve or hydrometer analysis or both, as appropriate; undisturbed permeabilities; and visual descriptions of undisturbed soil structures and lithologies.

(10) Logs.

(i) Complete and accurate drilling logs must be provided to the department for all soil borings. These logs must provide detailed soil classification according to the Unified Soil Classification System (USCS). The USCS visual method must be used on all samples supplemented by the USCS laboratory tests on a representative number of samples from each stratigraphic unit and each screened interval. Logs also must contain a description of matrix and clasts, mineralogy, roundness, color, appearance, odor, and behavior of materials using an appropriate descriptive system. A clear description of the system used must be included with the logs. When undisturbed samples have been taken, the interval tested and the test results must be clearly shown on the logs. All well logs must contain drilling information as observed in the field including: moisture content, location of the water table during drilling, water loss during drilling; depth to significant changes in material and rock; sample recovery measured in tenths of a foot; hammer blow counts, and other pertinent comments; the method of drilling, anomalous features such as gas in the well, and the use and description of drilling fluids or additives, including the source, and calculated and actual amounts of materials used.

(ii) Rock core logs must describe the lithology, mineralogy, degree of cementation, color, grain size, and any other physical characteristics of the rock; percent recovery and the

rock quality designation (RQD); other primary and secondary features, and contain all drilling observations and appropriate details required for soil boring logs. A clear photograph of all labeled cores must also be taken and submitted with the logs.

(iii) Well completion logs must contain a diagram of the completed well, all pertinent details on well construction, a description of the materials used, and elevations of all well features.

(iv) Copies of original field logs must be submitted to the department upon request.

(11) In situ hydraulic conductivity testing.In situ hydraulic conductivity testing must be done in all monitoring wells and piezometers, unless other methods that are approved by the department, are used. The testing method used must not introduce contaminants into the well. If contamination is known or suspected to exist, all water removed must be properly managed. Hydraulic conductivities may be determined using pump tests, slug tests, packer tests, tracer studies, isotopic geochemistry, thermal detection, or other suitable methods.

(b) Site investigation report. The site investigation report must include a final version of the site investigation plan, raw field data, analytical calculations, maps, flow nets, cross-sections, interpretations (and alternative interpretations where applicable), and conclusions. All maps, drawings and diagrams must have a minimum scale of 1:24,000, unless otherwise acceptable to the department. Such report must comprehensively describe:

(1) Regional geology. The discussion of regional geology must demonstrate how the regional geology relates to the formation of on-site geologic materials, the potential for and effects of off-site contaminant migration, and the location of nearby sensitive environments. This discussion must include available and appropriate information to describe:

(i) bedrock stratigraphy and structural features (represented on maps and columnar diagrams) constructed from field exposures and the geologic literature, describing formation and member names, geologic ages, rock types, thicknesses, the units' mineralogic and geochemical compositions and variabilities, rock fabrics, porosities and bulk permeabilities, including karst development, structural geology, including orientation and density or spacing of folds, faults, joints, and other features;

(ii) glacial geology, including a discussion of the formation, timing, stages, and distribution of glacial deposits, advances and retreats, hydrologic characteristics of the surficial deposits, such as kames, eskers, outwash moraines, etc.;

(iii) major topographic features, their origin and influence upon drainage basin characteristics; and

(iv) surface water and groundwater hydrologic features, including surface drainage patterns, recharge and discharge areas, wetlands and other sensitive environments, inferred regional groundwater flow directions, aquifers, aquitards and aquicludes, known primary water supply and principal aquifers, public water supply wells, and private water supply wells identified in the water supply well survey; any known peculiarities in surface water and groundwater geochemistry, and any other relevant features.

(2) Site-specific geology. The site investigation report must define site hydrogeologic conditions in three dimensions and their relationship to the proposed landfill. The report must define site geology, surface water and groundwater flow, and must relate site-specific conditions to the regional geology. The report must describe the potential impact the landfill

may have on surface and groundwater resources and other receptors, including future hydrogeologic conditions, which may occur with site development, and it must describe the hydrogeologic conditions in sufficient detail to construct a comprehensive understanding of groundwater flow, which can be quantified and verified through hydrologic, geochemical, and geophysical measurements. The report must provide sufficient data to specify the location and sampling frequency for environmental monitoring points; form the basis for contingency plans regarding groundwater and surface water contamination and explosive gas migration; and support the engineering design of the landfill. The site- specific hydrogeologic evaluation must specifically discuss all units in the critical stratigraphic section. Such evaluation must include maps, cross- sections, other graphical representations, and a detailed written analysis of the following:

(i) all hydrogeologic units such as aquifers, aquitards and aquicludes, and how they relate to surface water and groundwater flow. This must include all hydrogeologic data collected during the site investigation and explain and evaluate the hydrologic and engineering properties of the site and each specific unit; and

(ii) local groundwater recharge and discharge areas, high and low groundwater tables and potentiometric surfaces for each hydrologic unit, vertical and horizontal hydraulic gradients, groundwater flow directions and velocities, groundwater boundary conditions, surface water and groundwater interactions, and an evaluation of existing water quality.

(c) Environmental monitoring plan. The environmental monitoring plan must describe all proposed on-site and off-site monitoring, including the location of all environmental, facility, and other monitoring points, sampling schedule, analyses to be performed, statistical methods, and reporting requirements. The plan must also include a schedule for construction of the groundwater monitoring wells based on site-specific hydrogeology and the sequencing of construction of landfill cells; a schedule for initiation of the existing water quality and operational water quality monitoring programs and a contingency water quality monitoring plan which specifies trigger mechanisms for its initiation. Unless otherwise approved by the department, the plan must comply with the following:

(1) Groundwater sampling. Groundwater monitoring wells must be capable of detecting landfill-derived groundwater contamination within the critical stratigraphic section.

(i) Horizontal well spacing.

(a) Horizontal spacing of wells must be based upon site-specific conditions including groundwater flow rates, estimated longitudinal and transverse dispersivity rates, proximity to or presence of sensitive environments and groundwater users, the nature of contaminants disposed of at the site, and the proposed design and size of the landfill.

(b) In the first water-bearing unit of the critical stratigraphic section, monitoring well spacing must not exceed 500 feet along the downgradient perimeter of the facility. In sensitive environments or geologically complex environments, closer well spacing may be required. Upgradient or crossgradient well spacing must not exceed 1,500 feet and may be less in sensitive environments, or where up-gradient sources of contamination are known to exist. Subsequent water-bearing units must be monitored, as required by the department, based upon the potential for contaminant migration to that unit. Well spacing must provide at least one upgradient and three downgradient

monitoring wells or well clusters for each water- bearing unit of the critical stratigraphic section.

(c) Sensitive environments or areas where public health concerns exist may be subject to more intensive groundwater monitoring requirements. In addition, the department may require the applicant to develop acceptable computer models of contaminant plume behavior from hypothetical leaks in the liner system, if necessary to determine optimum monitoring well spacing.

(d) In areas where waterflow is irregular and unpredictable and where otherwise determined to be appropriate, the applicant may be required to conduct spring, sinkhole, or other sampling to enhance the monitoring.

(e) All downgradient monitoring wells must be located as close as practical to but not more than 50 feet from the waste boundary, unless otherwise approved by the department due to site specific conditions, to ensure early detection of any contaminant plume.

(f) All upgradient and crossgradient monitoring wells must be placed far enough from the waste boundary to avoid any facility derived impacts.

(ii) Well screen placement.

(a) Well screens must be located to readily detect groundwater contamination within the saturated thickness of the first water-bearing unit, and must be installed at a representative number of points at each subsequent permeable unit throughout the critical stratigraphic section. Well screens must not act as conduits through impermeable layers. Wells monitoring the water table should be screened to ensure that the water table can be sampled at all times.

(b) Upgradient and crossgradient wells must monitor the same hydrologic units whenever possible within the critical stratigraphic section as the downgradient monitoring wells.

(iii) Screen length. Well screens must not exceed 20 feet in length, unless otherwise approved by the department. The applicant must provide technical justification for the actual screen length chosen.

(iv) Geophysical and geochemical techniques. Where existing contamination is suspected, the department may require the use of geophysical and geochemical techniques to locate contaminated zones before selecting well locations and screen depths for environmental monitoring points.

(v) If a groundwater suppression system exists at a facility, the department may require representative sampling points to be designated as environmental monitoring points. Existing water quality monitoring at these points may not be required.

(2) Surface water and sediment sampling. The environmental monitoring plan must designate monitoring points, for use in operational or contingency monitoring or both of the facility pursuant to subparagraphs (5)(ii) and (iii) of this subdivision, for all surface water bodies that may be significantly impacted by a contaminant release from the facility. Sampling activities at these monitoring points shall be for surface water and sediment. The department may require the sampling and analysis of surface water and sediment

sampling points during a site investigation to understand site hydrogeology or existing patterns of contamination. In bodies of standing water, these points must be located at the closest point to the facility and must be included in existing water quality monitoring. In flowing water bodies, these points must include sufficient upgradient and downgradient locations to allow the facility's impact to be measured. These points, however, do not require existing water quality analysis. The detailed analysis requirements of these points must be specified in the contingency monitoring plan and the detailed sampling requirements must be specified in the site analytical plan.

(3) Leachate sampling. The environmental monitoring plan must specify the location of facility leachate sampling points and parameters to be analyzed so as to obtain a representative characterization of the leachate composition in the primary leachate collection and removal system and to determine the nature of liquids detected in the secondary leachate collection and removal system. The following must be included:

(i) Sampling points. All sampling points should be located to minimize pumping of leachate before sampling. Sampling points in the secondary leachate collection system should be adequate to sample liquids beneath each discrete leachate collection area or landfill cell.

(ii) Analysis required. Except as allowed by the department when a specific waste stream and its leachate are already well defined, analysis of the leachate in the primary and secondary leachate collection and removal systems must be performed semi-annually for expanded parameters. The department may require the use of specific analytical methods in these analyses when minimum detection levels are determined inadequate to fully characterize leachate.

(4) Water supply well sampling. If sampling and analysis of water supply wells is to be performed, the analytical requirements must be in accordance with those specified in the site analytical plan. Sampling frequency and analysis shall be at least quarterly for baseline parameters. Sampling methods must be consistently applied each time a well is sampled and before sampling any residential well, the New York State Department of Health and/or local health department must be notified.

(5) Water quality monitoring program. A water quality monitoring program must be implemented for all environmental monitoring points specified in the environmental monitoring plan. This program must be tailored to the site to establish existing water quality for the site prior to landfilling, operational water quality during operation of the site and the post-closure period, and contingency water quality, if contamination is detected at the site. These programs must meet the following minimum requirements:

(i) Existing water quality. The applicant must establish an existing water quality database to characterize the site geochemistry.

(a) The permit application must contain a preliminary evaluation of water quality, consisting of the first two rounds of sampling and analyses for a representative number of monitoring points at both upgradient and downgradient locations, in each water bearing hydrogeologic unit within the critical stratigraphic section, with a minimum of two samples taken from each well during the first round of sampling, unless otherwise approved by the department. The first round of these samples must be analyzed for the expanded parameters. The second round must be analyzed for the

baseline parameters, except as specified in clause (d) of this subparagraph. These samples should be taken in early spring and late summer, or equivalent, to approximate periods of high and low groundwater flow. The department may require sampling and analysis of additional monitoring points as necessary to define site hydrogeology and geochemistry in support of the interpretations and conclusions of the site investigation report.

(b) Before deposition of waste in the facility, all environmental monitoring points not previously sampled must be sampled and analyzed for four rounds of quarterly sampling. The first of these sampling rounds must be analyzed for expanded parameters and the other three rounds must be analyzed for baseline parameters. Those environmental monitoring points which were sampled in accordance with clause (a) of this subparagraph must be sampled and analyzed for baseline parameters for two rounds of samples. The samples shall be obtained at different times of the year than when the sampling required by clause (a) of this subparagraph was performed. If elevated contaminant levels were detected during the preliminary evaluation of water quality, then the sampling required in this clause shall be as specified in clause (d) of this subparagraph. The department may approve phased sampling, where hydrogeologic conditions warrant, as landfill cells are constructed. The sampling of these phased monitoring points shall commence at least one year prior to solid waste deposition and shall be in conformance with the requirements of clause (b) of this subparagraph or as approved by the department. As these phased monitoring points are added to the monitoring program, the procedures contained in clause (c) of this subparagraph shall be followed to reestablish existing water quality at the facility and recompute the standard deviation.

(c) Prior to facility operation, existing water quality must be established for each hydrogeologic flow regime being monitored at the site. Existing water quality for each hydrogeologic flow regime shall be the arithmetic mean, per parameter, of the analytical results of the samples obtained from those environmental monitoring points within that flow regime prior to deposition of solid waste; provided there is no reason to believe that the distribution of the analytical results was non-uniform. The standard deviation of the analytical results for each parameter within each flow regime shall also be established at that time. Should the department determine that the sampling results are non-representative of existing water quality or do not constitute a normal, uniform distribution, then the department shall specify such additional sampling and analyses as it deems necessary to confidently establish existing water quality at the site. For those facilities where solid waste has been placed previously in other than a contiguous landfill cell, the existing water quality may be based on only some of the environmental monitoring points, subject to the approval of the department.

(d) If elevated contaminant levels are detected and additional detailed information is needed to establish a complete existing water quality database, the department may require one or more rounds of baseline or expanded parameter sampling and analysis in any sampling point, using the procedure specified for contingency monitoring required in subparagraph (iii) of this paragraph when contamination is detected.

(e) Additional sampling and analysis beyond the site boundaries may be required to determine the nature and extent of contamination and the source, if possible. This evaluation may include construction, sampling, and analysis of any additional

monitoring wells, and surface water sampling points required by the department. Based upon the results of this additional data, the department may require analysis for any and all expanded parameters, to be included in quarterly or annual operational water quality sampling.

(ii) Operational water quality. The environmental monitoring plan must include a plan for operational water quality monitoring to be conducted during the operation, closure, and post-closure periods of the facility. The operational water quality monitoring plan must be able to distinguish landfill-derived contamination from the existing water quality at the site. The plan must also describe trigger mechanisms for initiating contingency water quality monitoring. The department may require modification of this plan as additional sampling data becomes available during the life of the facility. The minimum requirements for operational water quality monitoring are:

(a) Except as provided below, in each calendar year sampling and analysis must be performed at least quarterly, once for baseline parameters and three times for routine parameters. The baseline sampling event must be rotated quarterly; one round of baseline parameters to be analyzed in each calendar year will be sufficient unless a pattern of contamination exists which may require the department to change the sampling frequency. For double lined landfills, the department may allow omission of the winter sampling once a complete understanding of water chemistry has been obtained, provided that a demonstration of acceptable liner performance is made to the department. The department will require sampling and analysis on a quarterly basis, alternately analyzing for routine and baseline parameters, at all landfills which do not have a liner system constructed in accordance with section 360-2.13(f) of this Subpart.

(b) The department may approve phased sampling, where hydrogeologic conditions warrant, as landfill cells are constructed or as post-closure monitoring is completed as specified in section 360-2.15(i) of this Subpart. With department approval, sampling of specific environmental monitoring points which are not potentially impacted by the portions of the landfill already constructed, may be deferred, provided that scheduled sampling commences at least one year before landfill construction in the vicinity. The department may withdraw this approval at any time, based upon a change in facility design, operation, or performance.

(c) Operational water quality analysis must include at least those parameters specified in the Water Quality Analysis Tables for routine and baseline parameters. The department may modify these tables before granting a permit for the facility, or during the duration of the permit, if leachate composition so warrants. If subsequent leachate compositions vary or if the waste disposed of at the facility changes, the department may adjust analytical requirements accordingly.

(d) Within 90 days of completing the quarterly field sampling activities, the facility owner/operator must determine whether or not there is a significant increase from existing water quality levels established for each parameter pursuant to clause (c)(5)(i)(c) of this section.

(1) In determining whether a significant increase has occurred, the facility owner/operator must compare the groundwater quality of each parameter at each monitoring well to the existing water quality value of that parameter.

(2) A significant increase has occurred if:

(i) the groundwater quality for any parameter at any monitoring well exceeds the existing water quality value for that parameter, as established pursuant to clause (c)(5)(i)(c) of this section, by three standard deviations; or

(ii) the groundwater quality for any parameter at any monitoring well exceeds the existing water quality value for that parameter, as established pursuant to clause (c)(5)(i)(c) of this section and exceeds the water quality standards for that parameter as specified in Part 701, 702, or 703 of this Title. (e) If the owner/operator determines, pursuant to clause (d) of this subparagraph, that there is a significant increase from existing water quality levels for one or more of the parameters during field sampling for the routine parameters, excluding the field parameters, at any monitoring well, the facility owner/operator:

(1) must, within 14 days of this finding, notify the department indicating which parameters have shown significant increases from existing water quality levels; and

(2) must sample and analyze all monitoring points for the baseline parameters during the next quarterly sampling event. Subsequent sampling and analysis for baseline parameters must be conducted at least semiannually until the significant increase is determined not to be landfill-derived or the department determines such monitoring is not needed to protect public health or the environment.

(f) If the owner/operator determines, pursuant to clause (d) of this subparagraph, that there is a significant increase from existing water quality levels for one or more of the parameters during field sampling for the baseline parameters, excluding the field parameters, at any monitoring well, the facility owner/operator:

(1) must, within 14 days of this finding, notify the department indicating which parameters have shown significant increases from existing water quality levels; and

(2) must establish a contingency monitoring program meeting the requirements of subparagraph (iii) of this paragraph within 90 days except as provided for in subclause (3) of this clause.

(3) The facility owner/operator may attempt to demonstrate to the department that a source other than the facility caused the contamination or that the significant increase resulted from error in sampling, analysis, or natural variation in groundwater quality. A report documenting this demonstration must be submitted to the department for approval. If a successful demonstration is made, documented and approved by the department, the facility owner/operator may continue operational water quality monitoring as specified in this subparagraph. If, after 90 days, a successful demonstration is not made, the owner/operator must initiate a contingency monitoring program as required in subparagraph (iii) of this paragraph.

(iii) Contingency water quality. The environmental monitoring plan must include a plan for contingency water quality monitoring, as described in this subparagraph, which must be conducted when a significant increase over existing water quality has been detected pursuant to clause (c)(5)(ii)(d) of this section for one or more of the baseline parameters listed in the Water Quality Analysis Tables. All contingency water quality monitoring plans are subject to department approval, may be modified at any time by the department

when necessary to protect public health and the environment, and must include the following:

(a) Within 90 days of triggering a contingency water quality monitoring program, the facility owner/operator must sample and analyze the groundwater for the expanded parameters listed in the Water Quality Analysis Tables. A minimum of one sample from each monitoring well (upgradient and downgradient) must be collected and analyzed during this sampling. If any constituents are detected in the downgradient wells as a result of the expanded parameter analysis, a minimum of two independent samples from each well (upgradient and downgradient) must be collected within 30 days of obtaining the results of the expanded parameter analysis and analyzed for the detected constituents. These samples must be collected within two weeks of each other and then compared to the existing groundwater quality values established pursuant to subparagraph (c)(5)(i) of this section. If an increase in the existing water quality values in the upgradient wells is indicated by this comparison, the existing water quality values for these parameters shall be revised to be the arithmetic mean of the results of each parameter for which analyses were performed in the upgradient wells within each hydrogeologic flow regime. The department may delete any of the expanded parameters if it can be shown that the removed parameters are not reasonably expected to be in, or derived from, the waste contained in the landfill based on the leachate sampling being performed pursuant to paragraph (c)(3) of this section.

(b) After obtaining the results from the initial or subsequent sampling required in clause (a) of this subparagraph, the facility owner/operator must:

(1) within 14 days, notify the department to identify the expanded parameters that have been detected;

(2) within 90 days, and on a quarterly basis thereafter, resample all wells, conduct analyses for all baseline parameters, and for those expanded parameters that are detected in response to clause (a) of this subparagraph. In addition, the facility owner/operator shall sample and conduct analyses annually on all wells for the expanded parameters. At least one sample from each upgradient and downgradient well must be collected and analyzed during these sampling events. The department may reduce the requirements of this subclause based on site specific conditions; and

(3) establish groundwater protection standards for all parameters detected pursuant to clause (a) of this subparagraph. The groundwater protection standards must be established in accordance with clause (f) of this subparagraph.

(c) If the concentrations of any of the expanded parameters are shown to be at or below existing water quality values for two consecutive sampling events, the owner/operator must notify the department of this finding and, if approved by the department, may remove that parameter from the contingency water quality monitoring program. If the concentrations of all the expanded parameters are shown to be at or below existing water quality values for two consecutive sampling events, the owner/operator must notify the department and, if approved by the department, may return to operational water quality monitoring.

(d) If the concentrations of any expanded parameters are above existing water quality values, but all concentrations are below the groundwater protection standard

established under clause (f) of this subparagraph, the owner/operator must continue contingency monitoring in accordance with this subparagraph.

(e) If one or more expanded parameters are detected at significant levels above the groundwater protection standard established under clause (f) of this subparagraph in any sampling event, the facility owner/operator must, within 14 days of this finding, notify the department to identify the expanded parameters that have exceeded the groundwater protection standard, and notify all appropriate local government officials identified in the Contingency Plan, required pursuant to section 360-2.10 of this Subpart, that the notice has been sent to the department. The owner/operator must also:

(1) characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(2) install at least one additional monitoring well at the facility boundary in the direction of contaminant migration, and sample this well in accordance with subparagraph (c)(5)(i) of this section;

(3) notify all persons who own the land or reside on the land that is directly over any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells in accordance with subclause (1) of this clause; and

(4) initiate an assessment of corrective measures as required by section 360-2.20 of this Subpart within 90 days; or

(5) demonstrate that a source other than the landfill caused the contamination, or that the significant increase resulted from error in sampling, analysis, or natural variation in groundwater quality. This report must be submitted for approval by the department. If a successful demonstration is made, the facility owner/operator must continue monitoring in accordance with the contingency water quality monitoring program pursuant to subparagraph (c)(3)(iii) of this section, and may return to operational monitoring if the expanded parameters are at or below existing water quality as specified in subparagraph (c)(5)(i) of this section. Unless and until a successful demonstration is made, the owner/operator must comply with this clause, including initiating an assessment of corrective measures.

(f) The owner/operator must establish a groundwater protection standard for each expanded parameter detected in the groundwater. The groundwater protection standard shall be:

(1) for parameters for which a maximum contaminant level (MCL) has been established in section 1412 of the Safe Drinking Water Act under 40 CFR part 141 (see section 360-1.3 of this Part) or for which standard has been established pursuant to Part 701, 702, or 703 of this Title, whichever is more stringent when the parameters are the same, the MCL or standard for that constituent;

(2) for parameters for which MCLs or standards have not been established, the existing water quality concentration for the parameter established from wells in accordance with subparagraph (c)(5)(i) of this section; or

(3) for parameters for which the existing water quality level is higher than the MCL or standard identified under subclause (1) of this clause, the existing water quality

concentration.

(iv) Reporting of data. Unless more rapid reporting is required to address an imminent environmental or public health concern, the owner or operator of the facility must report all water quality monitoring results to the department within 90 days of the conclusion of the sample collection. The report must include:

(a) A table showing the sample collection date, the analytical results (including all peaks even if below method detection limits [MDL]), designation of upgradient wells andlocation number for each environmental monitoring point sampled, applicable water quality standards, and groundwater protection standards if established, MDL's, and Chemical Abstracts Service (CAS) numbers on all parameters.

(b) In addition, tables or graphical representations comparing current water quality with existing water quality and with upgradient water quality must be presented. These comparisons may include Piper diagrams, Stiff diagrams, tables, or other analyses.

(c) A summary of the contraventions of State water quality standards, significant increases in concentrations above existing water quality, any exceedances of groundwater protection standards, and discussion of results, and any proposed modifications to the sampling and analysis schedule necessary to meet the requirements of subparagraphs (i) through (iii) of this paragraph.

(d) All AQA/AQC documentation must be submitted to the department in a form acceptable to the department.

(e) The annual report must contain a summary of the water quality information presented in clauses (b) and (c) of this subparagraph with special note of any changes in water quality which have occurred throughout the year.

(f) The data quality assessment report required pursuant to paragraph (d)(5) of this section.

(d) Site analytical plan. The site analytical plan must describe the method of sample collection and preservation, chain of custody documentation, analyses to be performed, analytical methods, data quality objectives, procedures for corrective actions, and procedures for data reduction, validation and reporting. The site analytical plan will pertain to existing water quality monitoring programs, operational water quality monitoring programs, and a contingency water quality monitoring program which specifies trigger mechanisms for its initiation. Unless otherwise approved by the department, the site analytical plan must comply with the following:

(1) Data quality objectives.

(i) The data quality objectives for the data generation activity must be established prior to the initiation of any sampling.

(ii) The data quality objectives shall define the goals of each phase of the water quality monitoring program, including, but not limited to, the following:

(a) reasons for the analytical program;

(b) identification of any regulatory programs and standards applicable to the analytical program; and

(c) minimum detection limits for each of the parameters listed in the Water Quality Analysis Tables.

(iii) The data quality objectives shall be the basis for the development of all other portions of the site analytical plan.

(2) Analytic quality assurance (AQA)/analytic quality control (AQC).

(i) The site analytical plan must include a discussion of the AQA/AQC for the sampling program associated with the facility and shall be sufficient to ensure that the data generated by the sampling and analysis activities are of a quality commensurate with their intended use and the requirements of the department. The discussion shall detail the AQA/AQC goals and protocols for each type of environmental monitoring to be performed at the facility. Elements must include a discussion of the quality objectives of the project, identification of the qualifications of those persons who will be performing the work and their responsibilities and authorities, enumeration of AQC procedures to be followed, and reference to the specific standard operating procedures that will be followed for all aspects of the environmental monitoring program.

(3) Field sampling procedures.

(i) All field sampling procedures shall be described in detail in the site analytical plan. All field quality control procedures shall be described including types and frequency of field quality control samples to be collected such as field blanks, trip blanks, field duplicates, reference materials and material blanks.

(ii) All samples must be collected and stored in the order of the parameter's volatilization sensitivity using methods, consistently applied, which ensure sample integrity.

(iii) All sampling equipment must be constructed of inert materials designed to obtain samples with minimal agitation and contact with the atmosphere; be cleaned and protected during transport to avoid contamination; and checked before use. Dedicated equipment must be constructed of appropriate inert materials and must be appropriate for the types of sampling to be performed.

(iv) Samples must be properly preserved and delivered to the laboratory with proper chain of custody within all appropriate holding times for the parameters to be analyzed.

(v) The sampling procedures and frequencies must be protective of human health and the environment.

(vi) Monitoring well sampling techniques. Monitoring well sampling techniques must be consistently performed each time a well is sampled, and must comply with the following:

(a) In areas where the presence of explosive or organic vapors is suspected, ambient air in the well must be checked for their presence before the well is evacuated.

(b) For wells with documented contamination, where contamination by non- aqueous phase liquids may be present, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water (floaters or sinkers). If present, floaters or sinkers must be sampled and analyzed separately by

a method described in the site analytical plan.

(c) Evacuation of the well must replace stagnant water in the well and the sand pack with fresh water representative of the formation. Evacuation methods, including pumping rate, depth of pump intake, and method of determining sufficiency of evacuation must be consistently applied each time the well is sampled. Evacuation methods must create the least possible turbidity in the well and must not lower the water in the well below the top of the sand pack whenever feasible. Evacuated water must be properly managed.

(d) After evacuation of the well, volatile organic samples must be collected.

(e) analysis must be performed after volatile organic samples have been collected, either within the borehole using a probe or from the next sample collected. All field test equipment must be calibrated at the beginning of each sampling day and checked and recalibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results.

(f) Groundwater samples shall not be filtered, unless otherwise approved by the department. If, due to site-specific conditions, sample turbidity cannot be reduced to 50 nephelometric turbidity units (NTUs) or less by good sampling technique or well redevelopment, the department may approve collection of both filtered and unfiltered samples for analyses of the inorganic parameters. All other analyses required will be on the unfiltered samples.

(vii) Surface water and sediment sampling techniques. Surface water and sediment sampling methods must be consistently applied to all samples, and must comply with the following:

(a) Surface water samples collected from shallow water should not include bottom sediment. In shallow moving water, downstream samples must be collected first to avoid disturbances from the bottom sediments.

(b) Each water body over three feet deep that is sampled must be checked for stratification, and each stratum must be checked for contamination using field parameters. Each stratum showing evidence of contamination must be separately analyzed. If no stratum shows such evidence, a composite sample having equal parts of water from each stratum must be analyzed.

(c) Sediment samples must be taken at each location from which surface water samples are taken, and should consist of the upper five centimeters of sediment.

(viii) Water supply well sampling techniques. Sampling methods must be consistently applied each time a well is sampled and must comply with the following:

(a) Samples should be collected directly from the well so as to yield water representative of the formations supplying the well. If this is not possible, samples must be collected as near to the well as possible and before the water is softened, filtered, or heated.

(b) If possible, samples must be collected before the water enters the pressure tank, otherwise the water must run long enough to flush water stored in the tank and pipes.

(c) Before sampling, water must be evacuated from the well to ensure a fresh sample

of aquifer water.

(d) If samples are collected from a tap, aerators, filters, or other devices must be removed before sampling.

(ix) Corrective action. Standard operating procedures must be established which describe the procedures used to identify and correct deficiencies in the sample collection process. The standard operating procedure shall specify that each corrective action must be documented in the sampling report submitted to the department, with a description of the deficiency, the corrective action taken, and the persons responsible for implementing the corrective action. Any alterations to the field sampling procedures shall be included as an amendment to the site analytical plan.

(4) Laboratory procedures.

(i) Laboratory analyses must be performed by a laboratory currently certified under the appropriate approval categories by the New York State Department of Health's Environmental Laboratory Approval Program (ELAP).

(ii) The site analytical plan should contain the standard operating procedures of all laboratory activities related to the environmental monitoring plan. Any revisions to these standard operating procedures must be documented. Standard operating procedures should be available for the following, at a minimum:

(a) receipt, storage and handling of samples;

(b) sample scheduling to ensure that holding time requirements are met;

(c) reagent/standard preparation;

(d) general laboratory techniques such as glassware cleaning procedures, operation of analytical balances, pipetting techniques and use of volumetric glassware;

(e) description of how analytical methods are actually to be performed including precise reference to the analytical method used; and not a simple reference to standard methods; and

(f) standard operating procedures for equipment calibration and maintenance to ensure that laboratory equipment and instrumentation are in working order, including, but not limited to procedures and schedules for calibration and maintenance in accordance with manufacturers' specifications; and

(g) for a corrective action, standard operating procedures must be established for identifying and correcting deficiencies in the laboratory procedures. The standard operating procedure shall specify that each corrective action must be documented in the sampling event report submitted to the department with a description of the deficiency, the corrective action taken, and the person responsible for implementing the corrective action. Any alterations to the laboratory procedures shall be included as an amendment to the site analytical plan.

(5) Data quality assessment. At the conclusion of each sampling event and analysis of the samples collected, data quality assessment shall occur. A data quality assessment report must be submitted with the results from each sampling event. Data quality assessment shall occur in two phases.

(i) Data validation.

(a) For those sampling events for which only routine parameters are analyzed, the data validation shall be performed by the laboratory that performed the sample analyses.

(b) For those sampling events for which baseline or expanded parameters are analyzed, the data validation shall be performed by a person other than the laboratory that performed the analyses and that is acceptable to the department.

(c) The data validation shall be performed on all analytical data for the facility at a rate acceptable to the department, but not less than five percent of the data generated, and shall consist, at a minimum, of the following:

(1) field records and analytical data are reviewed to determine whether the data are accurate and defensible. All AQA/AQC information shall be reviewed along with any corrective actions taken during that sampling event; and

(2) all data summaries shall be clearly marked to identify any data that are not representative of environmental conditions at the site, or that were not generated in accordance with the site analytical plan.

(ii) Data usability analysis.

(a) The data usability analysis shall be performed on all analytical data for the facility and shall consist of the following:

(1) an assessment to determine if the data quality objectives were met;

(2) for consistency, comparison of the analytical data with the results from previous sampling events;

(3) evaluation of field duplicate results to indicate the samples are representative;

(4) comparison of the results of all field blanks, trip blanks, equipment rinsate blanks, and method blanks with full data sets to provide information concerning contaminants that may have been introduced during sampling, shipping, or analyzing;

(5) evaluation of matrix effects to assess the performance of the analytical method with respect to the sample matrix, and determine whether the data have been biased high or low due to matrix effects;

(6) integration of the field and laboratory data with geological, hydrogeological, and meteorological data to provide information about the extent of contamination, if it occurs; and

(7) comparison of precision, accuracy, representativeness, comparability, completeness, and defensibility of the data generated with that required to meet the data quality objectives established in the site analytical plan.

(6) The following Water Quality Analysis Tables in this section list the routine, baseline, and expanded parameters for analysis of all monitoring samples.

WATER QUALITY ANALYSIS TABLES

ROUTINE PARAMETERS[1]

Common Name[2]	CAS RN[3]	Suggested Methods	PQL[4] (µg/l)
Field Parameters:			
Static water level(in wells and sumps)			
Specific Conductance		9050	
Temperature			
Floaters or Sinkers[5]			
Temperature			
pH		9040	
Eh		9041	
Dissolved Oxygen[6]			
Field Observations[7]			
Turbidity		180.1	
Leachate Indicators:			
Total Kjeldahl Nitrogen		351.1 351.2 351.3	60
Ammonia.....	7664-41-7	351.4 350.1 350.2	200 60
Nitrate.....		350.3	100
Chemical Oxygen Demand.....		9200 410.1 410.2 410.3 410.4	50000 50000 5000 80000
Biochemical Oxygen Demand (BOD_5).....		405.1	2000
Total Organic Carbon.....			
Total Dissolved Solids		9060	
Sulfate.....		160.1 9035	40000
Alkalinity.....		9036 9038	
Phenols.....		310.1	20000
Chloride.....	108-95-2	310.2 8040 9250	6000
Bromide.....		9251	
Total hardness as $CaCO_3$		9252 320.1 130.1 130.2	2000 20000 30000
Inorganic Parameters:			
Cadmium.....	(Total)	3010 7130	40 50
Calcium.....		7131	1
Iron.....	(Total) (Total)	7140 7380	40 100
Lead.....	(Total)	7381 6010	4 400

		7420	1000
Magnesium.....		7421	10
Manganese.....	(Total) (Total)	7450 7460	4 40
Potassium.....		7461	0.8
Sodium.....	(Total) (Total)	7610 7770	40 8

The department may modify this list as necessary.

Notes

[1]This list contains parameters for which possible analytical procedures are provided in EPA Report SW-846 *Test Methods for Evaluating Solid Waste*, third edition, November 1986, as revised December 1987, and *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March, 1979. The regulatory requirements pertain only to the list of parameters; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnote 4.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service Registry Number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 ml samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[5]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[6]Surface water only.

[7]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

BASELINE PARAMETERS[1]

Common Name[2]	CAS RN[3]	Suggested Methods	PQL[4] (µg/l)
Field Parameters:			
Static water level..... (in wells and sumps)			
Specific Conductance.....		9050	
Temperature.....			
Floaters or Sinkers[5].....			
pH.....		9040 9041	

Eh.....			
Dissolved Oxygen[6].....			
Field Observations[7].....		180.1	
Turbidity.....			
Leachate Indicators:			
Total Kjeldahl Nitrogen...		351.1 351.2 351.3	60
Ammonia.....	7664-41-7	351.4 350.1 350.2	200 30
Nitrate.....		350.3	100
Chemical Oxygen Demand....		9200 410.1 410.2 410.3	50000 50000 50000
Biochemical Oxygen Demand (BOD_5).....		410.4 405.1	80000 2000
Total Organic Carbon.....			
Total Dissolved Solids....		9060	
Sulfate.....		160.1 9035	40000
Alkalinity.....		9036 9038	
Phenols.....		310.1	20000
Chloride.....		310.2 9250	6000
Bromide.....		9251	
Total hardness as $CaCO_3$ ...		9252	
Color.....		320.1 130.1 130.2 110.1 110.2 110.3	2000 20000 30000 80
Boron.....	7440-42-8		
Inorganic Parameters:			
Aluminum.....			
Antimony.....	(total) (total)	7020 6010 7040	10 300 2000
Arsenic.....	(total)	7041 6010 7060	30 500 10
Barium.....	(total)	7061 6010	20 20
Beryllium.....	(total)	7080 6010 7090	1000 3 50
Cadmium.....	(total)	7091 6010 7130	2 40 50

Calcium.....		7131	1
Chromium.....	(total) (total)	7140 6010 7190	40 70 500
Chromium(Hexavalent)*....	18540-29-9	7191 7195 7196	10 600
Cobalt.....	(total)	7197 7198 6010	30 70
Copper.....	(total)	7200 7201 6010	500 10 60
Cyanide.....		7210	200
Iron.....	(total)	7211 9010	10 200
Lead.....	(total) (total)	7380 7381 6010	100 4 400
Magnesium.....		7420	1000
Manganese.....	(total)	7421 7450	10 4
Mercury.....	(total)	7460	40
Nickel.....	(total)	7461 7470	0.8 2
Potassium.....	(total) (total)	6010 7520 7610	150 400 40
Selenium.....	(total)	6010 7740	750 20
Silver.....	(total)	7741 6010	20 70
Sodium.....		7760	100
Thallium.....	(total) (total)	7761 7770 6010	10 8 400
Vanadium.....	(total)	7840 7841 6010	1000 10 80
Zinc.....	(total)	7910 7911 6010 7950 7951	2000 40 20 50 0.5
Organic Parameters:			
Acetone.....	67-64-1	8260	100
Acrylonitrile.....	107-13-1	8030 8260	5 200
Benzene.....	71-43-2	8020 8021 8260	2 0.1 5
Bromochloromethane.....	74-97-5	8021 8260	0.1 5
Bromodichloromethane.....	75-27-4	8010 8021	1 0.2

		8260	5
Bromoform; Tribromomethane	75-25-2	8010 8021 8260	2 15 5
Carbon disulfide.....	75-15-0	8260	100
Carbon tetrachloride.....	56-23-5	8010 8021 8260	1 0.1 10
Chlorobenzene.....	108-90-7	8010 8020 8021 8260	2 2 0.1 5
Chloroethane; Ethyl chloride.....	75-00-3	8010 8021	5 1
Chloroform; Trichloromethane.....	67-66-3	8010 8021	0.5 0.2
Dibromochloromethane; Chlorodibromomethane....	124-48-1	8260 8010 8021	5 1 0.3
1,2-Dibromo-3-chloropro-pane; DBCP.....	96-12-8	8260 8011 8021	5 0.1 30
1,2-Dibromoethane; Ethyl-ene dibromide; EDB.....	106-96-4	8260 8011 8021	25 0.1 10
o-Dichlorobenzene; 1,2-Dichlorobenzene.....	95-50-1	8026 8010 8020 8021 8120 8260	5 2 5 0.5 10 5
p-Dichlorobenzene; 1,4-Dichlorobenzene.....	106-46-	8270 8010 8020 8021 8120 8260	10 2 5 0.1 15 5
trans-1,4-Dichloro-2-bu- tene.....		8270	10
1,1-Dichloroethane; Ethylidene chloride.....	110-57-6 75-34-3	8260 8010 8021	100 1 0.5
1,2-Dichloroethane; Ethylene dichloride.....	107-06-2	8260 8010 8021	8 0.5 0.3
1,1-Dichloroethylene;		8260	5
1,1-Dichloroethene;		8010	1
Vinylidene chloride.....	75-35-4	8021	0.5
cis-1,2-Dichloroethylene;		8260	5
cis-1,2-Dichloroethene..		8021	0.2
trans-1,2-Dichloroethyl-ene;	156-59-2	8260	5
trans-1,2-Dichloro- ethene.....	156-60-5	8010 8021	1 0.5
1,2-Dichloropropane;		8260	5
Pro-pylene dichloride.....	78-87-5	8010 8021	0.5 0.05
cis-1,3-Dichloropropene...		8260	5

		8010	20
trans-1,3-Dichloropropene.	10061-01-5 10061-02-6	8260 8010 8260	10 5 10
Ethylbenzene.....	100-41-4	8020 8221 8260	2 0.05 5
2-Hexanone; Methyl butyl ketone.....	591-78-6	8260	50
Methyl bromide; Bromo- methane.....	74-83-9	8010 8021	20 10
Methyl chloride; Chloro- methane.....	74-87-3	8010 8021	1 0.3
Methylene bromide; Dibro- momethane.....	74-95-3	8010 8021	15 20
Methylene chloride; Dichloromethane....	75-09-02	8260 8010 8021	5 0.2 10
Methyl ethyl ketone; MEK; 2-Butanone....	78-93-3	8260 8010	100 40
4-Methyl-2-pentanone; Methyl isobutyl ketone..	108-10-1	8260 8015	10 5
Styrene.....	100-42-5	8260 8020 8021	100 1 0.1
1,1,1,2-Tetrachloroethane.	630-20-6	8260 8010 8021	10 5 5
1,1,2,2-Tetrachloroethane....	79-34-5	8260 8010 8021	0.5 0.1 0.05
Tetrachloroethylene; Tet- rachloroethene; Per-chloroethylene.....	127-18-4	8260 8010 8021	5 0.5 0.5
Toluene.....	108-88-3	8260 8020 8021	5 2 0.1
1,1,1-Trichloroethane; Methylchloroform.....	71-55-6	8260 8010 8021	5 0.3 0.3
1,1,2-Trichloroethane.....	79-00-5	8260 8010	5 0.2
Trichloroethylene; Tri- chloroethene.....	79-01-6	8260 8010 8021	5 1 0.2
Trichlorofluoromethane; CFC-11.....	75-69-4	8260 8010 8021 8260	5 10 0.3 5
1,2,3-Trichloropropane....	96-18-4	8010 8021 8260	10 5 15
Vinyl acetate.....	108-05-4	8260	50
Vinyl chloride; Chloro- ethene.....	75-01-4	810 8021 8260	2 0.4 10
Xylenes.....	1330-20-7	8020 8021	5 0.2

		8260	5

The department may modify this list as necessary.

Notes

[1]This list contains 47 volatile organics for which possible analytical procedures provided in EPA Report SW-846 *Test Methods for Evaluating Solid Waste*, third edition, November 1986, as revised December 1987, includes Method 8260; 25 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods; and additional parameters for which possible procedures are provided in *Methods for Chemical Analysis of Water and Wastes*, USEPA-600/4-79-020, March, 1979. The regulatory requirements pertain only to the list of parameters; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnote 4.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service Registry Number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 ml samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[5]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[6]Surface water only.

[7]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

[*]The department may waive the requirement to analyze Hexavalent Chromium provided that Total and Hexavalent and Trivalent Chromium values do not exceed 0 .05 mg/l.

EXPANDED PARAMETERS[1]

Common Name[2]	CAS RN[3]	Suggested Methods	PQL[4] (µg/l)
Field Parameters:			
Static water level..... (in wells and sumps)			
Specific Conductance.....		9050	
Temperature.....			
Floaters or Sinkers[5].....			
pH.....		9040 9041	

Eh.....			
Dissolved Oxygen[6].....			
Field Observations[7].....		180.1	
Turbidity.....			
Leachate Indicators:			
Total Kjeldahl Nitrogen...		351.1 351.2 351.3	60
Ammonia.....	7664-41-7	351.4 350.1 350.2	200 30
Nitrate.....		350.3	100
Chemical Oxygen Demand....		9200 410.1 410.2 410.3 410.4	50000 50000 50000 80000
Biochemical Oxygen Demand (BOD_5).....		405.1	2000
Total Organic Carbon.....			
Total Dissolved Solids....		9060	
Sulfate.....		160.1 9035	40000
Alkalinity.....		9036 9038	
Phenols.....		310.1	20000
Chloride.....	108-95-2	310.2 8040 9250	6000
Bromide.....		9251	
Total hardness as $CaCO_3$ ...	24959-67-9	9252 320.1 130.1 130.2	2000 20000 30000
Color.....		110.1 110.2 110.3	80
Boron.....	7440-42-8		
Inorganic Parameters:			
Aluminum.....	(total)	7020	10
Antimony.....	(total)	6010 7040 7041	300 2000 30
Arsenic.....	(total)	6010 7060 7061	500 10 20
Barium.....	(total)	6010	20
Beryllium.....	(total)	7080 6010 7090	1000 3 50
Cadmium.....	(total)	7091 6010 7130	2 40 50

Calcium.....		7131	1
Chromium.....	(total) (total)	7140 6010 7190	40 70 500
Chromium(Hexavalent)*....	18540-29-9	7191 7195 7196 7197	10 600 30
Cobalt.....	(total)	7198 6010 7200	70 500
Copper.....	(total)	7201 6010	10 60
Cyanide.....		7211	10
Iron.....	(total) (total)	9010 7380	200 100
Lead.....	(total)	7381 6010 7420	4 400 1000
Magnesium.....		7421	10
Manganese.....	(total) (total)	7450 7460	4 40
Mercury.....	(total)	7461 7470	0.8 2
Nickel.....	(total)	6010 7520	150 400
Potassium.....	(total)	7610	40
Selenium.....	(total)	6010 7740 7741	750 20 20
Silver.....	(total)	6010 7760 7761	70 100 10
Sodium.....	(total)	7770	8
Thallium.....	(total)	6010 7840 7841	400 1000 10
Tin.....	(total)	6010	40
Vanadium.....	(total)	6010 7910 7911	80 2000 40
Zinc.....	(total)	6010 7950 7951	20 50 0.5
Organic Parameters:			
Acenaphthene....	83-32-9	8100 8270	200 10
Acemaphthylene	208-96-8	8100 8270	200 10
Acetone.....	67-64-1	8260	100
Acetonitrile; Methyl cyanide.....	75-05-8	8015	100
Acetophenone.....	98-86-2	8270	10
2-Acetylaminofluorene; 2-AAF.....	53-96-3	8270	20

Acrolein.....	107-02-8	8030 8260	5 100
Acrylonitrile.....	107-13-1	8030 8260	5 200
Aldrin.....	309-00-2	8080 8270	10 5
Ally chloride.....	107-05-1	8010 8260	5 10
4- aminobiphenyl...	92-67-1	8270	20
Anthracene.....	120-12-7	8100 8270	200 10
Benzene.....	71-43-2	8020 8021 8260	2 0.1 5
Benzo[a]anthracene; Benzanthracene.....	56-55-3	8100 8270	200 10
Benzo[b]fluoranthene..	205-99-2	8100 8270	200 10
Benzo[k]fluoranthene..	207-08-9	8100 8270	200 10
Benzo[ghi]perylene..	191-24-2	8100 8270	200 10
Benzo[a]pyrene...	50-32-8	8100 8270	200 10
Benzyl alcohol..	100-51-6	8270	20
alpha-BHC.....	319-84-6	8080 8270	0.05 10
beta-BHC....	319-85-7	8080 8270	0.05 10
delta-BHC.....	319--86-8	8080 8270	0.1 20
gamma-BHC; Lindane...	58-89-9	8080 8270	0.05 20
Bis(2-chloroethoxy)methane	111-91-1	8110 8270	5 10
Bis(2-chloroethyl) ether; Dichloroethyl ether...	111-44-4	8110 8270	3 10
Bis-(2-chloro-1-methyl-ethyl) ether; 2,21-Di- chlorodiisopropyl ether	108-60-1	8110 8270	10 10
DCIP, See note 9.....			
Bis(2-ethylhexyl)phthalate Bromochloromethane; Chlorobromomethane....	117-81-7 74-97-5	8060 8021 8260	20 0.1 5
Bromodichloromethane; Dibromochloromethane...	75-27-4	8010 8021	1 0.2
Bromoform; Tribromomethane	75-25-2	8260 8010 8021	5 2 15
4-Bromophenyl phenyl ether	101-55-3	8260 8110	5 25
Butyl benzyl phthalate; Benzyl butyl phthalate..	85-68-7	8270 8060	10 5
Carbon disulfide.....		8270	10

Carbon tetrachloride.....	75-15-0 56-23-5	8260 8010 8021 8260	100 1 0.1 10
Chlordane.....	See Note 10	8080 8270	0.1 50
p-Chloroaniline.....	106-47-8	8270	20
Chlorobenzene.....	108-90-7	8010 8020 8021 8260	2 2 0.1 5
Chlorobenzilate.....	510-15-6	8270	10
p-Chloro-m-cresol; 4-Chloro-3-methylphenol...	59-50-7	8040 8270	5 20
Chloroethane; Ethyl chloride.....	75-00-3	8010 8021 8260	5 1 10
Chloroform; Trichloromethane.....	67-66-3	8010 8021 8260	0.5 0.2 5
2-Chloronaphthalene...	91-58-7	8120 8270	10 10
2-Chlorophenol.....	95-57-8	8040 8270	5 10
4-Chlorophenyl phenyl ether.....	7005-72-3	8110 8270	40 10
Chloroprene.....	126-99-8	8010 8260	50 20
Chrysene.....	218-01-9	8100 8270	200 10
m-Cresol; 3-methylphenol..	108-39-4	8270	10
o-Cresol; 2-methylphenol..	95-48-7	8270	10
p-Cresol; 4-methylphenol..	106-44-5	8270	10
2,4-D; 2,4-Dichlorophen- oxyacetic acid.....	94-75-7	8150	10
4,41-DDD.....	72-54-8	8080	0.1
4,41-DDE.....		8270	10
4,41-DDT.....	72-55-9	8080	0.05
Diallate.....		8270	10
Dibenz[a,h]anthracene.....	50-29-3	8080 8270	0.1 10
Dibenzofuran.....	2303-16-4	8270	10
Dibromochloromethane; Chlorodibromomethane....	53-70-3 132-64-9 124-48-1	8100 8270 8270 8010 8021 8260	200 10 10 1 0.3 5
1,2-Dibromo-3-chloro- propane; DBCP.....	96-12-8	8011 8021 8260	0.1 30 25
1,2-Dibromoethane; Ethylene dibromide; EDB....	106-93-4	8011 8021 8260	0.1 10 5

Di-n-butyl phthalate.....	84-74-2	8060	5
o-Dichlorobenzene; 1,2-Dichlorobenzene.....	95-50-1	8270 8010 8020 8021 8120 8260	10 2 5 0.5 10 5
m-Dichlorobenzene; 1,3-Dichlorobenzene.....	541-73-1	8270 8010 8020 8021 8120 8260	10 5 5 0.2 10 5
p-Dichlorobenzene; 1,4-dichlorobenzene....	106-46-7	8270 8010 8020 8021 8120 8260	10 2 5 0.1 15 5
3,31-Dichlorobenzidine....		8270	10
trans-1,4-Dichloro- 2-butene.....	91-94-1	8270	10
Dichlorodifluoromethane; CFC 12.....	110-57-6 75-71-8	8260 8021	100 0.5
1,1-Dichloroethane; Ethyldidene chloride....	75-34-3	8260 8010	5 1
1,2-Dichloroethane; Ethylene dichloride....	107-06	8021 8260 8010	0.5 5 .05
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride.....	75-35-4	8021 8260 8010	0.3 5 1
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene..		8021 8260	0.5 5
trans-1,2-Dichloroethylene	156-59-2	8021 8260	0.2 5
trans-1,2-Dichloroethene	156-60-5	8260 8010	5 1
2,4-Dichlorophenol.....	120-83-2	8021 8260 8040 8270	0.5 5 5 10
2,6-Dichlorophenol.....	87-65-0	8270	10
1,2-Dichloropropane; Propylene dichloride....	78-87-5	8010 8021 8260	0.5 0.05 5
1,3-Dichloropropane; Trimethylene dichloride.	142-28-9	8021 8260	0.3 5
2,2-Dichloropropane; Isopropylidene chloride.	594-20-7	8021 8260	0.5 15
1,1-Dichloropropene...	563-58-6	8021	0.2
cis-1,3-Dichloropropene..	10061-01-5	8260 8010	5 20
trans-1,3-Dichloropropene	10061-02-6	8260 8010	10 5
Dieldrin.....	60-57-1	8260 8080	10 0.05
Diethyl phthalate....	84-66-2	8270	10

		8060	5
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin.....	297-97-2	8270 8141 8270	10 5 20
Dimethoate.....	60-51-5	8141	3
p-(Dimethylamino)azo- benzene.....		8270	20
7,12-Dimethylbenz[a]- anthracene.....	60-11-7	8270	10
3,31-Dimethylbenzidine....	57-97-6	8270	10
2,4-Dimethylphenol; m-Xylenol.....	199-93-7 105-67-9	8270 8040	10 5
Dimethyl phthalate...		8270	10
m-Dinitrobenzene...	131-11-3	8060	5
4,6-Dinitro-o-cresol 4,6- Dinitro-2-methylphenol..	99-65-0	8270 8270	10 20
2,4-Dinitrophenol....	534-52-1	8040 8270	150 50
2,4-Dinitrotoluene.....	51-28-5	8040 8270	150 50
2,6-Dinitrotoluene....	121-14-2	8090 8270	0.2 10
Dinoseb; DNBP; 2-sec- Butyl-4,6-dinitrophenol.	606-20-2	8090 8270	0.1 10
Di-n-octyl phthalate...	88-85-7 117-84-0	8150 8270 8060 8270	1 20 30 10
11 Diphenylamine.....	122-39-4	8270	10
Disulfoton.....	298-04-4	8140 8141	2 0.5
Endosulfan I.....	959-98-8	8270 8080	10 0.1
Endosulfan II.....	33213-65-9	8270 8080	20 005
Endosulfan sulfate.....		8270	20
Endrin.....	1031-07-8	8080 8270	0.5 10
Endrin aldehyde.....	72-20-8	8080	0.1
Ethylbenzene.....	7421-93-4	8270 8080 8270	20 0.2 10
Ethyl methacrylate.....	100-41-4	8020 8021	2 0.05
Ethyl methanesulfonate....		8260	5
Famphur.....	97-63-2	8015	5
Fluoranthene.....		8260 8270	10 10
Fluorene.....	62-50-0 52-85-7	8270 8270	20 20
Heptachlor.....	206-44-0	8100 8270	200 10
Heptachlor epoxide.....	86-73-7	8100	200

		8270	10
Hexachlorobenzene.....	76-44-8	8080 8270	0.05 10
Hexachlorobutadiene.....	1024-57-3 118-74-1	8080 8270 8120	1 10 0.5
Hexachlorocyclopentadiene	87-68-3	8270 8021 8120	10 0.5 5
Hexachloroethane.....	77-47-7	8260 8270 8120	10 10 5
Hexachloropropene.....		8270	10
2-Hexanone; Methyl butyl ketone.....	67-72-1	8120 8260	0.5 10
Indeno(1,2,3-cd)pyrene...	1888-71-7 591-78-6 193-39-5	8270 8270 8260 8100 8270	10 10 50 200 10
Isobutyl alcohol.....	78-83-1	8015 8240	50 100
Isodrin.....	465-73-6	8270 8260	20 10
Isophorone.....	78-59-1	8090 8270	60 10
Isosafrole.....	120-58-1	8270	10
Kepone.....	143-50-0	8270	20
Methacrylonitrile.....	126-98-7	8015 8260	5 100
Methapyrilene.....	91-80-5	8270	100
Methoxychlor....	72-43-5	8080 8270	2 10
Methyl bromide; Bromomethane...	74-83-9	8010 8021	20 10
Methyl chloride; Chloromethane...	74-87-3	8010 8021	1 0.3
3-Methylcholanthrene....	56-49-5	8270	10
Methyl ethyl ketone; MEK; 2-Butanone.....	78-93-3	8015 8260	10 100
Methyl iodide;Iodomethane	74-88-4	8010 8260	40 10
Methyl methacrylate..	80-62-6	8015 8260	2 30
Methyl methanesulfonate..	66-27-3	8270	10
2-Methylnaphthalene....	91-57-6	8270	10
Methyl parathion; Parathion methyl....	298-00-0	8140 8141 8270	0.5 1 10
4-Methyl-2-pentanone; Methyl isobutyl ketone..	108-10-1	8015 8260	5 100
Methylene bromide; Dibromomethane...	74-95-3	8010 8021 8260	15 20 10

Methylene chloride; Dichloromethane....	75-09-2	8010 8021 8260	5 0.2 10
Naphthalene.....	91-20-3	8021 8100 8260 8270	0.5 200 5 10
1,4-Naphthoquinone.....	130-15-4	8270	10
1-Naphthylamine.....	134-32-7	8270	10
2-Naphthylamine.....	91-59-8	8270	10
o-Nitroaniline; 2-Nitroaniline.....	88-74-4	8270	50
m-Nitroaniline;			
3-Nitroaniline....	99-09-2	8270	50
p-Nitroaniline; 4-Nitroaniline.....	100-01-6	8270	20
Nitrobenzene...	98-95-3	8090 8270	40 10
o-Nitrophenol; 2-Nitrophenol...	88-75-5	8040 8270	5 10
p-Nitrophenol; 4-Nitrophenol....	100-02-7	8040 8270	10 50
N-Nitrosodi-n-butylamine.	924-16-3	8270	10
N-Nitrosodiethylamine....	55-18-5	8270	20
N-Nitrosodimethylamine...	62-75-9	8070	2
N-Nitrosodiphenylamine...	86-30-6	8070	5
N-Nitrosodipropylamine; N-Nitroso-N-dipropyl- amine; Di-n-propylni- trosamine.....	621-64-7	8070	10
N-Nitrosomethylethalamine	10595-95-6	8270	10
N-Nitrosopiperidine..	100-75-4	8270	20
N-Nitrosopyrrolidine..	930-55-2	8270	40
5-Nitro-o-toluidine.....	99-55-8	8270	10
Parathion.....	56-38-2	8141 8270	0.5 10
Pentachlorobenzene.....	608-93-5	8270	10
Pentachloronitrobenzene..	82-68-8	8270	20
Pentachlorophenol.....	87-86-5	8040 8270	5 50
Phenacetin.....	62-44-2	8270	20
Phenanthrene.....	85-01-8	8100 8270	200 10
Phenol.....	108-95-2	8040	1
p-Phenylenediamine...	106-50-3	8270	10
Phorate.....	298-02-2	8140 8141 8270	2 0.5 10
Polychlorinated biphenyls; PCB's; Aroclors...	See Note 11	8080 8270	50 200
Polychlorinated dibenzo-p-dioxins; PCDD's.....	See Note 12	8280	0.01

Polychlorinated dibenzo-furans; PCDF's.....	See Note 13	8280	0.01
Pronamide.....	23950-58-8	8270	10
Propionitrile; Ethyl cyanide.....	107-12-0	8015 8260	60 150
Pyrene.....	129-00-0	8100 8270	200 10
Safrole.....	94-59-7	8270	10
Silvex; 2,4,5-TP.....	93-72-1	8150	2
Styrene.....	100-42-5	8020 8021 8260	1 0.1 10
2,4,5-T; 2,4,5-trichloro- phenoxyacetic acid.....	93-76-5	8150	2
1,2,4,5-Tetrachlorobenzene 2,3,7,8-Tetrachlorodi-benzo-p-dioxin; 2,3,7,8-TCDD.....	95-94-3 1746-01-6 630-20-6	8270 8280	10 0.005
1,1,1,2-Tetrachloroethane.	79-34-5	8010 8021 8260	5 0.05 5
1,1,2,2-Tetrachloroethane.	127-18-4	8010 8021 8260	0.5 0.1 5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene.....	58-90-2	8010 8021 8260	0.5 0.5 5
2,3,4,6-Tetrachlorophenol.	108-88-3	8270	10
Toluene.....	95-53-4	8020 8021 8260	2 01 5
o-Toluidine.....	See Note 14	8270	10
Toxaphene.....	120-82-1	8080	2
1,2,4-Trichlorobenzene....	71-55-6	8021 8120 8260 8270	0.3 0.5 10 10
1,1,1-Trichloroethane; Methylchloroform.....	79-00-5	8010 8021 8260	0.3 0.3 5
1,1,2-Trichloroethane.....	79-01-6	8010 8260	0.2 5
Trichloroethylene; Trichloroethene.....	75-69-4	8010 8021 8260	1 0.2 5
Trichlorofluoromethane; CFC-11.....	95-95-4 88-06-2	8010 8021 8260	10 0.3 5
2,4,5-Trichlorophenol...		8270	10
2,4,6-Trichlorophenol.....	96-18-4	8040 8270	5 10
1,2,3-Trichloropropane...		8010 8021 8260	10 5 15
0,0,0-Triethyl phosphoro-	126-68-1	8270	10

thioate.....			
sym-Trinitrobenzene.....	99-35-4	8270	10
Vinyl acetate.....	108-05-4	8260	50
Vinyl chloride; Chloroethene....	75-01-4	8010 8021 8260	2 0.4 10
Xylene (total).....	See Note 15	8020 8021 8260	5 0.2 5

The department may modify this list as necessary. EXPANDED PARAMETERS[1]

Notes

[1]The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 4 and 5.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4]Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 *Test Methods for Evaluating Solid Waste*, third edition, November 1986, as revised, December 1987 and *Methods for Chemical Analysis of Water and Wastes*, USEPA-600-4/79-020, March, 1979. CAUTION: The methods listed are representative procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

[5]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 ml samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation. [6]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[7]Surface water only.

[8]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

[9]This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2]-chloro- (CAS RN 39638-32-9).

[10]Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 µg/l by method 8270.

[11]Polychlorinated biphenyls (CAS RN 1336-36-3): This category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

[12]Polychlorinated dibenzo-p-dioxins: This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins. The PQL shown is an average value for PCDD congeners. Upon request of the applicant, the department may waive the requirement to analyze for dioxins, where appropriate.

[13]Polychlorinated dibenzofurans: This category contains congener chemicals, including tetrachlrodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners. Upon request of the applicant, the department may waive the requirement to analyze for furans, where appropriate.

[14]Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

[15]Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 µg/L by method 8020 or 8260.

[*]The department may waive the requirement to analyze Hexavalent Chromium provided that Total and Hexavalent and Trivalent Chromium values do not exceed 0.05 mg/l.

§360-2.12 Landfill siting.

(a) Applicability. New landfills and lateral or vertical expansions of existing active landfills must be located on a site that exhibits the following characteristics unless the requirements of subdivision (b) of this section are met. A site selection study will be required only if the applicant proposes a site that does not exhibit all of the characteristics identified in either paragraph (1) or (2) of this subdivision.

(1) In the case of new landfills and lateral or vertical expansions of existing landfills:

(i) the site is not located in an area identified in section 360-1.7(a)(2) of this Part;

(ii) the site complies with the siting restrictions identified in subdivision (c) of this section;

(iii) bedrock subject to rapid or unpredictable groundwater flow must be avoided, unless it can be demonstrated that a containment failure of the facility would not result in contamination entering the bedrock system;

(iv) the site must not be in proximity of any mines, caves or other anomalous features that may alter groundwater flow;

(v) unconsolidated deposits underlying the proposed landfill must either exist or be constructed to be 20 feet or greater in thickness as measured from the base of the constructed liner system; and

(vi) the upper 20 feet of the unconsolidated deposits on the site must consist

predominantly (greater than 50 percent) of soils throughout the vertical section, with a maximum in situ coefficient of permeability of 5 x 10-6 centimeters per second, with no appreciable continuous deposits having a maximum coefficient of permeability of 5 x 10-4 centimeters per second.

(2) In the case of an existing landfill active on or after November 4, 1992 operating under and in compliance with a current Part 360 permit or order on consent, the department may allow lateral or vertical expansions if the site has less than 20 feet of unconsolidated deposits provided that:

(i) the proposed landfill expansion is identified in the local solid waste management plan approved by the department under Subpart 360-15 of this Part as a component of the integrated solid waste management system for the planning unit in which the facility is located and the proposed landfill expansion must be consistent with the goals and objectives of such plan;

(ii) the unconsolidated deposits underlying the proposed landfill exist or are constructed to be 10 feet or greater in thickness as measured from the base of the constructed liner system;

(iii) the applicant demonstrates that the expansion site will have no significant adverse impact on human health, safety, or welfare, the environment, or natural resources; and

(iv) the site complies with subparagraphs (1)(i)-(iv) of this subdivision.

(3) Except in Nassau and Suffolk Counties, in the case of ash monofills for the disposal offly ash treated in a manner consistent with section 360- 3.6(g)(3) of this Part, combined ash, or bottom ash, the department may allow ash monofill development at sites that have less than 20 feet of unconsolidated deposits provided that:

(i) the proposed monofill must be identified in the local solid waste management plan approved by the department under Subpart 360-15 of this Part as a component of the integrated solid waste management system for the planning unit in which the facility is located and the proposed monofill must be consistent with the goals and objectives of such plan;

(ii) the unconsolidated deposits underlying the proposed landfill on the site exist or are constructed to be 10 feet or greater in thickness as measured from the base of the constructed liner system;

(iii) the applicant demonstrates that the monofill site will have no significant adverse impact on the public health, safety or welfare, the environment or natural resources; and

(iv) the site complies with subparagraphs (1)(i)-(iv) of this subdivision.

(b) Exceptions. New landfills and lateral or vertical expansions of existing landfills may be located on sites that do not exhibit the characteristics identified in subdivision (a) of this section provided that the requirements of paragraphs (1) and (2) of this subdivision are met. The department may impose additional requirements to assure that the permitted activity will have no significant adverse impact on the public health, safety or welfare, the environment or natural resources for any site selected pursuant to this subdivision.

(1) The proposed landfill must be identified in the local solid waste management plan approved by the department under Subpart 360-15 of this Part as a component of the

integrated solid waste management system for the planning unit in which the facility is located, and the proposed landfill must be consistent with the goals and objectives of such plan.

(2) The applicant must perform a site selection study and submit a site selection report as part of a complete application. This report must describe the factors that prevent the applicant from using a site exhibiting the characteristics identified in subdivision (a) of this section. Such factors may include, but are not limited to, the proximity to receiving waters or proximity to sewer lines or POTWs to ensure proper management of leachate during the operational and post-closure period of the landfill. The site selection report must also demonstrate that the chosen site will have no significant adverse impact on public health, safety, or welfare, the environment or natural resources, and will be consistent with the provisions of the ECL.

(i) The site selection process must be comprehensive and must identify and evaluate a reasonable range of alternative sites which are feasible considering the capabilities and objectives of the applicant. All of the criteria used to eliminate and evaluate the suitability of the potential sites must be clearly defined and consistently applied. A phased approach must be used, in which a more detailed evaluation of sites occurs as the number of potential sites is reduced.

(a) The applicant must exclude inappropriate siting areas by avoiding the prohibited siting areas identified in section 360-1.7(a)(2) of this Part and applying the landfill siting restrictions identified in subdivision (c) of this section.

(b) The applicant must evaluate potential siting areas to identify alternative sites that are suitable for landfill development. When applying the siting criteria, the evaluation must include the use of the type of data listed in section 360-2.11(a)(2) of this Subpart. Field reconnaissance to confirm the published information and a morphologic evaluation of landforms must be performed to identify the areas which are likely to have thick low permeable soils available within the study area. The applicant must use the following criteria in the landfill site selection study:

(1) Unconsolidated deposits on the site must be those most likely to minimize the migration of contaminants from the landfill. In evaluating the sites, preferred sites should have the greatest possible thickness of these materials to provide a barrier to contaminant migration into bedrock;

(2) bedrock subject to rapid or unpredictable groundwater flow must be avoided unless it can be demonstrated that a containment failure of the facility would not result in contamination entering the bedrock system resulting in a contravention of groundwater standards;

(3) probable groundwater flow patterns and water quality must be considered in finding areas where containment failure would do the least environmental damage and would be easiest to correct;

(4) proximity and hydrogeologic relationship to water supply sources;

(5) natural topography and its impacts upon the proposed facility; and

(6) relationship to mines, caves, or other anomalous hydrogeologic features that might alter groundwater flow.

(c) Preliminary field investigations must be conducted at the highest ranking available site or sites, to identify any major obstacles to site development, and to provide sufficient data to differentiate among the preferred sites and support a siting decision.

(ii) The report must describe the process used to select the proposed site, including evaluation criteria, deferral (elimination) criteria, assumptions, data sources, decisionmaking means (such as numerical ranking systems) and other factors used to make the siting decisions. The report must demonstrate that, considering the capabilities and objectives of the applicant, a reasonable range of alternative sites available throughout the planning unit in which the project is proposed were evaluated and that the selected site is the most appropriate alternative. The decisionmaking process must be described to provide a clear understanding of how and why the siting decisions were made, and at a level of detail sufficient to provide for a comparative assessment of the alternatives discussed. The report must also include maps of sites and describe the results of the field investigations, the comparative advantages and disadvantages of the highest ranked sites, and the basis for selecting the proposed sites.

(c) Landfill siting restrictions. In addition to the provisions of section 360-1.7(a)(2) of this Part, the following landfill siting restrictions apply.

(1) Primary water supply, and principal aquifers:

(i) Except in Nassau and Suffolk Counties, and except as provided in subparagraph (ii) of this paragraph, no new landfill and no lateral or vertical expansion of an existing landfill may be constructed over primary water supply aquifers, principal aquifers, within a public water supply stabilized cone of depression area, or within a minimum distance of 100 feet to surface waters that are actively used as sources of municipal supply. Greater separation distances may be required in accordance with subparagraph (iii) of this paragraph.

(ii) The commissioner may allow lateral or vertical expansions of landfills, in operation pursuant to a valid Part 360 permit to operate or Order on Consent as of December 31, 1988, that are on principal aquifers, if there is a demonstrated public need for the capacity provided by the expansion that cannot be reasonably provided elsewhere, and that outweighs the potential risk of contamination to the aquifer. Additionally, the landfill expansion must promote the implementation of the State's solid waste management policy set forth in ECL 27-0106 and must be an integral part of any local solid waste management plan that may be in effect for the planning unit (as defined in ECL 27-0107) within which the facility is located; and the expansion must comply with all other requirements of this Part. However, the maximum time period allocated by the commissioner for any such expansion must not allow operation beyond December 31, 1995. In granting any expansion pursuant to this subparagraph, the department must impose specific conditions that are reasonably necessary to assure that the expansion will, to the extent practicable, have no significant adverse impact on public health or safety, welfare, the environment ornatural resources, and such approval contributes to the proper management of solid waste at the earliest possible time.

(iii) The required horizontal separation between deposited solid waste, and primary water supply aquifers, principal aquifers, public water supply stabilized cone of depression areas, or surface waters that are actively used as sources of municipal supply must be sufficient (based on the rate and direction of groundwater and surface water flow, landfill

design and requirements for corrective action in the event of failure of the landfill's containment system) to preclude contravention of groundwater standards in the aquifer and surface water standards in waters that are currently used as a source of municipal drinking water supply.

(2) Floodplains. Owners or operators of new landfill units, existing landfill units, and lateral expansions located in 100-year floodplains must demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.

(3) Aircraft safety.

(i) A landfill or landfill subcell into which putrescible solid waste is to be disposed must be located no closer than 5,000 feet from any airport runway end used by piston-powered fixed-wing aircraft and no closer than 10,000 feet from any airport runway end used by turbine-powered fixed-wing aircraft.

(ii) A landfill or landfill subcell into which putrescible solid waste is to be disposed, which is located within five miles of any airport runway end, must not, in the opinion of the Federal Aviation Administration, pose a potential bird or obstruction hazard to aircraft.

(iii) The permittee of an existing landfill or landfill subcell that is authorized to dispose of putrescible solid waste and that is located less than 10,000 feet from any airport runway end used by turbine-powered fixed- wing aircraft or less than 5,000 feet from any airport runway end used only by piston-powered fixed-wing aircraft must provide in its permit renewal application documentation that the Federal Aviation Administration believes the landfill or landfill subcell does not pose a bird hazard to aircraft.

(iv) Landfills containing only nonputrescible solid waste may be located less than 10,000 feet from any airport runway end used by turbine-powered fixed-wing aircraft or less than 5,000 feet from any airport runway end used only by piston-powered fixed-wing aircraft, if in the opinion of the Federal Aviation Administration they will not present a safety hazard to air traffic.

(v) The final elevation of a new landfill or expansion of an existing landfill must not extend more than 200 feet above the highest elevation of the land surface that existed prior to landfill development, unless the Federal Aviation Administration believes that the proposed fill height in excess of 200 feet will not present a safety hazard to air traffic.

(4) Unstable areas. A landfill must not be located in unstable areas where inadequate support for the structural components of the landfill exists or where changes in the substrate below or adjacent to the landfill are capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. An application for expansion of an existing landfill must demonstrate that adequate support for the structural components of the landfill exists or can be engineered to support any additional loads that may be generated by continued operation of the facility. For purposes of this paragraph:

(i) Unstable area means a location that is susceptible to natural or human- induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can

include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

(ii) Structural components means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the landfill that is necessary for protection of human health and the environment.

(iii) Poor foundation conditions means those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of a landfill.

(iv) Areas susceptible to mass movement means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the landfill because of natural or human-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding and rock fall.

(v) Karst terrains means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terrains include, but are not limited to sinkholes, sinking streams, caves, large springs and blind valleys.

(5) Unmonitorable or unremediable areas. New landfills must not be located in areas where environmental monitoring and site remediation cannot be conducted. Identification of these areas must be based upon ability to sufficiently characterize groundwater and surface water flow to locate upgradient and downgradient directions; ability to place environmental monitoring points which will detect releases from the landfill; ability to characterize and define a release from the landfill and determine what corrective actions may be necessary; and the ability to carry out those corrective actions. Lateral expansions adjacent to existing landfills which are already contaminating groundwater may be allowed by the department if the proposed expansion area can be constructed in a way that demonstrates compliance with the regulations. This may be demonstrated using remedial actions at the existing site resulting in a demonstrated improvement in groundwater quality; and any additional monitoring requirements that the department needs to ensure the integrity of the expansion area, such as leakage detection lysimeters installed beneath the new liner, statistical triggers of groundwater monitoring, tracers, additional monitoring wells surrounding the entire site, and any other monitoring methods required by the department.

(6) Fault areas. New landfills and lateral expansions shall not be located within 200 feet of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the department that an alternative setback distance of less than 200 feet will not result in damage to the structural integrity of the landfill unit and will be protective of human health and the environment.

(7) Seismic impact zones. New landfills and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the department that all permanent containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration

in lithified earth material for the site pursuant to the provisions of section 360-2.7(b)(7) of this Subpart.

(8) Federally regulated wetlands. For the purpose of this Subpart, federally regulated wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marsh, bogs and similar areas. New landfills and lateral expansions shall not be located in federally regulated wetlands, unless the appropriate permits are obtained from the U.S. Army Corps of Engineers, and unless the owner or operator can make the following demonstrations to the department, to the extent required under federal or State law.

(i) The presumption that a practicable alternative to the proposed landfill is available, which does not involve federally regulated wetlands, is clearly rebutted.

(ii) The construction and operation of the landfill will not:

(a) cause or contribute to violations of any applicable water quality standard;

(b) violate any applicable toxic effluent standard or prohibition;

(c) jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat; and

(d) violate any requirement for the protection of a marine sanctuary.

(iii) The landfill will not cause or contribute to significant degradation of federally regulated wetlands. The owner or operator must demonstrate the integrity of the landfill and its ability to protect ecological resources by addressing the following factors:

(a) erosion, stability and migration potential of native wetland soils, muds, and deposits used to support the landfill;

(b) erosion, stability and migration potential of dredged and fill materials used to support the landfill;

(c) the volume and chemical nature of the waste managed in the landfill;

(d) impacts from release of the solid waste on fish, wildlife, and other aquatic resources and their habitat;

(e) the potential effects on catastrophic release of waste to the federally regulated wetland and the resulting impacts on the environment; and

(f) any additional factors, as necessary, to demonstrate that ecological resources in the federally regulated wetland are sufficiently protected.

(iv) Steps have been taken to attempt to achieve no net loss of federally regulated wetlands to the extent required under federal or State law (as defined by acreage and function) by first avoiding impacts to federally regulated wetlands to the maximum extent practicable, then minimizing unavoidable impacts to the maximum extent practicable, and finally by offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g. restoration of existing degraded wetlands or creation of new wetlands).

(v) Sufficient information is available to make a reasonable determination with respect to these demonstrations.
