Fourth Semiannual Monitoring (SA4) Report (July – December 2017)

Site Management Plan Monitoring

Former Clifton Manufactured Gas Plant
Staten Island, New York
NYSDEC Site No.: 2-43-023
Order on Consent Index #: D2-0001-98-04

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AECOM

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May 2018

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List of Acronyms

AWQSGV	Ambient Water Quality Standards and Guidance Values
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CAMP	Community Air Monitoring Program
COD	Chemical Oxygen Demand
DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
GC/MS	Gas Chromatograph/Mass Spectrometry
IC	Institutional Control
ICP	Inductively Coupled Plasma
LCS	Laboratory Control Standard
MGP	Manufactured Gas Plant
MNA	Monitored Natural Attenuation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NTU	Nephelometric Turbidity Unit
NYSDEC	New York State Department of Environmental Conservation
ORP	Oxidation Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbon
Report	Fourth Semiannual Monitoring (SA4) Report
SA	Semiannual
Site	Former Clifton Manufactured Gas Plant located in Staten Island, New York
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
USEPA	United States Environmental Protection Agency
WWTP	Waste Water Treatment Plant

Measurements and Units

bgs	Below Ground Surface
ft	Feet
in	Inch
µg/L	Micrograms per Liter
ND	Not Detected

1.0 Introduction

This Fourth Semiannual (SA4) Monitoring Report (Report) (July – December 2017) has been prepared by AECOM, on behalf of National Grid, to evaluate the on-going performance and effectiveness of the engineering and institutional controls at the Former Clifton Manufactured Gas Plant (the Site, Figure 1), located in Staten Island, New York. This Report summarizes and documents the results of monitoring activities completed at the Site from July through December 2017. Activities were completed in accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved Site Management Plan (AECOM, 2016a; SMP). This is the fourth Semiannual Monitoring Report since the SMP was finalized in January 2016. Interim monitoring activities were completed from 2014 through 2015, and were reported upon separately.

The Site was remediated in accordance with the NYSDEC Records of Decision (NYSDEC, 2004 and NYSDEC, 2006) and, as documented in the SMP. Manufactured Gas Plant (MGP)-related residuals remaining in Site soils and groundwater are being managed in accordance with the SMP. The SMP provides details of institutional controls (ICs) and engineering controls (ECs) that restrict exposure to the MGP-related residuals. The SMP will include Environmental Easements (currently pending finalization), when they are executed in accordance with New York State Environmental Conservation Law (ECL) Article 71, Title 36.

This Report includes details on the following activities completed at the Site during the reporting period:

- Dense Non-Aqueous Phase Liquid (DNAPL) gauging and recovery;
- Groundwater monitoring (gauging and sampling);
- Depressurization pump and treat system operation and maintenance, and State Pollutant Discharge Elimination System (SPDES) permit equivalent-required sampling; and
- Details of any ground-intrusive activities within the SMP limits (none observed).

2.0 Background

The Site is located in Staten Island, New York. The Site, as defined in the SMP, includes all or portions of 25 Willow Avenue and 40 Willow Avenue (Figure 2). The off-Site areas, as defined in the SMP, include all or portions of One Edgewater Street, 89 Willow Avenue (owned by National Grid but outside of the Operable Unit boundaries and considered off-Site for purposes of the SMP), 53 Lynhurst Avenue, properties east of 25 Willow Avenue (Block 2822, Lots 21, 22, 23, 24, and 26), and New York City rights-of-way along Willow Avenue, Bay Street, and Edgewater Street (Figure 2).

The SMP, approved by the NYSDEC in January 2016, concludes the remedy implementation at the Site. The SMP outlines a number of ECs/ ICs required to manage the remaining MGP-related impacts at the Site. In particular, these ECs include:

- Subsurface vertical DNAPL barrier walls;
- A subsurface vertical containment cell;
- A containment cell depressurization pump and treat system;
- Soil cover systems;
- Composite cover systems;
- Passive DNAPL collection systems; and
- Monitored natural attenuation (MNA).

ICs place restrictions on certain Site activities and require periodic monitoring to evaluate the performance and effectiveness of the Site remedy in reducing and mitigating remaining MGP-related residuals at the Site and off-Site areas.

An interim monitoring program of similar scope was in place for approximately two years, from 2014 through 2015, prior to approval of the SMP.

3.0 Monitoring Activities

3.1 Containment Cell Depressurization System

A depressurization pump and treatment system (system) was installed in 2015 and 2016 on the 40 Willow Avenue property to maintain the integrity of the containment cell that was constructed on that property. The system removes groundwater from the containment cell so that pressure does not build up within it and potentially cause a failure. The system is comprised of a groundwater extraction pump, wastewater treatment plant (WWTP), and discharge to New York Harbor via a storm sewer line under a SPDES permit equivalent. The Containment Pad Depressurization System – Final Construction Completion Report (AECOM, 2016b) provides details of the construction of the system. Start-up of the system, and routine operation, began in January 2016.

The system was generally operating as intended at the beginning of the period of this Report. However, a WWTP system shutdown was prompted by the analytical results for the monthly monitoring sample collected on July 28, 2017, in which a benzene concentration of 51 µg/L was reported (exceeding the SPDES permit equivalent limit of 5 µg/L); all other analytes were not detected or within acceptable ranges.

Initial investigations focused on whether this data was a result of laboratory error as the previous detection of benzene in June 2017 was 2.1 µg/L. An initial resampling event indicated benzene was not detected in the effluent, and the system was restarted on August 14, 2017; compliance samples for benzene, toluene, ethylbenzene and xylenes (BTEX) only (following notice to the NYSDEC of the exceedance and concurrence that only BTEX sampling was required for system restart) were collected on August 14 and 15, during which time approximately 2,300 gallons of water was processed and discharged.

Results of the August 14 sample (received after the August 15 sample was collected) indicated benzene was present at 95 µg/L, exceeding the discharge limit, and the system was again taken off-line. The results of the August 15 sample provided further confirmation of benzene in the effluent (detected at 450 µg/L), indicating that the effluent sample results from July were not the result of laboratory or sampling error.

Upon review of the effluent monitoring data, it was concluded that breakthrough of organic constituents through the granulated activated carbon (GAC) media was likely occurring, and replacement of the media was planned for September 11, 2017. The spent GAC was removed from all three vessels in the WWTP and containerized on-site in 55-gallon drums for characterization and disposal. New virgin GAC, meeting the original WWTP design specifications, was placed in all three vessels and wetted for 24 hours before system restart, in accordance with manufacturer requirements and best practices for WWTP operation.

The system was restarted on the afternoon of September 12. In accordance with the SPDES permit equivalent restart sampling requirements and the prior concurrence from NYSDEC waiving requirements for non-BTEX analyses during system restart, compliance samples for BTEX analysis were planned for seven consecutive days upon system restart, and samples were collected on September 13 and September 14 (during which time approximately 2,000 gallons of water was processed and discharged). Results of the September 13 sample (received after the September 14 sample was collected) indicated benzene was still present in system effluent at 150 µg/L, exceeding the discharge limit. The system restart was suspended and the WWTP was taken off-line. The results of the September 14 sample (received the following day) indicated a benzene concentration of 3.4 µg/L, within discharge limits.

The system remained off-line while reviews of system performance were conducted. Over the ensuing weeks, water in the system was periodically recirculated with endpoint and midfluent samples collected

for purposes of evaluating performance of the GAC vessels. Based on review of the data and conversations with the GAC vendor, it was concluded that high benzene concentrations evident in sampled collected immediately upon system restarts were likely due to the affinity for benzene to desorb from the GAC media when there is no flow for an extended period of time. Sampling during extended recirculation confirmed this behavior; namely, that benzene concentrations decreased as recirculation flow time increased.

Accordingly, in preparation for restarting the system, water was first recirculated for approximately 18 hours before resuming groundwater extraction and discharge. Recirculation began in the evening of October 24, and restart of the extraction pump and resumption of system discharge was completed in the afternoon of October 25.

The restart compliance sampling for BTEX only began on October 26, 2017 and continued for seven consecutive days (October 26 through November 1). Analytical results indicated benzene concentrations ranged from not detected to maximum of 0.54 µg/L during this time. All other BTEX components were not detected. Upon completion of the seven-day restart period, normal system operation resumed and the effluent sampling schedule reverted to a monthly frequency.

WWTP system operation was again halted in December, after benzo[a]pyrene was detected at a concentration of 0.27 µg/L in the monthly effluent compliance sample collected on December 21, 2017, exceeding the SPDES permit equivalent limit of 0.09 µg/L. Other polycyclic aromatic hydrocarbons (PAHs) (benzo[a]anthracene, benzo[b]fluoranthene and indeno[1,2,3-cd)pyrene) were also detected in this sample, but below their SPDES permit equivalent discharge limits. After further investigation, including resampling, laboratory or sampler error was suspected as the cause the PAH detections in this sample. The system was subsequently restarted in January, 2018; complete reporting on this restart event will be made in a subsequent report as it occurred outside of the SA4 reporting period.

All effluent sample results for July through December 2017 are summarized in Table 1. A Data Usability Summary Report (DUSR) is included as Appendix A.1.

3.2 DNAPL Collection System

The Site DNAPL collection system is being monitored and DNAPL recovery is occurring in accordance with the SMP. Previous Interim Status and Semiannual Reports (AECOM, 2014a, AECOM, 2015a, AECOM, 2015b, AECOM, 2016c, AECOM, 2016d, AECOM, 2017 and AECOM, 2018) described in detail the initial testing and results, and gauging and removal program that has been implemented to date.

3.2.1 DNAPL Recovery Well Network

There are currently 25 passive DNAPL recovery wells at the Site for gauging of DNAPL levels, if any, and recovery of DNAPL, if present. Well construction details are summarized in Table 2, and details including construction logs and development logs are provided in the Construction Completion Report (AECOM, 2014b) and SMP (AECOM, 2016a). Three DNAPL recovery wells were initially installed in 2009 within the containment cell on the 40 Willow Avenue property and twenty-three DNAPL recovery wells were installed in 2013 adjacent to the vertical subsurface DNAPL barrier wall (slurry wall) along Willow Avenue and Bay Street. One of the 40 Willow Avenue recovery wells (NRW-03D) was abandoned in May 2017, in accordance with the SMP, reducing the total number of wells in the network to 25. The DNAPL recovery well network along Willow Avenue, including the containment cell and along Bay Street, is shown in Figures 3 and 4, respectively.

3.2.2 O&M DNAPL Gauging

As called for in the SMP, the DNAPL recovery wells are gauged on a bi-weekly, monthly, quarterly or annual basis to check for the presence of DNAPL. The most recent round of DNAPL recovery well gauging was completed on December 21, 2017. The recovery wells are gauged using a weighted stainless steel measuring tape as well as an Oil/Water Interface probe. Observations of blebs and sheens on the interface probe measuring tape are noted but not used to calculate DNAPL thickness. Observations from the weighted measuring tape are used to determine DNAPL thickness because the wire of the Oil/Water Interface probe can become thickly coated with DNAPL and not sink fully, providing inaccurate data. The results from the gauging events during the period of this Report are included in Table 3.

3.2.3 O&M DNAPL Removal and Disposal

As called for in the SMP and Record of Decision, DNAPL is removed from wells where present and removable. Since completion of a Baildown Test (AECOM, 2014a), DNAPL accumulated within the recovery wells has been removed as appropriate to the rate of DNAPL accumulation in each recovery well. Following gauging, recoverable DNAPL is removed from the wells. DNAPL is removed using the AECOM air lift™ (compressed air vacuum), peristaltic pumps or steel bailers as appropriate, based on the rate of accumulation and viscosity of the DNAPL at each recovery well. DNAPL removed from the recovery wells is containerized in 55-gallon drums, which are staged on-site in drum containment sheds until transported for off-site disposal.

The volume of DNAPL and water (fluid mixture) recovered from each recovery well between January 2010 and December 2017, and for each recovery event in 2017 is provided in Table 4. In summary, through the end of December 2017, the following cumulative volumes have been removed from ten (10) recovery wells:

- RW-201I – 633 gallons since 2010, 79 gallons from July through December 2017;
- RW-205D – 382 gallons since 2010, 24 gallons from July through December 2017;
- RW-206IA – 19 gallons since 2010, 4 gallons from July through December 2017;
- RW-206IB – 104 gallons since 2010, 10 gallons from July through December 2017;
- RW-207I – 352 gallons since 2010, 102 gallons from July through December 2017;
- RW-208I – 1,437 gallons since 2010, 132 gallons from July through December 2017;
- RW-209S – 125 gallons since 2010, 62 gallons from July through December 2017;
- RW-211I – 97 gallons since 2010, 5 gallons from July through December 2017;
- NRW-02I – 48 gallons since 2010, none from July through December 2017; and
- NRW-03D – 39 gallons since 2010, this well was abandoned in May 2017.

Disposal of the recovered DNAPL and water mixture stored onsite occurred on a regular basis. Manifests for DNAPL/water mixture disposal are included in Appendix B.

In accordance with the requirements of the SMP and revisions to the recovery well monitoring program approved as part of the Fourth Semi-Annual Interim Monitoring Report, National Grid will continue DNAPL recovery efforts according to the following schedule:

- RW-208I on a bi-weekly basis;
- RW-201I and RW-205D on a monthly basis;

- RW-206IB, RW-207I, RW-209S, and RW-211I on a quarterly basis; and
- The remaining eighteen (18) recovery wells on an annual basis (if DNAPL is present).

3.3 Cover System Monitoring

As described in the SMP, there are two cover systems installed at the Site and off-Site areas (Figure 5):

- A soil cover system comprised of a minimum of 24-inches of clean fill placed over the Site (25 Willow Avenue) and off-Site areas (89 Willow Avenue); and
- A composite cover system comprised of a minimum of 6-inches of concrete cap, concrete foundations, soil, and/or asphalt placed on the Site (40 Willow Avenue) and off-Site areas (One Edgewater Street, 89 Willow Avenue, 53 Lyndhurst Avenue, properties east of 25 Willow Avenue, and New York City rights-of-way).

There were no known disturbances to the caps during the period of this Report.

3.4 DNAPL Barrier Monitoring

There has been no activity or event on-site that is known to have impacted the subsurface remedial infrastructure (vertical barrier walls and the containment cell) from July through December 2017.

3.5 2017 Annual Groundwater Monitoring Event

The monitoring well network is to be initially monitored annually for a period of three years, and biannually thereafter. The first round of annual groundwater sampling was conducted in December, 2016; results from that sampling event are discussed in the Second Semiannual Monitoring Report (SA2, AECOM, 2017). Groundwater monitoring may be discontinued in monitoring wells if concentrations decrease below NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGV) for two consecutive sampling events, and approved by the NYSDEC. The sampling frequency may also be modified with the approval of the NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by the NYSDEC. The groundwater monitoring well network includes 13 wells, as shown on Figure 6. The second annual groundwater sampling event was conducted in December 2017, as described below.

3.5.1 Well Gauging and Redevelopment

Prior to the annual groundwater monitoring program, the thirteen site monitoring wells included in the annual groundwater monitoring program were inspected during a gauging event to measure groundwater and total well depths on December 6, 2017. Gauging data is summarized in Table 5. Based on the results of the gauging event, it was determined that no groundwater sampling wells required redevelopment prior to sampling in 2017.

3.5.2 Monitoring Well Sampling

AECOM performed the annual groundwater sampling event on December 20 and 21, 2017, in accordance with the SMP. During this event, samples were collected from RW-200I, RW-200S, RW-202I, RW-202S, RW-203I, RW-203S, RW-204I, RW-210I, RW-22, RW-23, RW-25, and RW-26. Although included in the monitoring network, RW-210S was not sampled due to the presence of DNAPL in the well at the time of the sampling event.

Each well was purged using low-flow sampling techniques specified in the United States Environmental Protection Agency (USEPA) Region 1 guidance document, “Low-Stress (low flow) Purging and

Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells" (USEPA, 2010). Wells were purged at a low flow rate using a Pine Peri-Pump peristaltic pump. During purging, water quality data (temperature, specific conductance, pH, dissolved oxygen (DO), oxidation/reduction potential (ORP), and turbidity) were recorded approximately every five minutes. These parameters were measured with a multi-parameter water quality meter attached to a continuous flow-through cell which was connected to the pump discharge tubing. Once field parameters stabilized, groundwater samples were collected. All equipment used for groundwater monitoring was calibrated to ensure accuracy and precision. Low Flow Groundwater Sample Collection Records from the 2017 annual sampling event are included in Appendix C.

All samples were packed in coolers with ice following collection, and sent by courier under proper chain of custody to TestAmerica Laboratories, Inc., in Edison, New Jersey. The samples were analyzed for the following parameters:

- Organic Compounds
    - BTEX by USEPA SW-846 Method 8260C, and
    - PAHs by USEPA Method 8270D, including Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Chrysene, Hexachlorobenzene and Indeno(1,2,3-cd)pyrene, were determined using gas chromatograph/mass spectrometry (GC/MS) in selected ion monitoring (SIM) mode.
- MNA Parameters:
    - Methane by RSK-175,
    - Total, Bicarbonate, Carbonate and Hydroxide Alkalinity by Standard Method SM 2320B,
    - Ammonia by SM4500 NH3 H,
    - Nitrate and Nitrite as N by USEPA Method 300.0,
    - Total Kjeldahl Nitrogen by USEPA Method 351.2,
    - Sulfate by ASTM Method D516-90, 02,
    - Sulfide by Standard Method 4500 S2 F,
    - Free Carbon Dioxide by Standard Method SM 4500 CO2 D,
    - Chemical Oxygen Demand (COD) by Standard Method SM 5220D,
    - Iron and Manganese on filtered and unfiltered samples by USEPA Method 6020A, and
    - Ferrous Iron by Standard Method SM 3500 E D.

3.5.3 Groundwater Flow

Using groundwater elevation gauging data from the December 6, 2017 gauging event, the groundwater flow direction was determined to be east to northeast, towards Upper New York Bay. This data consisted of the groundwater elevations measured at RW-200S, RW-201S, RW-202S, RW-203S, RW-206S, RW-22, RW-23, RW-25, and RW-26. Groundwater elevations could not be measured at RW-207S, RW-208S, RW-209S or RW-210S because of artesian conditions. Groundwater elevations are presented in Table 5, and an illustration of groundwater flow contours can be found on Figure 6.

3.5.4 Data Usability Summary Report (DUSR)

Data validation was performed on two data packages from TestAmerica Laboratories, Inc. of Edison, New Jersey for the analysis of aqueous recovery samples collected at the Site on December 20-21, 2017. Data quality for the organic analyses was evaluated by reviewing the following parameters: holding times, GC/MS tuning and performance standards, internal standards, initial and continuing calibrations, matrix spike/matrix spike duplicates (MS/MSD), surrogate recoveries, laboratory control standards (LCSs), laboratory blanks, laboratory and field duplicates, compound identification, and compound quantitation. Inorganic data quality was evaluated by reviewing the following parameters: holding times, MS/MSDs, initial calibrations, continuing calibration verification standard recoveries, contract required detection limit standard recoveries, LCSs, inductively-coupled plasma (ICP) interference check sample recoveries, ICP serial dilution results, field and laboratory duplicates, laboratory blanks, and analyte quantitation.

Six non-detect free carbon dioxide results and one non-detect ferrous iron result were rejected because the holding time was grossly exceeded. One non-detect SVOC result was rejected because of poor method sensitivity. All other data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds in groundwater with some qualification. The qualifications used to determine the usability of these samples is presented in Appendix A.2. The completeness of this data set was 98.3%, within the 90-100% acceptable range.

3.5.5 Groundwater Monitoring Analytical Results

A summary of organic compounds (BTEX and PAHs) data, compared to NYSDEC AWQSGVs, is presented in Table 6. The AWQSGVs include statutory standards for BTEX compounds; no standards exist for PAHs, and data is compared to relevant guidance values. Analytical results for MNA parameters is presented for comparison purposes only, and are not compared to any regulatory standards or guidance values. Analytical results are also depicted on site maps in Figures 7 and 8. Results are summarized below for groupings of site wells, downgradient wells, and up/sidegradient wells as described in the SMP.

3.5.5.1 Site Wells

Wells RW-202S and RW-202I are located within the Site behind the barrier wall, adjacent to Bay Street, and are considered to function as Site wells in the SMP. With regard to BTEX and PAH compounds, all constituent concentrations were below the AWQSGVs at RW-202S and RW-202I. During the previous groundwater sampling event in December 2016, there were exceedances of the AWQSGVs for BTEX at RW-202S and for PAHs at RW-202S and RW-202I. While there are no PAH detections, the detection limit exceeds the AWQSGVs for Benzo(a)anthracene, Benzo(b)fluoranthene, Chrysene, and Indeno(1,2,3-cd)pyrene.

MNA values for the Site Wells are summarized in Table 6.

3.5.5.2 Downgradient Wells

Wells RW-203S and RW-203I are located outside of the barrier wall just off-Site within the Bay Street right-of-way, and are considered downgradient wells in the SMP. Wells RW-22, RW-23, RW-25, and RW-26 are all located on the One Edgewater Plaza property, and are likewise considered downgradient wells in the SMP. BTEX constituents did not exceed AWQSGVs at any of the Edgewater Plaza downgradient wells, but exceeded AWQSGVs at RW-203S and RW-203I:

- Benzene (AWQSGV standard of 1 µg/L): RW-203S (91 µg/L [90 µg/L in the duplicate]), and RW-203I (69 µg/L).
- Ethylbenzene (AWQSGV standard of 5 µg/L): RW-203S (940 µg/L [920 µg/L in the duplicate]), and RW-203I (1,100 µg/L).

- Total Xylenes (AWQSGV standard of 5 µg/L): RW-203S (390 µg/L [380 µg/L in the duplicate]), and RW-203I (1,100 µg/L).
- Toluene (AWQSGV standard of 5 µg/L): RW-203S (34 µg/L [33 µg/L in the duplicate]), and RW-203I (310 µg/L).

With regard to PAH constituents, RW-22, RW-25, and RW-26 had no exceedances of the AWQSGVs, and exceedances at RW-23, RW-203S (and the duplicate sample from RW-203S) and RW-203I, summarized as follows:

- Acenaphthene (AWQSGV guidance of 20 µg/L): RW-203S (120 µg/L [130 µg/L in the duplicate]), and RW-203I (79 µg/L).
- Benzo(a)anthracene (AWQSGV guidance of 0.002 µg/L): RW-23 (0.16 µg/L).
- Benzo(b)fluoranthene (AWQSGV guidance of 0.002 µg/L): RW-23 (0.031 J µg/L).
- Naphthalene (AWQSGV guidance of 10 µg/L): RW-203S (2,600 µg/L [3,100 µg/L in the duplicate]), and RW-203I (2,900 µg/L).

3.5.5.3 Upgradient and Sidegradient Wells

Wells RW-200S and RW-200I (located on-Site at the north end of the barrier wall along Bay Street), and RW-204I (located along Willow Avenue, near the Bay Street end of the barrier wall) are considered sidegradient wells in the SMP. Wells RW-210S and RW-210I (located at the opposite end of the barrier wall from RW-204I) are considered upgradient wells in the SMP. Monitoring well RW-210S was not sampled during the 2017 groundwater monitoring sampling event due to the presence of trace NAPL in the well. There were no BTEX exceedances at RW-200I and RW-204I. RW-200S and RW-210I had constituent concentrations in exceedance of AWQSGVs for the BTEX compounds:

- Benzene (AWQSGV standard of 1 µg/L): RW-200S (220 µg/L) and RW-210I (930 µg/L).
- Ethylbenzene (AWQSGV standard of 5 µg/L): RW-200S (410 µg/L) and RW-210I (220 µg/L).
- Total Xylenes (AWQSGV standard of 5 µg/L): RW-200S (550 µg/L) and RW-210I (150 µg/L).
- Toluene (AWQSGV standard of 5 µg/L): RW-200S (290 µg/L).

With regard to PAH constituents, there were no AWQSGVs exceedances at RW-200I and RW-204I. RW-200S and RW-210I had PAH impacts in exceedance of NYSDEC AWQSGVs, summarized as follows:

- Acenaphthene (AWQSGV guidance of 20 µg/L): RW-210I (77 µg/L).
- Benzo(a)anthracene (AWQSGV guidance of 0.002 µg/L): RW-210I (0.04 µg/L).
- Benzo(b)fluoranthene (AWQSGV guidance of 0.002 µg/L): RW-210I (0.023 µg/L).
- Naphthalene (AWQSGV guidance of 10 µg/L): RW-200S (3,800 µg/L) and RW-210I (87 µg/L).

4.0 Conclusions and Findings

4.1 Summary of Activities

National Grid has conducted Site management activities in accordance with the SMP since it was approved in January 2016. As previously described, Site management activities occurring during the period July through December 2017 included:

- DNAPL gauging and recovery, including recovery of 418 gallons of DNAPL/water fluid mixture from July through December 2017 and a total of 3,220 gallons removed since 2010;
- Groundwater monitoring;
- Depressurization pump and treat system operation and maintenance, and SPDES permit equivalent-required sampling; and
- Cover system monitoring.

4.2 Extent of Impacts to Groundwater

As described in Table 6 and Figures 6 through 8, the groundwater monitoring program identified detectable concentrations of BTEX and PAH compounds. BTEX detections in exceedance of the NYSDEC AWQSGVs for BTEX were limited to one upgradient well and one sidegradient well located immediately adjacent to the Site, and two downgradient wells on Bay Street. BTEX compounds were not detected above standards in the two Site wells or the four downgradient wells at One Edgewater Plaza. PAHs were detected in exceedance of the NYSDEC AWQSGVs at the one upgradient well, one sidegradient well, one well downgradient at One Edgewater Plaza, and two downgradient wells on Bay Street. PAHs were not detected in samples from the Site wells.

5.0 Future Activities

In accordance with the SMP, the 2018 monitoring will include:

- Annual groundwater monitoring,
- On-going DNAPL gauging and recovery,
- On-going SPDES permit-required sampling,
- Site-wide cover system inspection, and intrusion oversight, and
- Semi-annual reporting and Annual Periodic Review Report.

6.0 References

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Tables

Table 1
Containment Pad Depressurization System
SPDES Equivalent Monitoring Results
National Grid Former Clifton MGP Site
Staten Island, New York

Sample ID	SPDES Permit Equivalent					WWTP-072817	WWTP-080717	WWTP-081417	WWTP-081517	WWTP-091317	WWTP-091417	WWTP-10262017	WWTP-10272017	WWTP-10282017
Date Sampled	Discharge Limitations			Minimum Monitoring Requirements [1]		7/28/2017	8/7/2017	8/14/2017	8/15/2017	9/13/2017	9/14/2017	10/26/2017	10/27/2017	10/28/2017
Parameter	Monthly Avg.	Daily Max	Units	Measurement Frequency	Sample Type	4601381271	4601387001	4601391371	4601392011	4601408571	4601409001	4601437321	4601438261	4601439081
pH														
pH	Monitor	6.5 - 8.5	pH units	Monthly	Grab	**8.2 J**	NS	NS	NS	NS	NS	NS	NS	NS
Total Suspended Solids														
Total Suspended Solids	Monitor	20	mg/l	Continuous	Meter	**2.7**	NS	NS	NS	NS	NS	NS	NS	NS
BTEX														
Benzene	Monitor	5	µg/l	Monthly	Grab	**51**	**44**	**95**	**450**	**150**	**3.4**	**0.13**	**0.54**	**0.18**
Ethylbenzene	Monitor	5	µg/l	Monthly	Grab	< 1.0 U	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m/p-Xylenes	Monitor	10	µg/l	Monthly	Grab	< 1.0 U	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	Monitor	5	µg/l	Monthly	Grab	< 1.0 U	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	Monitor	5	µg/l	Monthly	Grab	< 1.0 U	< 1.0	< 1.0	< 1.0	**0.25**	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes (total)	Monitor		µg/l	Monthly	Grab	< 2.0 U	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
SVOCs														
Acenaphthene	Monitor	10	µg/l	Monthly	Grab	< 10 U	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	Monitor	10	µg/l	Monthly	Grab	< 10 U	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	Monitor	10	µg/l	Monthly	Grab	< 10 U	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(a)anthracene	Monitor	10	µg/l	Monthly	Grab	< 0.052 U	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(a)pyrene	Monitor	0.09	µg/l	Monthly	Grab	< 0.052 U	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(b)fluoranthene	Monitor	10	µg/l	Monthly	Grab	< 0.052 UJ	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chrysene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Hexachlorobenzene	Monitor		µg/l	Monthly	Grab	< 0.021 U	NS	NS	NS	NS	NS	NS	NS	NS
Indeno(1,2,3-cd)pyrene	Monitor	10	µg/l	Monthly	Grab	< 0.052 U	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	Monitor	50	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	NS	NS	NS	NS	NS
Metals														
Arsenic	Monitor	10	µg/l	Monthly	Grab	< 2.0 U	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	Monitor	80	µg/l	Monthly	Grab	**1.4 J**	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide														
Cyanide, Total	Monitor	Monitor	mg/l	Monthly	Grab	< 0.010 U	NS	NS	NS	NS	NS	NS	NS	NS
Available Cyanide	Monitor	0.01	mg/l	Monthly	Grab	< 0.0020 U	NS	NS	NS	NS	NS	NS	NS	NS
Turbidity														
Turbidity	No increase that will cause a substantial visible contrast to Natural Conditions		NTU	Monthly	Grab	**4.34**	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

NS - Not sampled

1 Upon system start/restart, monitor parameters daily for 7 consecutive days; if results for all parameters comply with the limits, the monitoring frequency becomes monthly.

Qualifiers:

Bold indicates compound was detected

Gray highlighting indicates a discharge limit exceedance

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

U - The material was analyzed for, but not detected above the level of the reported sample quantitation limit.

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

Table 1
Containment Pad Depressurization System
SPDES Equivalent Monitoring Results
National Grid Former Clifton MGP Site
Staten Island, New York

Sample ID	SPDES Permit Equivalent					WWTP-10292017	WWTP-10302017	WWTP-10312017	WWTP11012017	WWTP-112217	WWTP-12212017
Date Sampled	Discharge Limitations			Minimum Monitoring Requirements [1]		10/29/2017	10/30/2017	10/31/2017	11/1/2017	11/22/2017	12/21/2017
Parameter	Monthly Avg.	Daily Max	Units	Measurement Frequency	Sample Type	4601439381	4601439381	4601440021	4601440881	4601457111	4601475241
pH											
pH	Monitor	6.5 - 8.5	pH units	Monthly	Grab	NS	NS	NS	NS	**8.5 J**	**8.6 J**
Total Suspended Solids											
Total Suspended Solids	Monitor	20	mg/l	Continuous	Meter	NS	NS	NS	NS	**4.1**	**3.7**
BTEX											
Benzene	Monitor	5	µg/l	Monthly	Grab	**0.14**	**0.093**	< 1.0	**0.25**	**0.14 J**	< 1.0 U
Ethylbenzene	Monitor	5	µg/l	Monthly	Grab	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 U	< 1.0 U
m/p-Xylenes	Monitor	10	µg/l	Monthly	Grab	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 U	< 1.0 U
o-Xylene	Monitor	5	µg/l	Monthly	Grab	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 U	< 1.0 U
Toluene	Monitor	5	µg/l	Monthly	Grab	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 U	< 1.0 U
Xylenes (total)	Monitor		µg/l	Monthly	Grab	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 U	< 2.0 U
SVOCs											
Acenaphthene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Acenaphthylene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Anthracene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Benzo(a)anthracene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 0.052 U	**0.075**
Benzo(a)pyrene	Monitor	0.09	µg/l	Monthly	Grab	NS	NS	NS	NS	< 0.052 U	**0.27**
Benzo(b)fluoranthene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 0.052 U	**0.47**
Benzo(ghi)perylene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Chrysene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 2.1 U	< 2.0 U
Fluoranthene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Fluorene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Hexachlorobenzene	Monitor		µg/l	Monthly	Grab	NS	NS	NS	NS	< 0.021 U	< 0.020 U
Indeno(1,2,3-cd)pyrene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 0.052 U	**0.38**
Naphthalene	Monitor	50	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Phenanthrene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Pyrene	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 10 U	< 10 U
Metals											
Arsenic	Monitor	10	µg/l	Monthly	Grab	NS	NS	NS	NS	< 2.0 U	< 2.0 U
Nickel	Monitor	80	µg/l	Monthly	Grab	NS	NS	NS	NS	< 4.0 U	< 4.0 U
Cyanide											
Cyanide, Total	Monitor	Monitor	mg/l	Monthly	Grab	NS	NS	NS	NS	< 0.010 U	< 0.010 U
Available Cyanide	Monitor	0.01	mg/l	Monthly	Grab	NS	NS	NS	NS	< 0.0020 U	< 0.0020 U
Turbidity											
Turbidity	No increase that will cause a substantial visible contrast to Natural Conditions		NTU	Monthly	Grab	NS	NS	NS	NS	**6.81**	**9.39**

Notes:

NS - Not sampled

1 Upon system start/restart, monitor parameters daily for 7 consecutive days; if results for all parameters comply with the limits, the monitoring frequency becomes monthly.

Qualifiers:

Bold indicates compound was detected

Gray highlighting indicates a discharge limit exceedance

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

U - The material was analyzed for, but not detected above the level of the reported sample quantitation limit.

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

Table 2
DNAPL Recovery Well Construction Details
National Grid Former Clifton MGP Site
Staten Island, New York

DNAPL Recovery Well I.D.	Ground Surface Elevation [1]	Top of Vault Elevation	Top of Riser Pipe Elevation	Depth of Well (feet bgs)	Screen Interval	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Diameter (inches)	Top of Screen Elevation	Bottom of Screen Elevation	Protective Casing	Riser Type	Screen Type	Screen Slotted size/diameter (inches)	Sump Type	Sump Length (feet)
RW-200S	9.2	9.57	9.32	23	10.0 - 20.0	10	20	4.0	-0.8	-10.8	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-200I	9.2	9.58	9.33	37	24.0 - 34.0	24	34	4.0	-14.8	-24.8	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-201S	9.2	9.57	8.77	29	14.0 - 24.0	14	24	6.0	-4.8	-14.8	Flush-Mount	PVC	Wire Wrap SS	0.02/6.0	SS	5.0
RW-201I	8.9	9.37	8.6	37.5	22.5-32.5	22.5	32.5	6.0	-13.6	-23.6	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-202S	9.85	9.94	9.64	25	10.0 - 20.0	10	20	6.0	-0.2	-10.2	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-202I	9.85	9.85	9.48	42	27.0 - 37.0	27	37	6.0	-17.2	-27.2	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-203S	9.3	9.16	8.67	27	14.0 - 24.0	14	24	4.0	-4.7	-14.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-203I	9.3	9.14	8.54	37	24.0 - 34.0	24	34	4.0	-14.7	-24.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-204I	9.12	9.35	8.6	43	30.0 - 40.0	30	40	4.0	-20.9	-30.9	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-205D	8.75	8.82	8.18	77	64.0 - 74.0	64	74	4.0	-55.3	-65.3	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206S	8.6	9.02	8.26	28	15.0 - 25.0	15	25	4.0	-6.4	-16.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206IA	8.6	9.05	8.15	48	35.0 - 45.0	35	45	4.0	-26.4	-36.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206IB	8.55	9.13	7.63	58	45.0 - 55.0	45	55	4.0	-36.5	-46.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-207S	8.5	8.8	8.15	23	10.0 - 20.0	10	20	4.0	-1.5	-11.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-207I	8.5	8.77	8.23	33	20.0 - 30.0	20	30	4.0	-11.5	-21.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-208S	8.27	8.53	7.81	23	10.0 - 20.0	10	20	4.0	-1.7	-11.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-208I	8.27	8.52	7.23	42	29.0 - 39.0	29	39	4.0	-20.7	-30.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-209S	8	8.48	7.63	30	15.0 - 25.0	15	25	6.0	-7.0	-17.0	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-209I	8	8.28	7.69	40	25.0 - 35.0	25	35	6.0	-17.0	-27.0	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-210S	7.6	7.85	7.3	28	15.0 - 25.0	15	25	4.0	-7.4	-17.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-210I	7.6	7.93	7.32	38	25.0 - 35.0	25	35	4.0	-17.4	-27.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-211S	8.5	8.74	7.15	29	6.0 - 26.0	6	26	4.0	2.5	-17.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-211I	8.5	8.76	7.23	43	30.0 - 40.0	30	40	4.0	-21.5	-31.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
NRW-01S [2]	14.18	15.28	14.86	19	9.0 - 19.0	9	19	4.0	5.2	-4.8	Flush-Mount	SS	SS	0.02/4.0	--	--
NRW-02I [2]	14.27	--	--	49	34.0 - 44.0	34	44	4.0	-19.7	-29.7	Stick Up	SS	SS	0.02/4.0	SS	5.0

Notes:

1 - Derived from the nearest surface elevation from final as-built survey

2 - Containment Pad Surface

NM - Not measured

ft bgs - feet below ground surface

DNAPL - Dense Non-Aqueous Phase Liquid

MGP - Manufactured Gas Plant

SS - stainless steel

RW-200**S** = Shallow recovery wells

RW-200**I** = Intermediate recovery wells

RW-205**D** = Deep recovery wells

Table 3
DNAPL Thickness During Gauging Events
National Grid Former Clifton MGP Site
Staten Island, New York

Parcel	Bay Street	Willow Avenue							Containment Cell		
Well ID	RW-201I	RW-205D	RW-206IA	RW-206IB	RW-207I	RW-208I	RW-209S	RW-211I	NRW-01S	NRW-02I	NRW-03D
Date	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet
Data prior to July 2017 omitted for clarity											
7/3/2017	1.80	1.20	NE	0.10	3.50	7.85	1.90	0.30	NE	NM	ABD
7/13/2017	2.30	2.80	NE	1.20	1.60	7.10	2.40	0.80	NE	0.10	ABD
7/27/2017	2.70	NM	NE	1.25	1.80	8.30	NA	1.30	NE	0.00	ABD
8/10/2017 [1]	1.50	1.00	NM	NM	NM	8.00	NM	NM	NM	NM	ABD
9/1/2017	0.00	0.00	NE	1.00	2.00	NM	NA	1.40	NE	NM	ABD
9/14/2017	6.80	0.70	NE	1.20	1.30	8.20	1.80	0.60	NE	NM	ABD
9/28/2017	1.40	2.30	NE	2.00	2.20	4.00	3.50	1.80	NE	NM	ABD
10/16/2017	2.65	1.70	NE	0.00	3.20	7.80	2.80	2.20	NE	NM	ABD
10/25/2017	NM	NM	NM	NM	NM	5.00	2.00	NM	NM	NM	ABD
11/14/2017	3.60	0.00	NM	NM	NM	7.70	NM	NM	NM	NM	ABD
11/23/2017	1.30	1.75	NM	NE	2.70	5.70	NA	NM	NM	NM	ABD
12/7/2017	2.50	0.70	NM	NM	2.80	6.50	NM	1.50	NM	NM	ABD
12/21/2017	1.30	0.80	0.80	0.00	1.80	6.70	1.20	0.40	NM	NM	ABD
July 2017 – December 2017											
Min Thickness (ft)	0.00	0.00	NM	0.00	1.30	4.00	1.20	0.30	NM	0.00	ABD
Max Thickness (ft)	6.80	2.80	NM	2.00	3.50	8.30	3.50	2.20	NM	0.10	ABD
Avg Thickness (ft)	2.32	1.18	NM	0.84	2.29	6.90	2.23	1.14	NM	0.05	ABD
January 2010 – December 2017											
Min Thickness (ft)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Max Thickness (ft)	8.80	11.80	3.90	3.50	6.00	21.30	7.50	4.40	0.50	13.00	9.05
Avg Thickness (ft)	3.37	1.95	0.95	0.93	1.60	8.89	2.20	1.08	0.05	0.80	5.61

Notes:

[1] Field records from August 10, 2017 event incomplete; approximate values are provided.

ABD - Abandoned

ft - feet

DNAPL - Dense Nonaqueous Phase Liquid

NA - Not Accessible; vegetative overgrowth occasionally interferes with access to RW-209S.

NE - DNAPL was not observed

NM - Not Measured

Only recovery wells with measurable DNAPL thickness have been included; all recovery wells are gauged on at least an annual basis consistent with the Site Management Plan, and the last complete DNAPL recovery well network gauging event was completed on September 14, 2017.

DNAPL was gauged using a weighted steel tape and using interface probe. Thicknesses listed in this table are based on weighted steel tape measurement; a thickness of 0.00 indicates that DNAPL was observed only in the form of blebs, and thickness could not measured.

Table 4
Summary of DNAPL Removal
National Grid Former Clifton MGP Site
Staten Island, New York

Parcel	Bay Street	Willow Avenue							Containment Cell			Event
Well ID	RW-201I	RW-205D	RW-206IA	RW-206IB	RW-207I	RW-208I	RW-209S	RW-211I	NRW-01S	NRW-02I	NRW-03D	Volume
Date	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons
Data prior to July 2017 omitted for clarity												
7/3/2017	NP	NP	NE	NP	10	11	NP	NP	NE	NM	ABD	21
7/13/2017	NP	9	NE	NP	5	19	NP	NP	NE	NP	ABD	33
7/27/2017	8	NM	NE	NP	NP	4	NA	NP	NE	NP	ABD	12
8/10/2017 [1]	NP	NP	NM	NM	NM	20	NM	NM	NM	NM	ABD	20
9/1/2017	NP	NP	NE	NP	7	30	NA	NP	NE	NM	ABD	37
9/14/2017	10	NP	NE	NP	NP	13	NP	NP	NE	NM	ABD	23
9/28/2017	NP	10	NE	10	22	15	0	NP	NE	NM	ABD	57
10/16/2017	49	NP	NE	NP	49	13	62	4	NE	NM	ABD	177
10/25/2017	NM	NM	NM	NM	NM	6	25	NM	NM	NM	ABD	31
11/14/2017	5	NP	NM	NM	NM	10	NM	NM	NM	NM	ABD	15
11/23/2017	NP	5	NM	NE	3	6	NA	NM	NM	NM	ABD	14
12/7/2017	6	NP	NM	NP	3	6	NM	2	NM	NM	ABD	17
12/21/2017	NP	NP	4	NP	3	6	NP	NP	NM	NM	ABD	13
July 2017 – December 2017												
Total Gallons	79	24	4	10	102	158	87	5	0	0	0	469
Percent of Total	17%	5%	1%	2%	22%	34%	19%	1%	0%	0%	0%	100%
January 2010-December 2017												
Total Gallons	633	382	19	104	352	1,463	150	97	0	48	39	3,271
Percent of Total	19%	12%	1%	3%	11%	45%	5%	3%	0%	1%	1%	100%

Note:

[1] Field records from August 10, 2017 event incomplete; approximate values are provided.

ABD - Abandoned

NA - Not Accessible

NE - DNAPL was not observed

NM - Not Measured

NP - Not pumped because the because DNAPL was not encountered or not thick enough to warrant pumping

Volumes recorded consist of DNAPL and water mixture

* AECOM Air Lift systems were installed on 4/17/2014

Table 5
December 2017 Groundwater Gauging Data
National Grid Former Clifton MGP Site
Staten Island, New York

DNAPL Recovery Well I.D.	Top of Riser Pipe Elevation (ft NAVD88)	Depth to Water 12/16/2017 (ft bTOC)	Depth to Well Bottom 12/16/2017 (ft bTOC)	Groundwater Elevation 12/16/2017 (ft NAVD88)	Note
RW-22	9.67	6.92	20.67	2.75	
RW-23	8.86	5.78	13.23	3.08	
RW-24	9.16	4.19	12.85	4.97	(1)
RW-25	9.74	6.38	17.47	3.36	
RW-26	9.29	6.75	17.26	2.54	
RW-200S	9.32	3.36	20.31	5.96	
RW-200I	9.33	3.06	37.75	6.27	
RW-201S	8.77	1.79	29.39	6.98	
RW-201I	8.6	1.52	38.47	7.08	
RW-202S	9.64	2.61	25.51	7.03	
RW-202I	9.48	1.01	42.12	8.47	
RW-203S	8.67	2.55	27.38	6.12	
RW-203I	8.54	1.98	36.6	6.56	
RW-204I	8.6	0.89	42.29	7.71	
RW-205D	8.18	0	77.82	8.18	(2)
RW-206S	8.26	0.47	26.98	7.79	
RW-206IA	8.15	0	45.78	8.15	(2)
RW-206IB	7.63	0	59.91	7.63	(2)
RW-207S	8.15	0	24.05	8.15	(2)
RW-207I	8.23	0	34.83	8.23	(2)
RW-208S	7.81	0	21.09	7.81	(2)
RW-208I	7.23	0	43.15	7.23	(2)
RW-209S	7.63	NM	NM	NM	(3)
RW-209I	7.69	0	39.41	7.69	(2)
RW-210S	7.3	0	25.25	7.3	(2)
RW-210I	7.32	0	37.89	7.32	(2)
RW-211S	7.15	0	28.85	7.15	(2)
RW-211I	7.23	0.12	41.14	7.11	

Notes:

1 - Groundwater depth & elevation not consistent with nearby elevations and assumed to be a spurious measurement; ignored for purposes of developing a potentiometric surface

2 - Groundwater elevation is assumed equal to vault rim elevation

3 - Well cap could not be removed during synoptic well gauging event

NM - Not measured

ft bTOC - feet below top of casing

ft NAVD88 - feet North American Vertical Datum 1988

MGP - Manufactured Gas Plant

RW-200**S** = Shallow recovery wells

RW-200**I** = Intermediate recovery wells

RW-205**D** = Deep recovery wells

Table 6
Groundwater Monitoring Analytical Data
December 2017
National Grid Former Clifton MGP Site
Staten Island, New York

Location Sample Date SDG	CAS #	AWQSGV	RW-22 12/20/2017 4601473891	RW-23 12/20/2017 4601473891	RW-25 12/20/2017 4601473891	RW-26 12/21/2017 4601475101	RW-200I 12/20/2017 4601473891	RW-200S 12/20/2017 4601473891	RW-202I 12/20/2017 4601473891	RW-202S 12/20/2017 4601473891
BTEX (ug/l)										
Benzene	71-43-2	1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**220**	< 1.0 U	< 1.0 U
Ethylbenzene	100-41-4	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**410**	< 1.0 U	**0.48 J**
Toluene	108-88-3	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**290**	< 1.0 U	**0.27 J**
Xylenes (total)	1330-20-7	5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**0.43 J**	**550**	< 2.0 U	**3.0**
Total BTEX			*ND*	*ND*	*ND*	*ND*	***0.43***	***1470***	*ND*	***3.75***
PAHs (ug/l)										
2-Methylnaphthalene	91-57-6	NL	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	**130 J**	< 10 U	< 10 U
Acenaphthene	83-32-9	20	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Acenaphthylene	208-96-8	NL	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	**61 J**	< 10 U	< 10 U
Anthracene	120-12-7	50	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Benzo(a)anthracene	56-55-3	0.002	< 0.051 U	**0.16**	< 0.050 U	< 0.052 U	< 0.051 U	< 0.25 U	< 0.051 U	< 0.051 U
Benzo(a)pyrene	50-32-8	NL	< 0.051 U	< 0.051 U	< 0.050 U	< 0.052 U	< 0.051 U	< 0.25 U	< 0.051 U	< 0.051 U
Benzo(b)fluoranthene	205-99-2	0.002	< 0.051 U	**0.031 J**	< 0.050 U	< 0.052 U	< 0.051 U	< 0.25 U	< 0.051 U	< 0.051 U
Benzo(ghi)perylene	191-24-2	NL	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Benzo(k)fluoranthene	207-08-9	0.002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U
Chrysene	218-01-9	0.002	< 2.0 U	< 2.0 U	< 2.0 U	< 2.1 U	< 2.0 U	< 40 U	< 2.0 U	< 2.0 U
Dibenz(a,h)anthracene	53-70-3	NL	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U
Fluoranthene	206-44-0	50	< 10 U	**3.6 J**	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Fluorene	86-73-7	50	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Hexachlorobenzene	118-74-1	0.4	< 0.020 U	< 0.020 U	< 0.020 U	< 0.021 U	< 0.020 U	< 0.10 U	< 0.020 U	< 0.020 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	< 0.051 U	< 0.051 U	< 0.050 U	< 0.052 U	< 0.051 U	< 0.25 U	< 0.051 U	< 0.051 U
Naphthalene	91-20-3	10	< 10 U	**0.82 J**	< 10 U	< 10 U	**0.98 J**	**3800**	< 10 U	< 10 U
Phenanthrene	85-01-8	50	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Pyrene	129-00-0	50	< 10 U	**2.8 J**	< 10 U	< 10 U	< 10 U	< 200 U	< 10 U	< 10 U
Total PAHs			*ND*	***7.41***	*ND*	*ND*	***0.98***	***3861***	*ND*	*ND*
Total Metals (ug/l)										
Iron	7439-89-6	300	**4090**	**2230**	**919**	**21100**	< 120 U	< 120 U	< 120 U	< 120 U
Manganese	7439-96-5	300	**76.7**	**3650**	**459**	**4180**	**3.0 J**	**55.3**	< 8.0 U	< 8.0 U
Dissolved Metals (ug/l)										
Iron	7439-89-6	300	**3880**	**2060**	**142**	**20600**	< 120 U	< 120 U	< 120 U	< 120 U
Manganese	7439-96-5	300	**66.3**	**3700**	**106**	**4010**	< 8.0 U	**51.2**	< 8.0 U	< 8.0 U
MNA (mg/l)										
Ammonia Nitrogen	7664-41-7	NL	NS	NS	NS	**4.8**	NS	NS	NS	NS
Carbon Dioxide, Free	CO2_FREE	NL	**41.3**	**56.6**	**16.7**	**45.3**	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
Chemical Oxygen Demand (COD)	COD	NL	NS	**26.5**	**6.2 J**	**15.9**	**5.0 J**	**12.0**	**12.0**	**17.5**
Ferrous Iron	C-FE+2	NL	< 0.10 U	< 0.10 U	< 0.10 U	**0.13**	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Methane	74-82-8	NL	**0.21**	**2.8**	< 0.0050 U	**2.4**	< 0.0050 U	**0.026**	**0.0033 J**	**1.6**
Nitrate as N	14797-55-8	NL	< 0.10 U	< 0.10 U	**1.73**	< 0.10	**0.16**	**0.067 J**	**0.068 J**	**0.066 J**
Nitrate Nitrite as N	NO3NO2N	NL	< 0.10 U	< 0.10 U	**1.73**	NS	**0.16**	**0.067 J**	**0.30**	**0.066 J**
Nitrite as N	14797-65-0	NL	NS	NS	NS	**0.032**	NS	NS	NS	NS
Nitrogen	7727-37-9	NL	**0.47**	**1.8**	**1.7**	**3.7**	**0.16**	**0.34**	**1.1**	**7.4**
Sulfate	14808-79-8	NL	**1210**	**67.3**	**115**	**20.6**	**36.3**	**25.2**	**80.6**	**55.5**
Total Kjeldahl Nitrogen	KN	NL	**0.45**	**1.8**	< 0.25 U	**3.7**	< 0.25 U	**0.27**	**0.76**	**7.3**
Total Sulfide	18496-25-8	NL	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Turbidity	TURBIDITY	NL	NS	NS	NS	NS	NS	NS	NS	NS
Alkalinity (mg/l)										
Alkalinity, Total (As CaCO3)	ALK	NL	**188**	**438**	**247**	**306**	**51.3**	**129**	**69.9**	**247**
Bicarbonate Alkalinity as CaCO3	ALKB	NL	**188**	**438**	**247**	**306**	**51.3**	**129**	< 5.0 U	**198**
Carbonate Alkalinity as CaCO3	ALKC	NL	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**31.8**	**49.6**
Hydroxide Alkalinity	ALKH	NL	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**38.1**	< 5.0 U

Notes:
AWQSGV - NYSDEC Ambient Water Quality Standards and Guidance Values
CAS # - Chemical Abstracts Service Registry Number
DUP - Field duplicate
ND = Not detected
NL = Not listed
ug/L = micrograms per liter; mg/L = milligrams per liter (ppm)

Qualifiers:
Bold indicates compound was detected
Gray Highlighted values exceed NYSDEC Groundwater Guidance Value
Green Highlighted values exceed NYSDEC Groundwater Standard
J - The analyte was positively identified; the numerical value is the approximate concentration of the analyte in the sample.
U - The material was analyzed for, but not detected above the level of the reported sample quantitation limit.

Table 6
Groundwater Monitoring Analytical Data
December 2017
National Grid Former Clifton MGP Site
Staten Island, New York

RW-203I 12/21/2017 4601475101	RW-203S 12/21/2017 4601475101	RW-203S Dup 12/21/2017 4601475101	RW-204 12/21/2017 4601475101	RW-210I 12/21/2017 4601475101
69	**91**	**90**	**0.22**	**930**
1100	**940**	**920**	< 1.0 U	**220**
310	**34**	**33**	< 1.0 U	**3.4**
1100	**390**	**380**	< 2.0 U	**150**
2579	***1455***	***1423***	***0.22***	***1303.4***
410	**160**	**190**	< 10 U	**260 J**
79	**120**	**130**	< 10 U	**77**
74	< 200	< 210	< 10 U	**3.6**
< 200	< 200	< 210	< 10 U	< 21
< 0.25	< 0.050	< 0.052	< 0.052 U	**0.04**
< 0.25	< 0.050	< 0.052	< 0.052 U	< 0.053
< 0.25	< 0.050	< 0.052	< 0.052 U	**0.023**
< 200	< 200	< 210	< 10 U	< 21
< 20 U	< 20 U	< 21 U	< 1.0 U	< 2.1 U
< 40	< 40	< 42	< 2.1 U	< 4.3
< 20 U	< 20 U	< 21 U	< 1.0 U	< 2.1 U
< 200	< 200	< 210	< 10 U	< 21
38	**33**	**34**	< 10 U	**21**
< 0.10	< 0.020	< 0.021	< 0.021 U	< 0.021
< 0.25	< 0.050	< 0.052	< 0.052 U	< 0.053
2900	**2600**	**3100**	< 10 U	**87**
29	**26**	**28**	< 10 U	**9.2**
< 200	< 200	< 210	< 10 U	< 21
3120	***2779***	***3292***	*ND*	***197.86***
229	**1540**	**1310**	< 120	**1450**
6.9	**338**	**321**	**48.5**	**356**
164	**1340**	**1110**	< 120	**1430**
6.4	**322**	**322**	**47.7**	**368**
0.77	**1.4**	**1.4**	**0.24**	**2.6**
< 5.0	**7.5**	**5.5**	< 5.0	**7.5**
23.3	**15.6**	**12.4**	< 10.0	**11.7**
< 0.10	< 0.10	NS	< 0.10	< 0.10
0.054	**0.29**	**0.27**	**0.047**	**3.0**
0.052	**0.047**	< 0.10	**0.070**	**0.055**
NS	NS	NS	NS	NS
0.028	**0.023**	**0.0051**	**0.14**	**0.029**
2.6	**1.5**	**1.6**	**0.42**	**2.6**
14.6	< 5.0 U	< 5.0 U	**87.8**	< 5.0 U
0.84	**1.4**	**1.3**	**0.40**	**2.4**
< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
NS	NS	**0.38**	NS	NS
99.4	**193**	**193**	**117**	**226**
79.3	**193**	**193**	**117**	**226**
20.1	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U

Figures

UNITED STATES GEOLOGIC SURVEY
THE NARROWS QUADRANGLE
NEW YORK - NEW JERSEY
7.5 MINUTE SERIES (TOPOGRAPHY)

THE NARROWS, NY. - NJ.
1966
PHOTOREVISED 1981

SCALE 1:24000

1 1/2 0 1 MILE

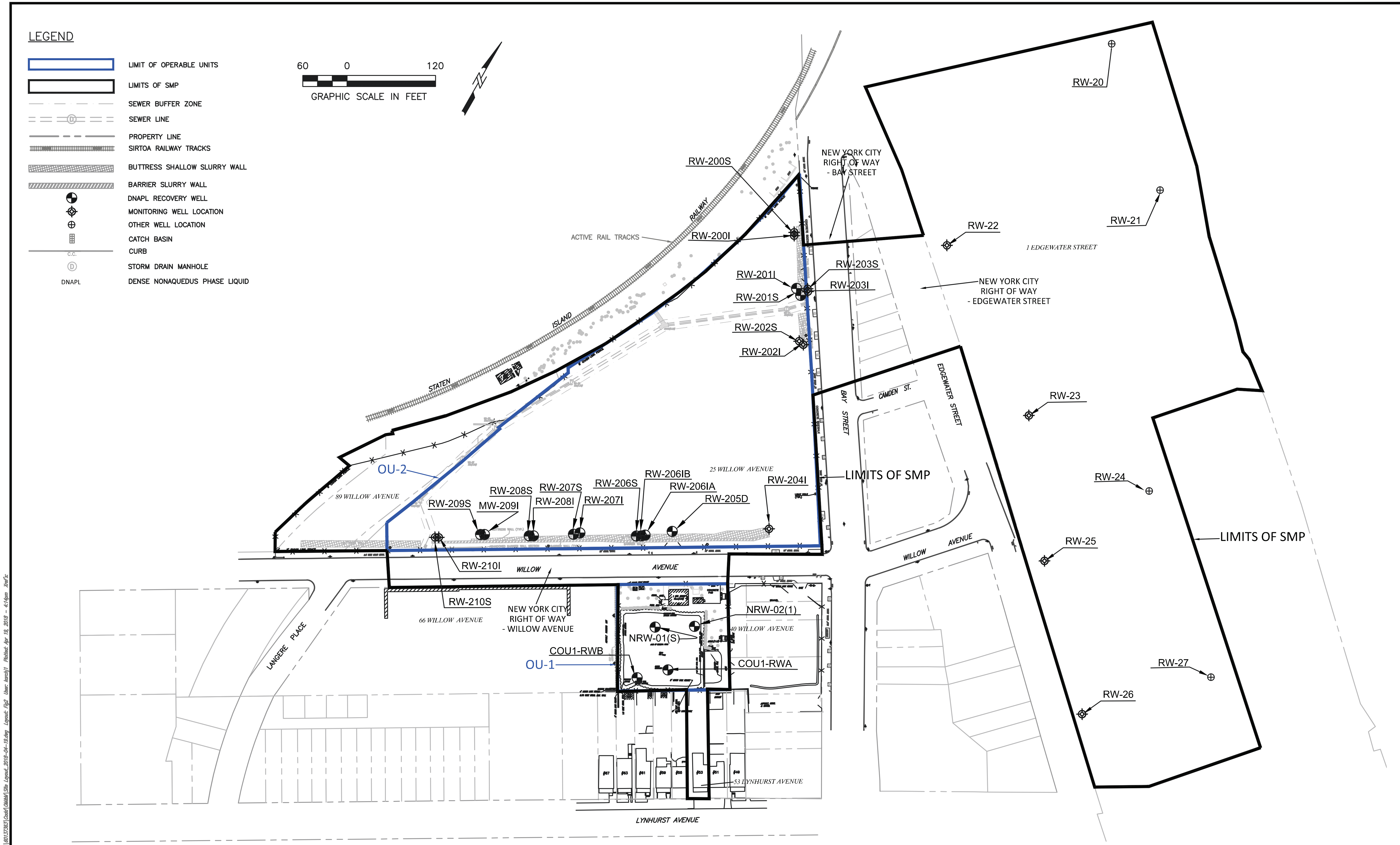
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

N

AECOM

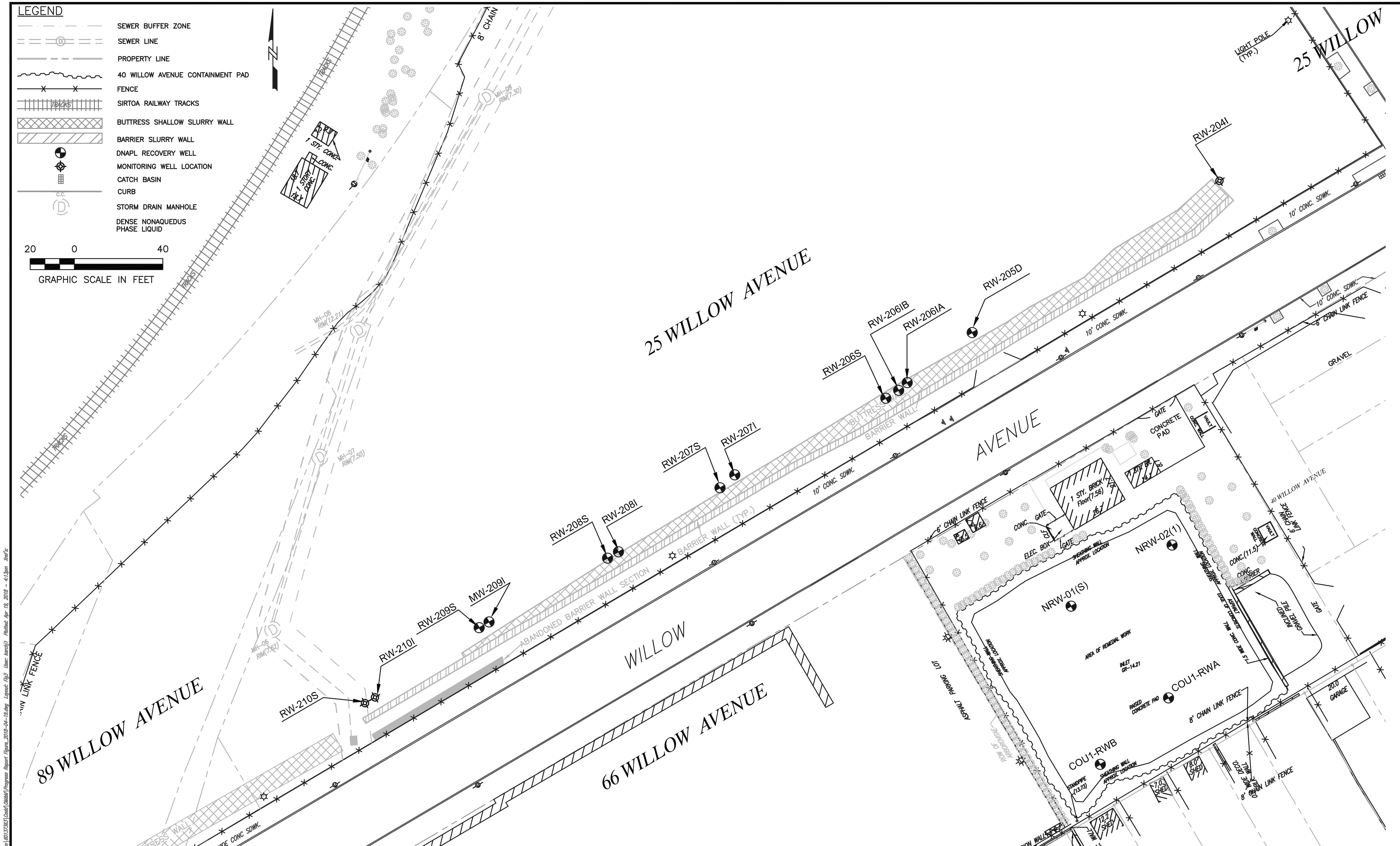
NATIONAL GRID FORMER CLIFTON MANUFACTURED GAS PLANT SEMIANNUAL MONITORING REPORT			SITE LOCATION MAP
DATE: 07/25/14	DRWN: RCW	JOB NO.: 60137363-540	FIGURE 1

File: \\usnycs01\Environment\National Grid\Clifton\60137363\CADD\OM&M\Site Location Map.dwg Layout: ANSI_AVI-LJ User: warrenr Plotted: Jul 23, 2014 - 3:26pm Xref's:



AECOM

NATIONAL GRID FORMER CLIFTON MANUFACTURED GAS PLANT SEMIANNUAL MONITORING REPORT			SITE LAYOUT MAP
DATE: 04/19/2018	DRWN: RCW/jk	JOB NO.: 60137363-600	FIGURE 2


LEGEND
SEWER BUFFER ZONE
SEWER LINE
PROPERTY LINE
40 WILLOW AVENUE CONTAINMENT PAD
FENCE
SIRTOA RAILWAY TRACKS
BUTTRESS SHALLOW SLURRY WALL
BARRIER SLURRY WALL
DNAPL RECOVERY WELL
MONITORING WELL LOCATION
CATCH BASIN
CURB
STORM DRAIN MANHOLE
DENSE NONAQUEDUS PHASE LIQUID
20 0 40
GRAPHIC SCALE IN FEET
25 WILLOW AVENUE
25 WILLOW
89 WILLOW AVENUE
66 WILLOW AVENUE
WILLOW
AVENUE
RW-204I
RW-205D
RW-206S
RW-206IB
RW-206IA
RW-207S
RW-207I
RW-208S
RW-208I
RW-209S
MW-209I
RW-210I
RW-210S
NRW-01(S)
NRW-02(1)
COU1-RWA
COU1-RWB
LIGHT POLE (TYP.)
10' CONC. SDWK.
BARRIER WALL (TYP.)
ABANDONED BARRIER WALL SECTION
CONCRETE PAD
GRAVEL
8' CHAIN LINK FENCE
6' CHAIN LINK FENCE
AREA OF REMEDIAL WORK
ASPHALT PARKING LOT
GARAGE

AECOM

NATIONAL GRID FORMER CLIFTON MANUFACTURED GAS PLANT SEMIANNUAL MONITORING REPORT			**MONITORING AND DNAPL RECOVERY WELL LOCATIONS ALONG WILLOW AVENUE**
DATE: 04/19/2018	DRWN: XW/jk	JOB NO.: 60137363-600	**FIGURE 3**

LEGEND

- SEWER BUFFER ZONE
- SEWER LINE
- PROPERTY LINE
- 40 WILLOW AVENUE CONTAINMENT PAD
- FENCE
- SIRTOA RAILWAY TRACKS
- BUTTRESS SHALLOW SLURRY WALL
- BARRIER SLURRY WALL
- DNAPL RECOVERY WELL
- MONITORING WELL LOCATION
- CATCH BASIN
- CURB
- STORM DRAIN MANHOLE
- DENSE NONAQUEDUS PHASE LIQUID

20 0 40

GRAPHIC SCALE IN FEET

N

BAY STREET

25 WILLOW AVE

CAMDEN ST.

ACTIVE RAIL TRACKS

RAILWAY TRACKS

8' CHAIN LINK FENCE

12" CONC. SEWER

CONCRETE SIDEWALK

BARRIER WALL

BUTTRESS WALL

SIGN

DRIVE(6.29)

MH-1
RIM(9.06)

RW-200S

RW-200I

RW-201I

RW-201S

RW-202S

RW-202I

RW-203S

RW-203I

AECOM

NATIONAL GRID FORMER CLIFTON MANUFACTURED GAS PLANT SEMIANNUAL MONITORING REPORT			**MONITORING AND DNAPL RECOVERY WELL LOCATIONS ALONG BAY STREET**
DATE: 04/19/2018	DRWN: XW/jk	JOB NO.: 60137363-600	**FIGURE 4**

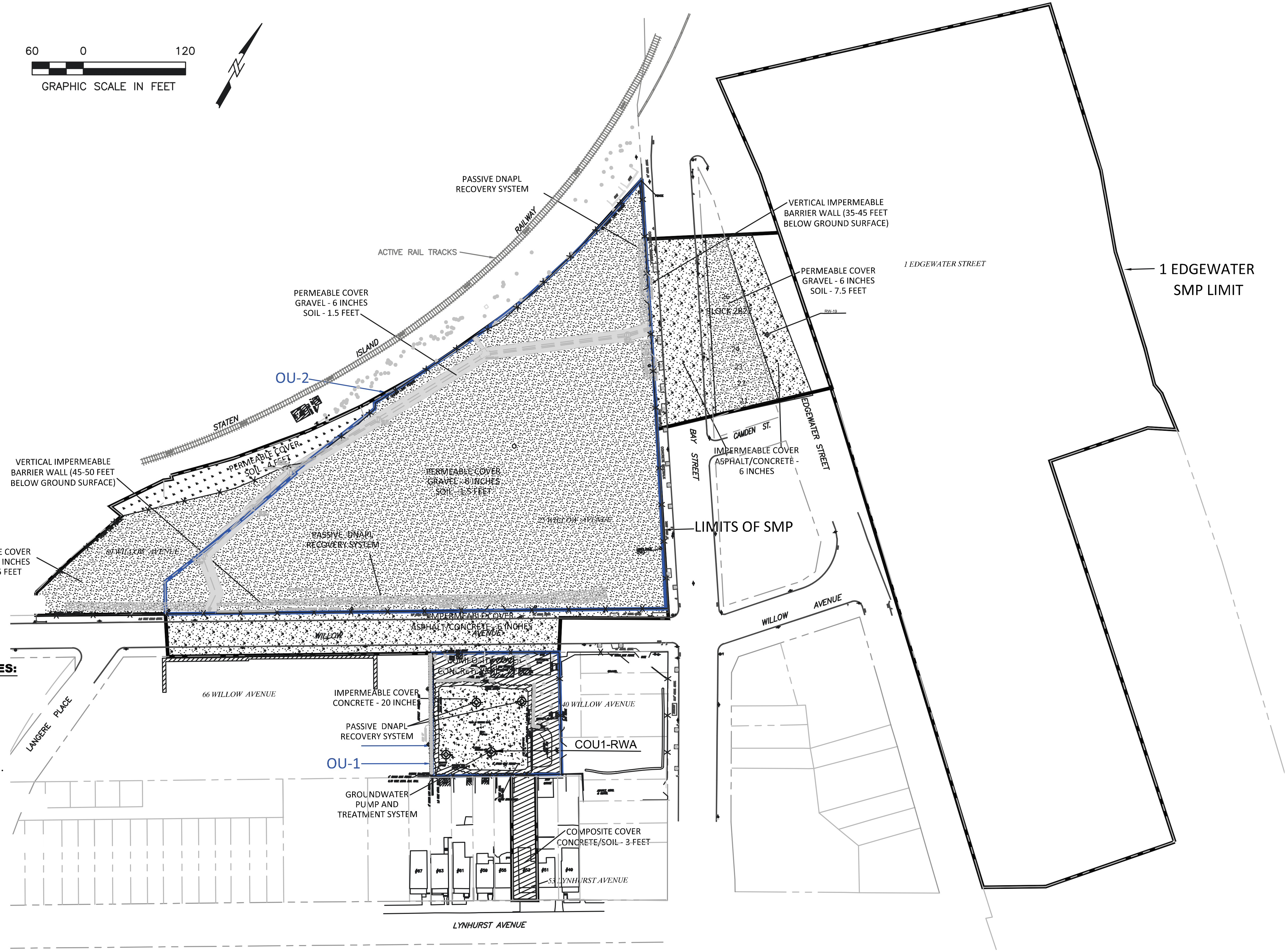
LEGEND

	LIMIT OF OPERABLE UNIT (OU)
	LIMITS OF SITE MANAGEMENT PLAN (SMP)
	PERMEABLE COVER, GRAVEL/SOIL
	IMPERMEABLE COVER, ASPHALT/CONCRETE
	PERMEABLE COVER, SOIL
	COMPOSITE CONCRETE/SOIL
	IMPERMEABLE COVER, CONCRETE
	SEWER BUFFER ZONE
	PROPERTY LINE
	FENCE
	SIRTOA RAILWAY TRACKS
	BUTTRESS SHALLOW SLURRY WALL
	BARRIER SLURRY WALL
	MONITORING WELL
	CATCH BASIN
C.C.	CURB
	STORM DRAIN MANHOLE
DNAPL	DENSE NONAQUEDUS PHASE LIQUID

60 0 120

GRAPHIC SCALE IN FEET

N



ENGINEERING CONTROL

CITY OF NEW RIGHT OF WAY AREAS:

1. 6-INCH ASPHALT/CONCRETE COVER.
2. DNAPL RECOVERY SYSTEM.

BLOCK 2822 LOTS 20-24 AND 25 PROPERTIES:

1. 8-FEET GRAVEL/SOIL COVER.

40 WILLOW AVENUE PROPERTY

1. 20-INCH CONCRETE COVER.
2. 2-FEET CONCRETE/SOIL COVER.
3. DNAPL RECOVERY SYSTEM.
4. GROUNDWATER PUMP AND TREATMENT SYSTEM.
5. 125-FEET CONTAINMENT CELL.

53 LYNHURST AVENUE PROPERTY:

1. 3-FEET CONCRETE/SOIL COVER.

25 WILLOW AVENUE PROPERTY:

1. 2-FEET GRAVEL/SOIL COVER.
2. 30-50-FEET VERTICAL BARRIER WALL.
3. DNAPL RECOVERY SYSTEM.

89 WILLOW AVENUE PROPERTY:

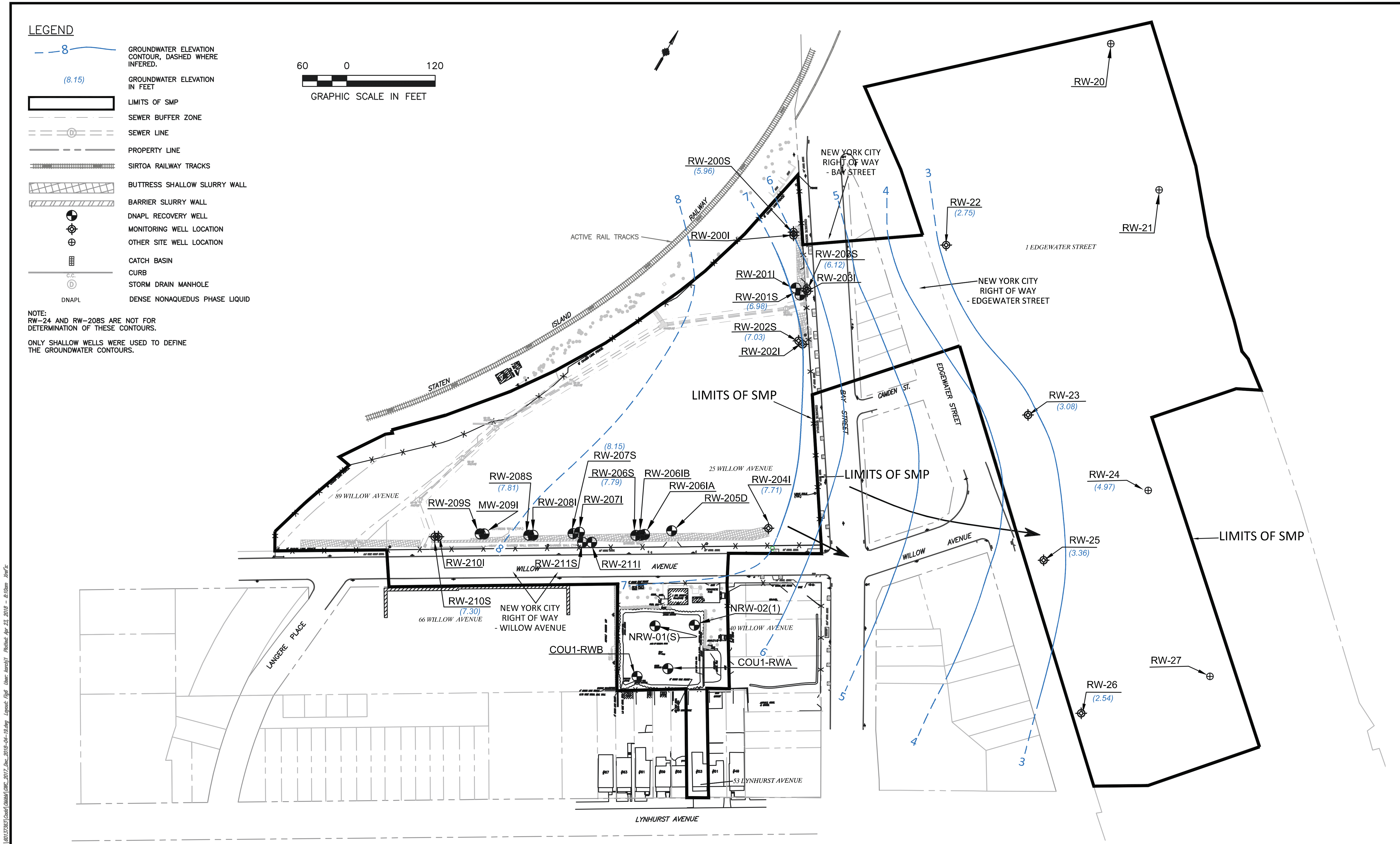
1. 2-FEET GRAVEL/SOIL COVER.
1. 4-FEET SOIL COVER.

AECOM

NATIONAL GRID
FORMER CLIFTON MANUFACTURED GAS PLANT
SEMIANNUAL MONITORING REPORT

ENGINEERING CONTROL LOCATIONS

DATE: 10/23/2017 | DRWN: XW/jk | JOB NO.: 60137363-620 | FIGURE 5



NATIONAL GRID

FORMER CLIFTON MANUFACTURED GAS PLANT

SEMIANNUAL MONITORING REPORT

GROUNDWATER CONTOURS DECEMBER 2017

DATE: 04/23/2018	DRWN: RCW/jk	JOB NO.: 60137363.600	FIGURE 6

LEGEND

- LIMITS OF SMP
- SEWER BUFFER ZONE
- SEWER LINE
- PROPERTY LINE
- BUTTRESS SHALLOW SLURRY WALL
- BARRIER SLURRY WALL
- MONITORING WELL LOCATION
- OTHER WELL LOCATION
- CATCH BASIN
- CURB
- STORM DRAIN MANHOLE
- DNAPL — DENSE NONAQUEDUS PHASE LIQUID

Standards & Guidance Values	
Compound	AWQS (ug/L)
Benzene	1
Ethylbenzene	5
m/p-Xylenes	5
o-Xylene	5
Toluene	5
Compound	AWQGV (ug/L)
Acenaphthene	20
Benzo(a)anthracene	0.002
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Fluorene	50
Indeno(1,2,3-cd)pyrene	0.002
Naphthalene	10

Notes:
AWQS = NYSDEC Ambient Water Quality Standard
AWQGV = NYSDEC Ambient Water Quality Guidance Value
ft bgs = Feet below ground surface
ug/L = micrograms per liter; mg/L = milligrams per liter (ppm)
Bold value = Reported concentration greater than the detection limit
Green Highlighted values exceed NYSDEC Groundwater Standards
Gray Highlighted values exceed NYSDEC Groundwater Guidance Values
ND = Not detected
NL = Not listed
J = The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Location Sample Date Screened Interval (ft bgs)	RW-200S 12/21/2016 10-20	RW-200S 12/20/2017 10-20	RW-200I 12/21/2016 24-34	RW-200I 12/20/2017 24-34
BTEX (ug/l)				
Benzene	**280**	**220**	ND	ND
Ethylbenzene	**800**	**410**	ND	ND
Toluene	**330**	**290**	ND	ND
Xylenes (total)	**590**	**550**	ND	**0.43 J**
PAH (ug/l)				
Acenaphthene	ND	ND	ND	ND
Benzo(a)anthracene	**0.25 J**	ND	**0.037 J**	ND
Benzo(a)pyrene	ND	ND	**0.1**	ND
Benzo(b)fluoranthene	**0.094 J**	ND	**0.09**	ND
Benzo(k)fluoranthene	ND	ND	**0.034 J**	ND
Chrysene	**0.21 J**	ND	**0.059**	ND
Fluorene	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	**0.05**	ND
Naphthalene	**3000**	**3800**	ND	**0.98 J**

Location Sample Date Screened Interval (ft bgs)	RW-203S 12/22/2016 14-24	RW-203S 12/21/2017 14-24	RW-203S Dup 12/21/2017 24-34	RW-203I 12/22/2016 24-34	RW-203I 12/21/2017 24-34
BTEX (ug/l)					
Benzene	**88**	**91**	**90**	**74**	**69**
Ethylbenzene	**740**	**940**	**920**	**680**	**1100**
Toluene	**28**	**34**	**33**	**270**	**310**
Xylenes (total)	**289**	**390**	**380**	**890**	**1100**
PAH (ug/l)					
Acenaphthene	**120 J**	**120**	**130**	**96 J**	**79**
Benzo(a)anthracene	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Fluorene	**48 J**	**33**	**34**	**55 J**	**38**
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND
Naphthalene	**2800**	**2600**	**3100**	**2300**	**2900**

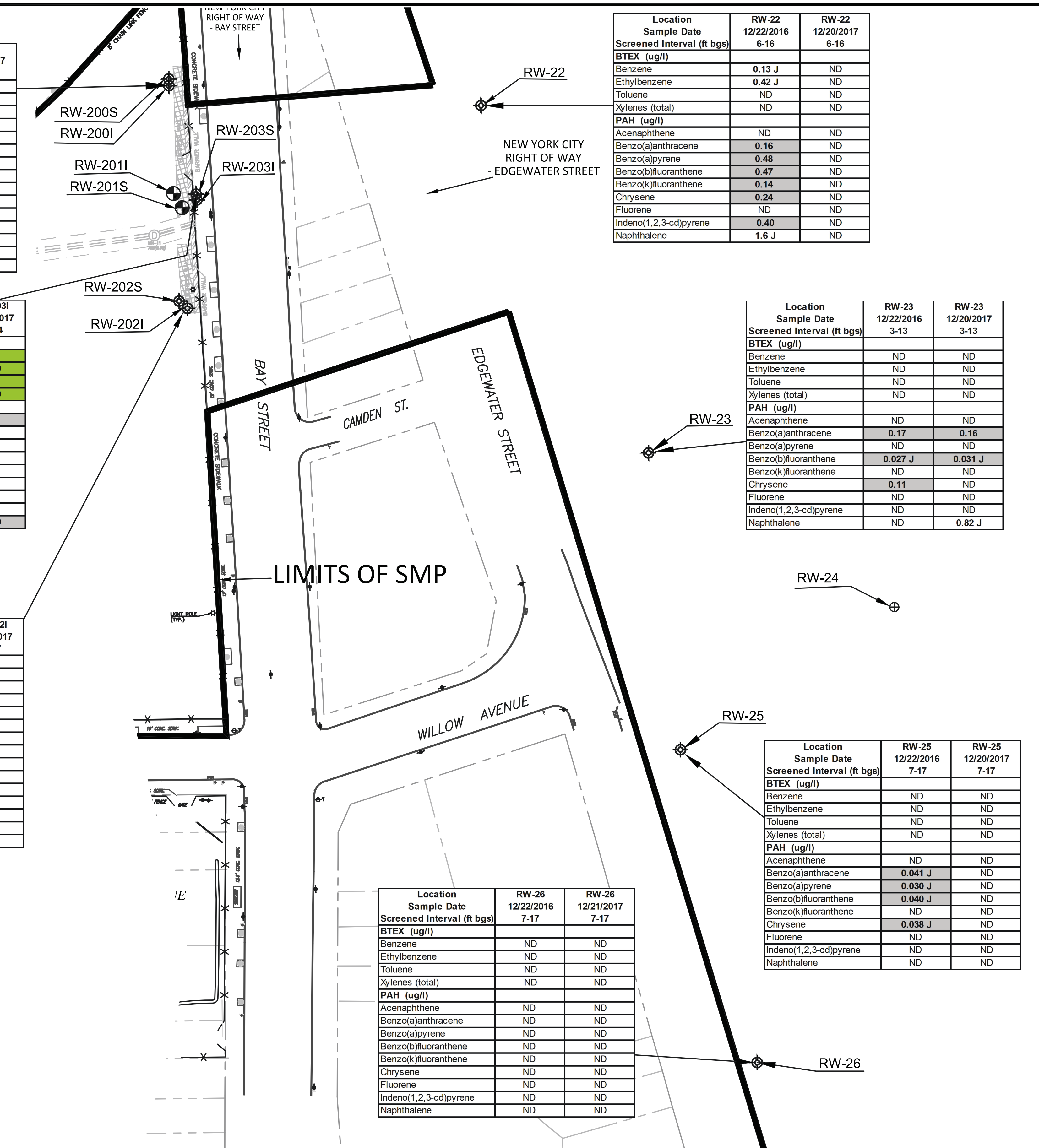
Location Sample Date Screened Interval (ft bgs)	RW-202S 12/21/2016 10-20	RW-202S 12/20/2017 10-20	RW-202I 12/21/2016 27-37	RW-202I 12/20/2017 27-37
BTEX (ug/l)				
Benzene	**1.3**	ND	ND	ND
Ethylbenzene	**14**	**0.48 J**	ND	ND
Toluene	**7.9**	**0.27 J**	ND	ND
Xylenes (total)	**21.7**	**3.0**	ND	ND
PAH (ug/l)				
Acenaphthene	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	**0.072**	ND
Benzo(a)pyrene	ND	ND	**0.027 J**	ND
Benzo(b)fluoranthene	**0.023 J**	ND	**0.027 J**	ND
Benzo(k)fluoranthene	ND	ND	0.05	ND
Chrysene	**0.037 J**	ND	**0.079**	ND
Fluorene	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND
Naphthalene	**41**	ND	ND	ND

Location Sample Date Screened Interval (ft bgs)	RW-22 12/22/2016 6-16	RW-22 12/20/2017 6-16
BTEX (ug/l)		
Benzene	**0.13 J**	ND
Ethylbenzene	**0.42 J**	ND
Toluene	ND	ND
Xylenes (total)	ND	ND
PAH (ug/l)		
Acenaphthene	ND	ND
Benzo(a)anthracene	**0.16**	ND
Benzo(a)pyrene	**0.48**	ND
Benzo(b)fluoranthene	**0.47**	ND
Benzo(k)fluoranthene	**0.14**	ND
Chrysene	**0.24**	ND
Fluorene	ND	ND
Indeno(1,2,3-cd)pyrene	**0.40**	ND
Naphthalene	**1.6 J**	ND

Location Sample Date Screened Interval (ft bgs)	RW-23 12/22/2016 3-13	RW-23 12/20/2017 3-13
BTEX (ug/l)		
Benzene	ND	ND
Ethylbenzene	ND	ND
Toluene	ND	ND
Xylenes (total)	ND	ND
PAH (ug/l)		
Acenaphthene	ND	ND
Benzo(a)anthracene	**0.17**	**0.16**
Benzo(a)pyrene	ND	ND
Benzo(b)fluoranthene	**0.027 J**	**0.031 J**
Benzo(k)fluoranthene	ND	ND
Chrysene	**0.11**	ND
Fluorene	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND
Naphthalene	ND	**0.82 J**

Location Sample Date Screened Interval (ft bgs)	RW-25 12/22/2016 7-17	RW-25 12/20/2017 7-17
BTEX (ug/l)		
Benzene	ND	ND
Ethylbenzene	ND	ND
Toluene	ND	ND
Xylenes (total)	ND	ND
PAH (ug/l)		
Acenaphthene	ND	ND
Benzo(a)anthracene	**0.041 J**	ND
Benzo(a)pyrene	**0.030 J**	ND
Benzo(b)fluoranthene	**0.040 J**	ND
Benzo(k)fluoranthene	ND	ND
Chrysene	**0.038 J**	ND
Fluorene	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND
Naphthalene	ND	ND

Location Sample Date Screened Interval (ft bgs)	RW-26 12/22/2016 7-17	RW-26 12/21/2017 7-17
BTEX (ug/l)		
Benzene	ND	ND
Ethylbenzene	ND	ND
Toluene	ND	ND
Xylenes (total)	ND	ND
PAH (ug/l)		
Acenaphthene	ND	ND
Benzo(a)anthracene	ND	ND
Benzo(a)pyrene	ND	ND
Benzo(b)fluoranthene	ND	ND
Benzo(k)fluoranthene	ND	ND
Chrysene	ND	ND
Fluorene	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND
Naphthalene	ND	ND



40 0 80
GRAPHIC SCALE IN FEET

AECOM

NATIONAL GRID
FORMER CLIFTON MANUFACTURED GAS PLANT
SEMIANNUAL MONITORING REPORT

2017 GROUNDWATER MONITORING ANALYTICAL RESULTS, BAY STREET AND EDGEWATER PLAZA WELLS

DATE: 04/25/2018 | DRWN: RCW/jk | JOB NO.: 60137363.600

FIGURE 7

LEGEND

- LIMITS OF SMP
- SEWER BUFFER ZONE
- SEWER LINE
- PROPERTY LINE
- BUTTRESS SHALLOW SLURRY WALL
- BARRIER SLURRY WALL
- DNAPL RECOVERY WELL
- MONITORING WELL LOCATION
- CATCH BASIN
- CURB
- STORM DRAIN MANHOLE
- DNAPL: DENSE NONAQUEDUS PHASE LIQUID

40 0 80

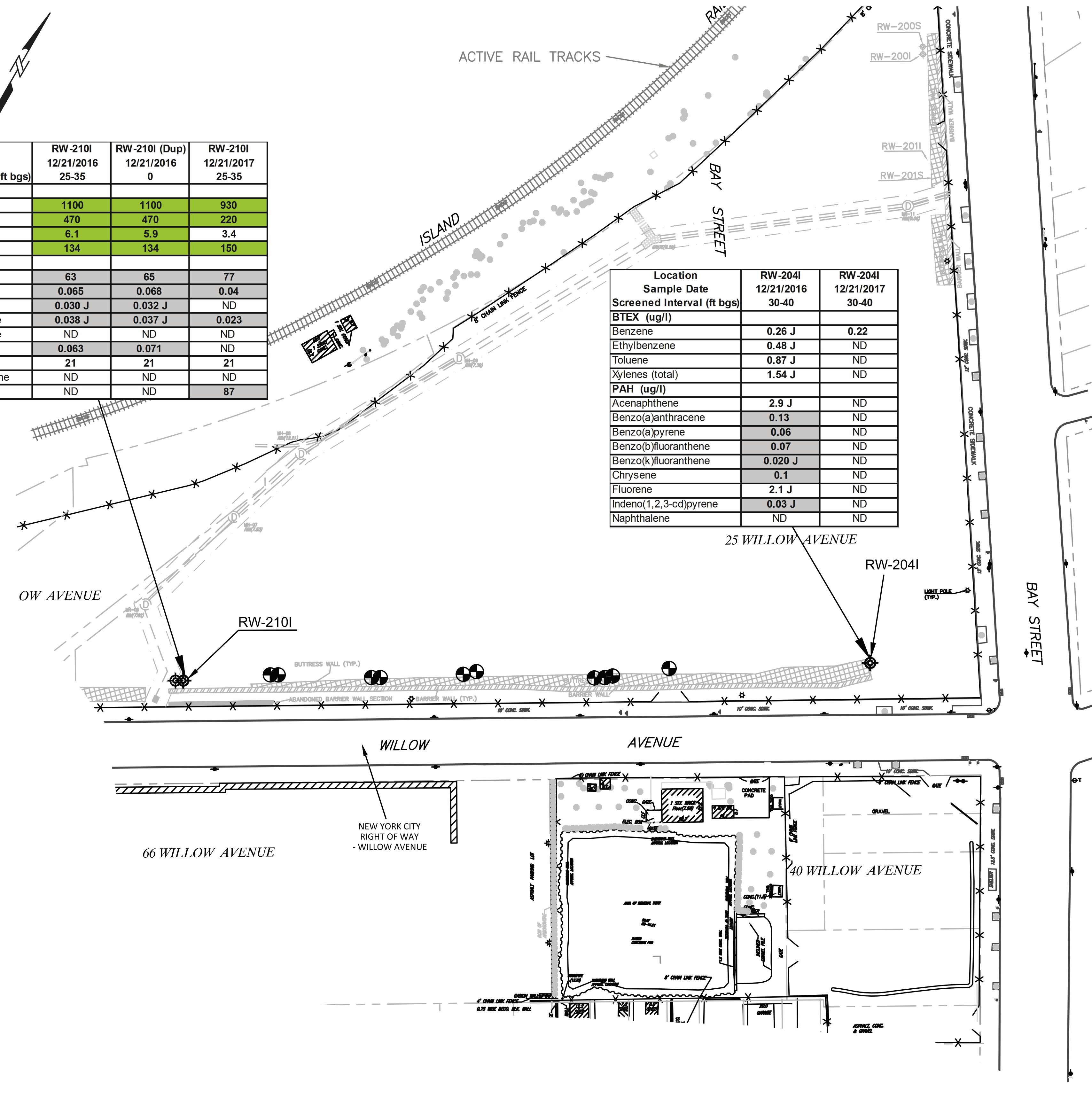
GRAPHIC SCALE IN FEET

Standards & Guidance Values	
Compound	AWQS (ug/L)
Benzene	1
Ethylbenzene	5
m/p-Xylenes	5
o-Xylene	5
Toluene	5
Compound	AWQGV (ug/L)
Acenaphthene	20
Benzo(a)anthracene	0.002
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Fluorene	50
Indeno(1,2,3-cd)pyrene	0.002
Naphthalene	10

Notes:
AWQS = NYSDEC Ambient Water Quality Standard
AWQGV = NYSDEC Ambient Water Quality Guidance Value
ft bgs = Feet below ground surface
ug/L = micrograms per liter;
mg/L = milligrams per liter (ppm)
Bold value = Reported concentration greater than the detection limit
Green Highlighted values exceed NYSDEC Groundwater Standards
Gray Highlighted values exceed NYSDEC Groundwater Guidance Values
ND = Not detected
NL = Not listed
J = The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Location Sample Date Screened Interval (ft bgs)	RW-210I 12/21/2016 25-35	RW-210I (Dup) 12/21/2016 0	RW-210I 12/21/2017 25-35
BTEX (ug/l)			
Benzene	**1100**	**1100**	**930**
Ethylbenzene	**470**	**470**	**220**
Toluene	**6.1**	**5.9**	**3.4**
Xylenes (total)	**134**	**134**	**150**
PAH (ug/l)			
Acenaphthene	**63**	**65**	**77**
Benzo(a)anthracene	**0.065**	**0.068**	**0.04**
Benzo(a)pyrene	**0.030 J**	**0.032 J**	ND
Benzo(b)fluoranthene	**0.038 J**	**0.037 J**	**0.023**
Benzo(k)fluoranthene	ND	ND	ND
Chrysene	**0.063**	**0.071**	ND
Fluorene	**21**	**21**	**21**
Indeno(1,2,3-cd)pyrene	ND	ND	ND
Naphthalene	ND	ND	**87**

Location Sample Date Screened Interval (ft bgs)	RW-204I 12/21/2016 30-40	RW-204I 12/21/2017 30-40
BTEX (ug/l)		
Benzene	**0.26 J**	**0.22**
Ethylbenzene	**0.48 J**	ND
Toluene	**0.87 J**	ND
Xylenes (total)	**1.54 J**	ND
PAH (ug/l)		
Acenaphthene	**2.9 J**	ND
Benzo(a)anthracene	**0.13**	ND
Benzo(a)pyrene	**0.06**	ND
Benzo(b)fluoranthene	**0.07**	ND
Benzo(k)fluoranthene	**0.020 J**	ND
Chrysene	**0.1**	ND
Fluorene	**2.1 J**	ND
Indeno(1,2,3-cd)pyrene	**0.03 J**	ND
Naphthalene	ND	ND



AECOM

NATIONAL GRID
FORMER CLIFTON MANUFACTURED GAS PLANT
SEMIANNUAL MONITORING REPORT

2017 GROUNDWATER MONITORING ANALYTICAL RESULTS WILLOW AVENUE WELLS

DATE: 04/25/2018 | DRWN: RCW/jk | JOB NO.: 60137363.600 | **FIGURE 8**

Appendix A

Data Usability Summary and Analytical Reports (on CD Only)

AECOM
707 Grant Street
Pittsburgh, PA 15219
aecom.com

Project name:
Clifton MGP Groundwater

Project ref:
60137363-600

To:
Robert Forstner
AECOM
125 Broad Street, 16th Fl
New York, New York 10004

From:
Gregory A. Malzone

Date:
May 7, 2018 revised

CC:
Shail Pandya
AECOM
125 Broad Street, 16th Fl
New York, New York 10004

Data Assessment Memorandum

Subject: Clifton Former MGP December 2017 Groundwater Data Assessment

Overview

Data validation was performed by Gregory A. Malzone of AECOM Pittsburgh on two data packages from TestAmerica Laboratories, Inc., 777 New Durham Road, Edison, NJ 08817 (TAL-Edison) for the analysis of groundwater samples collected on December 20-21, 2017 at the Clifton, NY former manufactured gas plant (MGP) site. TAL-Edison conducted the testing and reported the results under sample delivery groups (SDGs) 460-147389-1 and 460-147510-1.

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

- USEPA Method 8260C – Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by GC/MS
- USEPA Method 8270D – 2-Methylnaphthalene, Acenaphthene, Acenapthylene, Anthracene, Benzo(g,h,i)perylene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene and Pyrene by GC/MS Full Scan
- USEPA Method 8270D SIM – Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Hexachlorobenzene and Indeno(1,2,3-cd)pyrene by GC/MS in Selected Ion Monitoring (SIM) Mode (low-level)
- RSK 175 – Methane by GC
- USEPA Method 300.0 – Anions (Nitrite and Nitrate) by Ion Chromatography (IC)
- USEPA Method 6020A – Total and Dissolved Iron and Manganese by ICP/MS
- Method SM 2320B - Total, Bicarbonate, Carbonate and Hydroxide Alkalinity
- Method SM 4500 CO2 D - Free Carbon Dioxide
- ASTM Method D516-90,02 – Sulfate
- Method SM 4500 S2 F – Sulfide
- Method SM 5220D – Chemical Oxygen Demand (COD)*

- Method SM 3500 FE D - Ferrous Iron
- USEPA Method 351.2 - Kjeldahl Nitrogen (TKN) and Total Nitrogen (by Calculation)
- Method SM4500 NH3 H – Ammonia

*Sample RW-22 was subcontracted to ALS Group USA, Rochester, NY for COD (high-level) analysis by USEPA 410.4.

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region II SOPs and the validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review*, EPA-540-R-2017-002, January 2017 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*, EPA-540-R-2017-001, January 2017, as they apply to the analytical methods employed.

Field duplicate relative percent difference (RPD) review and applicable control limits were taken from the *USEPA Region I, New England Data Validation Functional Guidelines for Evaluating Environmental Analyses*, December 1996.

Review Elements

The following elements of the data reports were reviewed.

- Agreement of analyses conducted with CoC requests
- Compound identification and quantitation
- Holding times/sample preservation
- Initial and continuing calibrations
- Method preparation blanks
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate and serial dilution results
- Surrogate recoveries
- Internal standards
- Field duplicate precision

Samples

Table 1 below lists the sample field identifications cross-referenced to the laboratory identifications.

Table 1 – Clifton MGP Groundwater Sample Submittals

Sample ID	Lab Sample ID	Quality Control	Matrix	Sample Date
RW-22	460-147389-1		Groundwater	12/20/2017 11:30
RW-23	460-147389-2		Groundwater	12/20/2017 12:25
RW-25	460-147389-3		Groundwater	12/20/2017 14:35
RW-200S	460-147389-4		Groundwater	12/20/2017 11:20
RW-200I	460-147389-5		Groundwater	12/20/2017 11:45
RW-202S	460-147389-6		Groundwater	12/20/2017 14:00
RW-202I	460-147389-7		Groundwater	12/20/2017 13:50
RW-26	460-147510-1		Groundwater	12/21/2017 08:15
RW-204	460-147510-2		Groundwater	12/21/2017 09:30
RW-203I	460-147510-3		Groundwater	12/21/2017 10:00
RW-203S	460-147510-4		Groundwater	12/21/2017 11:45
RW-210I	460-147510-5	MS/MSD	Groundwater	12/21/2017 14:10
Dup-01	460-147510-6	RW-203S	Groundwater (QC)	12/21/2017 12:00

Data Qualifiers

The following USEPA-defined data qualifiers were assigned in this data assessment.

U: Indicates the compound was not detected in the sample above the sample reporting limit.

J: Indicates the result was an estimated value; the associated numerical value was an approximate concentration of the analyte in the sample with an unknown directional bias.

UJ: Indicates the compound was not detected above the reporting limit and the reporting limit was approximate.

J-: Indicates the result was an estimated value; the associated numerical value was an approximate concentration of the analyte in the sample with a potential low bias.

R: The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Discussion

Agreement of Analyses Conducted with CoC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the CoC. No discrepancies were noted.

Data Validation Report Revision 1.0: At the request of the AECOM project manager, The data reports for SDGs 460-147389-1 and 460-147510-1 were revised to: 1) include benzo(k)fluoranthene in the SIM target compound list in order to achieve lower detection limits, and 2) include 2-methylnaphthalene and dibenz(a,h)anthracene in the full scan target compound list. The data for the added compounds were reviewed and the findings were included in this revised data validation report.

Compound Identification and Quantitation

All BTEX and semivolatile compound results were reported to the method detection limits (MDLs) in µg/L (ppb). All methane and general chemistry results were reported to the MDLs in mg/L (ppm).

Holding Times and Sample Preservation

The sample shipments was received on ice, intact, with the proper chemical preservation, and in good condition. The cooler temperatures were 0.1 to 3.3 degrees Celsius (°C) which were within the optimal range of just above freezing to 6° C upon receipt.

All samples were analyzed within the USEPA-recommended preparation and analysis holding times for aqueous samples with the following exceptions.

Ferrous Iron: The analyses for ferrous iron samples DUP-01, RW-22, RW-23, RW-25, RW-26, RW-200S, RW-200I, RW-202S, RW-203I, RW-203S, RW-204 and RW-210I were performed several hours to one day beyond the USEPA 24-hour holding time. The positive and non-detect ferrous iron results were qualified “J/UJ,” as estimates, because the holding time was exceeded.

The analysis for ferrous iron sample RW-202I was performed two days beyond the USEPA-24 hour holding time. The non-detect ferrous iron result for sample R-202I was qualified “R,” as rejected, because the holding time was grossly exceeded.

Free Carbon Dioxide: The analyses for free carbon dioxide samples DUP-01, RW-22, RW-23, RW-25, RW-26, RW-200S, RW-200I, R-202I, RW-202S, RW-203I, RW-203S, RW-204 and RW-210I were performed five days beyond the USEPA 24-

hour holding time. The free carbon dioxide results for samples RW-200S, RW-200I, RW-202S, RW-202I, RW-203I and RW-204 were non-detect and were qualified "R," as rejected, because the holding time was grossly exceeded. The free carbon dioxide results for samples DUP-01, RW-22, RW-23, RW-25, RW-26, RW-203S and RW-210I were positive and were qualified "J," as estimated concentrations, because the holding time was grossly exceeded.

Initial and Continuing Calibrations

The initial and continuing calibrations were within the method specification limits with the following exceptions.

Full Scan Semivolatiles: The continuing calibration verification percent difference (%D) for dibenz(a,h)anthracene was greater than the method specification limit of 20%, on December 26, 2017 at 10:48 on instrument CBNAMS16. The dibenz(a,h)anthracene result for associated sample RW-200S was non-detect and did not require qualification in response to the high instrument bias.

SIM Semivolatiles: The initial calibration average RRF for benzo(a)anthracene was less than the minimum method specification limit on December 28, 2017 on instrument CBNAMS13. The continuing calibration RRF on December 26, 2017 at 11:14 on instrument CBNAMS13 was also was less than the minimum method specification limit for benzo(a)anthracene. The benzo(a)anthracene result for associated sample RW-203I was non-detect and was qualified "R," as rejected, because of poor method sensitivity.

The SIM continuing calibration percent difference for benzo(b)fluoranthene was greater than the upper method specification limit of 20% on December 26, 2017 at 11:14 on instrument CBNAMS13. The benzo(b)fluoranthene result for associated sample RW-203I was non-detect and did not require qualification in response to the high instrument bias.

Laboratory Method Blanks

No target compounds were detected at concentrations exceeding the MDLs in the laboratory method blanks with the following exception.

Nitrite: Nitrite was detected in the method blank MB 460-487454/10 at a concentration of 0.0538 J mg/L. Nitrite was also detected in the continuing calibration blanks, but the highest concentration was in the method blank. Samples RW-203I, RW-203S, RW-204, RW-210I and RW-26 were affected. The nitrite results for associated samples , RW-203I, RW-203S, RW-204 and RW-210I were less than ten times the blank level and less than the RL and were qualified "U"as undetected at the RL, because of laboratory contamination. The nitrite result for associated sample RW-26 was greater than ten times the blank level and did not require qualification.

Laboratory Control Samples (LCS)

Laboratory control sample recoveries were within the quality control limits with the following exception.

SIM Semivolatiles: The LCSD 460-486727/5-A recovery for hexachlorobenzene was greater than the upper quality control limit. The hexachlorobenzene results for associated samples DUP-01, RW-203I, RW-203S, RW-204, RW-210I and RW-26 were non-detect. No data qualification was required in response to the high method bias.

Matrix Spike/Matrix Spike Duplicates (MS/MSD), RPDs and ICP Serial Dilutions

Matrix spike and matrix spike duplicates and ICP serial dilution analyses that were performed on non-project samples were not evaluated because matrix similarity to project samples could not be assumed.

Full Scan Semivolatiles: The RW-210I MS recovery for acenaphthene was greater than the upper advisory limit. The acenaphthene result for sample RW-210I was positive and was qualified "J," as an estimated concentration, because of high bias and/or sample heterogeneity.

The RW-210I MS and MSD recoveries for naphthalene were outside the advisory limits. The RPD between the RW-210I MS and MSD recoveries for naphthalene was greater than the maximum advisory limit. The naphthalene result for sample RW-210I was positive and was qualified "J," as an estimated concentration, because of sample heterogeneity.

The RW-210I MS recovery for 2-methylnaphthalene was less than the lower advisory limit, but greater than 20%. The RW-210I MSD recovery for 2-methylnaphthalene was greater than the upper advisory limit. The 2-methylnaphthalene result for sample RW-210I was positive and was qualified "J," as an estimated concentration, because of sample heterogeneity.

The RW-210I MS and MSD recoveries for dibenz(a,h)anthracene were greater than the upper advisory limit. The dibenz(a,h)anthracene result for sample RW-210I was non-detect and did not require qualification in response to the high bias attributable to matrix effects and/or sample heterogeneity.

COD: The RW-210I MS and MSD recoveries for COD were less than the lower advisory limits, but greater than 30%. All samples except RW-22 were affected. The positive and non-detect COD results were qualified "J/J-/UJ," as estimates, because of low method bias and/or matrix effects.

TKN: The RW-210I MS recovery for TKN was less than the lower advisory limit, but greater than 30% and the RW-203I MSD recovery for TKN was greater than the upper quality control limit. All samples were affected. The positive and non-detect TKN results were qualified "J/UJ," as estimates, because of method imprecision and/or matrix effects. The direction of bias could not be determined.

Surrogate Recoveries

All surrogate recoveries were within the quality control limits with the following exceptions.

Full Scan Semivolatiles: Samples RW-203I, RW-203S and DUP-01 required analysis at an initial 20-fold dilution to bring the target compound concentration(s) into the calibration range. There were sufficient, acceptable quality control data to show that the analytical process was in control. No data qualifications were required.

Internal Standards

The GC/MS and ICP/MS internal standards were within the method specification limits.

Field Duplicate Precision

A field duplicate sample was collected for sample RW-203S. See Table 2 below for the calculated RPDs for each parameter for which there was positive results.

Field duplicate results were evaluated using the following criteria.

Organics: The RPD must be ≤ 30% for results greater than or equal to two times the reporting limit. If one of the results is non-detect or less than two times the reporting limit, and the duplicate is greater than two times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

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

Inorganics: The RPD must be ≤ 30% for results greater than or equal to five times the reporting limit. For results less than five times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

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

The results associated with a nonconforming RPD or absolute difference were qualified “J/UJ,” as estimates because of field sampling/laboratory imprecision and/or sample heterogeneity. See Table 2 below.

The following notations are used in the field precision table.

RPD: Relative percent difference

NC: RPD could not be calculated

≤2RL: The absolute difference between the parent and field duplicate results was less than or equal to two times the reporting limit. Variation of this magnitude is acceptable.

µg/L: micrograms per liter (ppb) and mg/L: milligrams per liter (ppm)

Summary

Six non-detect free carbon dioxide results and one non-detect ferrous iron result were rejected because the holding time was grossly exceeded. One non-detect semivolatile result was rejected because of poor method sensitivity. All other data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds in the media tested (i.e., groundwater) with some qualification. See Table 3 below for a list of the qualified analytical data.

Table 2 – Clifton MGP Groundwater Field Duplicate Precision

Parameter	Units	RW-203S	DUP-01	RPD (%)	Qual
Benzene	µg/L	91	90	1.1	None
Toluene	µg/L	34	33	2.9	None
Ethylbenzene	µg/L	940	920	2.1	None
m/p-Xylene	µg/L	130	130	0	None
o-Xylene	µg/L	260	250	3.9	None
Xylenes, total	µg/L	390	380	2.6	None
2-Methylnaphthalene	µg/L	160 J	190 J	17	None
Acenaphthene	µg/L	120 J	130 J	8.0	None
Fluorene	µg/L	33 J	34 J	2.9	None
Naphthalene	µg/L	2600	3100	17	None
Phenanthrene	µg/L	26 J	28 J	7.4	None
Methane	mg/L	0.29	0.27	7.1	None
Iron, Total	µg/L	1540	1310	16	None
Manganese, Total	µg/L	338	321	5.2	None
Iron, Dissolved	µg/L	1340	1110	19	None
Manganese, Dissolved	µg/L	322	322	0	None
Kjeldahl Nitrogen	mg/L	1.4	1.3	7.4	None
Ammonia	mg/L	1.4	1.4	0	None
Nitrite	mg/L	0.023 J	0.0051 J	127	≤2RL, None
Nitrogen, Total	mg/L	1.5	1.6	6.5	None
Alkalinity, Total	mg/L	193	193	0	None
Alkalinity, Bicarbonate	mg/L	193	193	0	None
Ferrous Iron	**mg/L**	**0.056 U**	**0.38**	**NC**	**J/UJ**
Carbon dioxide, free	mg/L	7.5	5.5	31	≤2RL, None
COD	mg/L	15.6	12.4	23	None

Table 3 – Clifton MGP Groundwater Qualified Analytical Data

Field ID	Lab ID	Parameter	Result	Lab Qualifier[1]	Validation Qualifier[1]	Units[3]	Reason Code(s)[2]
RW-22	460-147389-1	Total Kjeldahl Nitrogen	0.45		J	mg/L	MS
RW-22	460-147389-1	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-22	460-147389-1	Carbon Dioxide, Free	41.3		J	mg/L	HT
RW-23	460-147389-2	Total Kjeldahl Nitrogen	1.8		J	mg/L	MS
RW-23	460-147389-2	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-23	460-147389-2	Carbon Dioxide, Free	56.6		J	mg/L	HT
RW-23	460-147389-2	Chemical Oxygen Demand	26.5		J-	mg/L	MS
RW-25	460-147389-3	Total Kjeldahl Nitrogen	0.25	U	UJ	mg/L	MS
RW-25	460-147389-3	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-25	460-147389-3	Carbon Dioxide, Free	16.7		J	mg/L	HT
RW-25	460-147389-3	Chemical Oxygen Demand	6.2	J	J	mg/L	MS
RW-200S	460-147389-4	Total Kjeldahl Nitrogen	0.27		J	mg/L	MS
RW-200S	460-147389-4	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-200S	460-147389-4	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-200S	460-147389-4	Chemical Oxygen Demand	12.0		J-	mg/L	MS
RW-200I	460-147389-5	Total Kjeldahl Nitrogen	0.25	U	UJ	mg/L	MS
RW-200I	460-147389-5	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-200I	460-147389-5	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-200I	460-147389-5	Chemical Oxygen Demand	5.0	J	J	mg/L	MS
RW-202S	460-147389-6	Total Kjeldahl Nitrogen	7.3		J	mg/L	MS
RW-202S	460-147389-6	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-202S	460-147389-6	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-202S	460-147389-6	Chemical Oxygen Demand	17.5		J-	mg/L	MS
RW-202I	460-147389-7	Total Kjeldahl Nitrogen	0.76		J	mg/L	MS
RW-202I	460-147389-7	Ferrous Iron	0.10	U	R	mg/L	HT, FD
RW-202I	460-147389-7	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-202I	460-147389-7	Chemical Oxygen Demand	12.0		J-	mg/L	MS
RW-26	460-147510-1	Total Kjeldahl Nitrogen	3.7		J	mg/L	MS
RW-26	460-147510-1	Ferrous Iron	0.13		J	mg/L	HT, FD
RW-26	460-147510-1	Carbon Dioxide, Free	45.3		J	mg/L	HT
RW-26	460-147510-1	Nitrite as N	0.032	J B	0.10 U	mg/L	MB
RW-26	460-147510-1	Chemical Oxygen Demand	15.9		J-	mg/L	MS
RW-204	460-147510-2	Total Kjeldahl Nitrogen	0.40		J	mg/L	MS
RW-204	460-147510-2	Ferrous Iron	0.1	U	UJ	mg/L	HT, FD
RW-204	460-147510-2	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-204	460-147510-2	Chemical Oxygen Demand	10.0	U	UJ	mg/L	MS
RW-203I	460-147510-3	Total Kjeldahl Nitrogen	0.84		J	mg/L	MS
RW-203I	460-147510-3	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-203I	460-147510-3	Carbon Dioxide, Free	5.0	U	R	mg/L	HT
RW-203I	460-147510-3	Nitrite as N	0.028	J B	0.10 U	mg/L	MB
RW-203I	460-147510-3	Chemical Oxygen Demand	23.3		J-	mg/L	MS
RW-203I	460-147510-3	Benzo(a)anthracene	0.25	U	R	ug/l	RRF
RW-203S	460-147510-4	Total Kjeldahl Nitrogen	1.4		J	mg/L	MS

Field ID	Lab ID	Parameter	Result	Lab Qualifier[1]	Validation Qualifier[1]	Units[3]	Reason Code(s)[2]
RW-203S	460-147510-4	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-203S	460-147510-4	Carbon Dioxide, Free	7.5		J	mg/L	HT
RW-203S	460-147510-4	Nitrite as N	0.023	J B	0.10 U	mg/L	MB
RW-203S	460-147510-4	Chemical Oxygen Demand	15.6		J-	mg/L	MS
RW-210I	460-147510-5	2-Methylnaphthalene	260		J	ug/l	MS
RW-210I	460-147510-5	Acenaphthene	77		J	ug/l	MS
RW-210I	460-147510-5	Carbon Dioxide, Free	7.5		J	mg/L	HT
RW-210I	460-147510-5	Chemical Oxygen Demand	11.7		J-	mg/L	MS
RW-210I	460-147510-5	Ferrous Iron	0.10	U	UJ	mg/L	HT, FD
RW-210I	460-147510-5	Naphthalene	87		J	ug/l	MS, RPD
RW-210I	460-147510-5	Nitrite as N	0.029	J B	0.10 U	mg/L	MB
RW-210I	460-147510-5	Total Kjeldahl Nitrogen	2.4		J	mg/L	MS
DUP-01	460-147510-6	Chemical Oxygen Demand	12.4		J-	mg/L	MS
DUP-01	460-147510-6	Total Kjeldahl Nitrogen	1.3		J	mg/L	MS
DUP-01	460-147510-6	Ferrous Iron	0.38		J	mg/L	HT, FD
DUP-01	460-147510-6	Carbon Dioxide, Free	5.5		J	mg/L	HT

(1): Data Validation Qualifiers:

U: The analyte was analyzed for, but was not detected above the level of 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.

UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

J-: The result is an estimated quantity, likely to be biased low.

R: The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.

(2): Reason Codes:

FD: The field duplicate RPD was greater than the maximum advisory limit.

HT: The USEPA-recommended holding time was exceeded.

MB: Contamination was detected in the associated method blank.

MS: The matrix spike recovery was outside the advisory limits.

RPD: The laboratory duplicate RPD was greater than the maximum advisory limit.

RRF: The calibration relative response factors were less than the minimum method specification limit.

(3): Units

µg/L: micrograms per liter (ppb)

mg/L: milligrams per liter (ppm)

AECOM

Prepared for:
National Grid
Brooklyn, NY

Prepared by:
AECOM
Pittsburgh, PA
60137363-600
January 2018

January 30, 2018

Data Usability Summary Report

National Grid/Clifton Former MGP Site
WWTP Effluent Sampling Events
TestAmerica-Edison Laboratory
July-December 2017
Final

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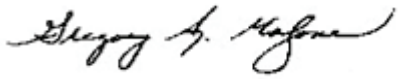

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Contents

List of Appendices

Executive Summary

Overview

A data assessment was performed by Gregory A. Malzone of AECOM Pittsburgh on six data packages from TestAmerica Laboratories, Inc., 777 New Durham Road, Edison, NJ 08817 (TAL-Edison) for the analysis of aqueous effluent samples collected on July – December 2017 at the Clifton former manufactured gas plant (MGP) site.

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

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by USEPA Method 8260C,
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270D, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Hexachlorobenzene and Indeno(1,2,3-cd)pyrene were determined using GC/MS in Selected Ion Monitoring (SIM) Mode,
- Arsenic and Nickel by USEPA Method 6020A,
- Total Cyanide by USEPA Method 335.4,
- Available Cyanide by USEPA Method OIA-1677,
- Total Suspended Solids (TSS) by Standard Method 2540D,
- Turbidity by USEPA Method 180.1, and
- pH by Standard Method 4500-H+ B.

The samples for available cyanide (OIA-1677) analysis were subcontracted to the TestAmerica Laboratories, Inc., Pittsburgh facility.

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region II SOPs and the validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, EPA-540-R-014-002, August 2014 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*, EPA-540-R-013-001, August 2014, as they apply to the analytical methods employed.

Table 1 below provides a sample submittal list with the field IDs cross-referenced with the laboratory IDs.

Table 1 - Sample Submittals
National Grid / Clifton Effluent Samples

Field ID	TestAmerica ID	Matrix	Date Sampled	BTEX 8260C	PAHs 8270D	SVOCs 8270D SIM	As, Ni 6020A	Wet Chemistry*
WWTP-072817	460-138127-1	GW	7/28/2017	x	x	x	x	x
WWTP-080717	460-138700-2	GW	8/7/2017	x				
WWTP-081417	460-139137-1	GW	8/14/2017	x				
WWTP-081517	460-139201-1	GW	8/15/2017	x				
WWTP-091317	460-140857-1	GW	9/13/2017	x				
WWTP-091417	460-140900-1	GW	9/14/2017	x				
WWTP-09222017	460-141437-1	GW	9/22/2017	x			As	TCN
WWTP-20170928	460-141835-3	GW	9/28/2017	x				
WWTP-10162017	460-143064-5	GW	10/16/2017	x				
WWTP-10262017	460-143732-1	GW	10/26/2017	x				
WWTP-10272017	460-143826-1	GW	10/27/2017	x				
WWTP-10282017	460-143908-1	GW	10/28/2017	x				
WWTP-10292017	460-143938-1	GW	10/29/2017	x				
WWTP-10302017	460-143938-2	GW	10/30/2017	x				
WWTP-10312017	460-144002-1	GW	10/31/2017	x				
WWTP-11012017	460-144088-1	GW	11/1/2017	x				
WWTP-112217	460-145711-1	GW	11/22/2017	x	x	x	x	x
WWTP-12212017	460-147524-1	GW	12/22/2017	x	x	x	x	x

* Total and available cyanide, pH, turbidity and total suspended solids.

Summary

Data quality for the organic analyses was evaluated by reviewing the following parameters: holding times, initial and continuing calibrations, daily GC/MS hardware tunes and performance checks, internal standard area counts, surrogate recoveries, laboratory control standards (LCSs), laboratory blanks, laboratory duplicates, and reporting limits.

Inorganic data quality was evaluated by reviewing the following parameters: holding times, initial and continuing calibrations, ICP-MS internal standards, matrix spikes, laboratory control samples, laboratory duplicates, laboratory blanks, and reporting limits.

All data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds and analytes in the media tested (i.e. effluent) with the qualifications described below. Several data points were qualified as estimates because of low method and instrument bias and lapsed holding times. Completeness of 100% was achieved for this data set. This is within the goal of 90-100% and is acceptable.

A glossary of data qualifier definitions is included in Appendix A of this report. The data qualifier summaries are attached as Appendix B of this report. Each noncompliance with specific data usability criteria is discussed below. Support documentation for the data qualifications discussed is provided in Appendix C of this report.

1.0 Volatile Organic Compounds

460-138127-1

No data quality issues were noted. No data qualifications were required.

460-138700-1

No data quality issues were noted. No data qualifications were required.

460-139137-1

No data quality issues were noted. No data qualifications were required.

460-139201-1

No data quality issues were noted. No data qualifications were required.

460-140857-1

No data quality issues were noted. No data qualifications were required.

460-140900-1

No data quality issues were noted. No data qualifications were required.

460-141437-1

No data quality issues were noted. No data qualifications were required.

460-141835-1

No data quality issues were noted. No data qualifications were required.

460-143064-1

No data quality issues were noted. No data qualifications were required.

460-143732-1

No data quality issues were noted. No data qualifications were required.

460-143826-1

No data quality issues were noted. No data qualifications were required.

460-143908-1

No data quality issues were noted. No data qualifications were required.

460-143938-1

No data quality issues were noted. No data qualifications were required.

460-144002-1

No data quality issues were noted. No data qualifications were required.

460-144088-1

No data quality issues were noted. No data qualifications were required.

460-145711-1

No data quality issues were noted. No data qualifications were required.

460-147524-1

No data quality issues were noted. No data qualifications were required.

2.0 Polycyclic Aromatic Hydrocarbons

460-138127-1

Calibrations: The percent difference for benzo(b)fluoranthene was less than the lower method specification limit of -20%, at -22.6% on 08/01/17 at 09:41 on instrument CBNAMS9. The benzo(b)fluoranthene result for associated sample WWTP-072817 was non-detect and was qualified "UJ," as an estimate, because of low instrument bias.

460-145711-1

Calibrations: The SIM percent difference for indeno(1,2,3-cd)pyrene was greater than the upper method specification limit of 20%, at 25.4% on 11/26/17 at 08:22 on instrument CBNAMS9. The indeno(1,2,3-cd)pyrene result for associated sample WWTP-112217 was non-detect and did not require qualification in response to the high instrument bias.

Laboratory Control Sample: The indeno(1,2,3-cd)pyrene recovery for LCS 460-479607/4-A was greater than the upper quality control limit. The indeno(1,2,3-cd)pyrene result for associated sample WWTP-112217 was non-detect and did not require qualification in response to the high method bias.

460-147524-1

No data quality issues were noted. No data qualifications were required.

3.0 Total Metals

460-138127-1

No data quality issues were noted. No data qualifications were required.

460-141437-1

No data quality issues were noted. No data qualifications were required.

460-145711-1

No data quality issues were noted. No data qualifications were required.

460-147524-1

No data quality issues were noted. No data qualifications were required.

4.0 Total and Available Cyanide

460-138127-1

No data quality issues were noted. No data qualifications were required.

460-141437-1

No data quality issues were noted. No data qualifications were required.

460-145711-1

No data quality issues were noted. No data qualifications were required.

460-147524-1

No data quality issues were noted. No data qualifications were required.

5.0 General Chemistry

460-138127-1

Holding Times: The pH analysis was performed outside the USEPA method holding time. A pH sample must be analyzed immediately upon sample collection, that is, as a field test. The pH result for sample WWTP-072817 was positive and was qualified “J,” as an estimated value, because the “analyze immediately” holding time was exceeded.

460-145711-1

Holding Times: The pH analysis was performed outside the USEPA method holding time. A pH sample must be analyzed immediately upon sample collection, that is, as a field test. The pH result for sample WWTP-112217 was positive and was qualified “J,” as an estimated value, because the “analyze immediately” holding time was exceeded.

460-147524-1

Holding Times: The pH analysis was performed outside the USEPA method holding time. A pH sample must be analyzed immediately upon sample collection, that is, as a field test. The pH result for sample WWTP-12212017 was positive and was qualified “J,” as an estimated value, because the “analyze immediately” holding time was exceeded.

6.0 Notes

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

Matrix spike and matrix spike duplicates, laboratory duplicates, and ICP serial dilutions that were performed on non-project samples were not evaluated because matrix similarity to project samples could not be assumed.

Appendix A

Glossary of Data Qualifier Codes

Glossary of Data Qualifier Codes

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, likely to be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The result is an estimated quantity, likely to be biased low. The associated numerical value is the approximate concentration of the analyte in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.
N	(Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	(Organics) The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

Appendix B

Data Qualification Summaries

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison Job No.: 460-138127-1

SDG No.:

Client Sample ID: WWTP-072817 Lab Sample ID: 460-138127-1

Matrix: Water Lab File ID: J59057.D

Analysis Method: 8260C Date Collected: 07/28/2017 12:20

Sample wt/vol: 5(mL) Date Analyzed: 08/01/2017 04:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 453074 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	51		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		74-132
460-00-4	4-Bromofluorobenzene	80		77-124
1868-53-7	Dibromofluoromethane (Surr)	99		72-131
2037-26-5	Toluene-d8 (Surr)	105		80-120

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-138127-1

SDG No.:

Client Sample ID: WWTP-072817 | Lab Sample ID: 460-138127-1

Matrix: Water | Lab File ID: N1210557.D

Analysis Method: 8270D | Date Collected: 07/28/2017 12:20

Extract. Method: 3510C | Date Extracted: 07/29/2017 18:00

Sample wt/vol: 240(mL) | Date Analyzed: 07/30/2017 18:38

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 452856 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	0.92	U	10	0.92
208-96-8	Acenaphthylene	0.68	U	10	0.68
120-12-7	Anthracene	0.59	U	10	0.59
191-24-2	Benzo[g,h,i]perylene	0.78	U	10	0.78
218-01-9	Chrysene	0.70	U	2.1	0.70
206-44-0	Fluoranthene	0.75	U	10	0.75
86-73-7	Fluorene	0.83	U	10	0.83
91-20-3	Naphthalene	0.83	U	10	0.83
85-01-8	Phenanthrene	0.68	U	10	0.68
129-00-0	Pyrene	0.86	U	10	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl	93		45-107
4165-60-0	Nitrobenzene-d5 (Surr)	104		51-108
1718-51-0	Terphenyl-d14 (Surr)	96		40-148

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-138127-1

SDG No.:

Client Sample ID: WWTP-072817 | Lab Sample ID: 460-138127-1

Matrix: Water | Lab File ID: h22152.D

Analysis Method: 8270D SIM | Date Collected: 07/28/2017 12:20

Extract. Method: 3510C | Date Extracted: 07/29/2017 18:00

Sample wt/vol: 240(mL) | Date Analyzed: 08/01/2017 12:30

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 453192 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
56-55-3	Benzo[a]anthracene	0.039	U	0.052	0.039
50-32-8	Benzo[a]pyrene	0.027	U	0.052	0.027
205-99-2	Benzo[b]fluoranthene	0.013	UJ	0.052	0.013
118-74-1	Hexachlorobenzene	0.0094	U	0.021	0.0094
193-39-5	Indeno[1,2,3-cd]pyrene	0.028	U	0.052	0.028

c

INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WWTP-072817 Lab Sample ID: 460-138127-1

Lab Name: TestAmerica Edison Job No.: 460-138127-1

SDG ID.:

Matrix: Water Date Sampled: 07/28/2017 12:20

Reporting Basis: WET Date Received: 07/28/2017 13:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.64	2.0	0.64	ug/L	U		2	6020A
7440-02-0	Nickel	1.4	4.0	1.4	ug/L	J		2	6020A

INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-072817 Lab Sample ID: 460-138127-1

Lab Name: TestAmerica Edison Job No.: 460-138127-1

SDG ID.:

Matrix: Water Date Sampled: 07/28/2017 12:20

Reporting Basis: WET Date Received: 07/28/2017 13:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
57-12-5	Cyanide, Total	0.0020	0.010	0.0020	mg/L	U		1	335.4
	Turbidity	4.34	0.500	0.160	NTU			1	180.1
	Total Suspended Solids	2.7	1.0	1.0	mg/L			1	SM 2540D
	pH	8.2			SU	J	~~HF~~	1	SM 4500 H+ B

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INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-072817 Lab Sample ID: 460-138127-1

Lab Name: TestAmerica Pittsburgh Job No.: 460-138127-1

SDG ID.:

Matrix: Water Date Sampled: 07/28/2017 12:20

Reporting Basis: WET Date Received: 07/28/2017 13:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Cyanide, Available	0.00036	0.0020	0.00036	mg/L	U		1	OIA-1677

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-138700-1

SDG No.:

Client Sample ID: WWTP-080717 | Lab Sample ID: 460-138700-2

Matrix: Water | Lab File ID: P31947.D

Analysis Method: 8260C | Date Collected: 08/07/2017 13:05

Sample wt/vol: 5(mL) | Date Analyzed: 08/08/2017 12:32

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 454730 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	44		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		74-132
460-00-4	4-Bromofluorobenzene	106		77-124
1868-53-7	Dibromofluoromethane (Surr)	110		72-131
2037-26-5	Toluene-d8 (Surr)	103		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-139137-1

SDG No.:

Client Sample ID: WWTP-081417 | Lab Sample ID: 460-139137-1

Matrix: Water | Lab File ID: O28426.D

Analysis Method: 8260C | Date Collected: 08/14/2017 15:35

Sample wt/vol: 5(mL) | Date Analyzed: 08/15/2017 03:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 456230 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	95		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		74-132
460-00-4	4-Bromofluorobenzene	99		77-124
1868-53-7	Dibromofluoromethane (Surr)	103		72-131
2037-26-5	Toluene-d8 (Surr)	98		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-139201-1

SDG No.:

Client Sample ID: WWTP-081517 | Lab Sample ID: 460-139201-1

Matrix: Water | Lab File ID: A44057.D

Analysis Method: 8260C | Date Collected: 08/15/2017 15:00

Sample wt/vol: 5(mL) | Date Analyzed: 08/16/2017 11:36

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 456628 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	450		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		74-132
460-00-4	4-Bromofluorobenzene	100		77-124
1868-53-7	Dibromofluoromethane (Surr)	109		72-131
2037-26-5	Toluene-d8 (Surr)	113		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-140857-1

SDG No.:

Client Sample ID: WWTP-091317 | Lab Sample ID: 460-140857-1

Matrix: Water | Lab File ID: P34285.D

Analysis Method: 8260C | Date Collected: 09/13/2017 14:30

Sample wt/vol: 5(mL) | Date Analyzed: 09/14/2017 13:50

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 462736 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	150		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	J	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		74-132
460-00-4	4-Bromofluorobenzene	91		77-124
1868-53-7	Dibromofluoromethane (Surr)	93		72-131
2037-26-5	Toluene-d8 (Surr)	102		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-140900-1

SDG No.:

Client Sample ID: WWTP-091417 | Lab Sample ID: 460-140900-1

Matrix: Water | Lab File ID: P34344.D

Analysis Method: 8260C | Date Collected: 09/14/2017 13:20

Sample wt/vol: 5(mL) | Date Analyzed: 09/15/2017 14:43

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 462990 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	3.4		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		74-132
460-00-4	4-Bromofluorobenzene	94		77-124
1868-53-7	Dibromofluoromethane (Surr)	99		72-131
2037-26-5	Toluene-d8 (Surr)	105		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison Job No.: 460-141437-1

SDG No.:

Client Sample ID: WWTP-09222017 Lab Sample ID: 460-141437-1

Matrix: Water Lab File ID: O29933.D

Analysis Method: 8260C Date Collected: 09/22/2017 13:30

Sample wt/vol: 5(mL) Date Analyzed: 09/23/2017 19:15

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 464612 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	1.9		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	81		74-132
460-00-4	4-Bromofluorobenzene	107		77-124
1868-53-7	Dibromofluoromethane (Surr)	83		72-131
2037-26-5	Toluene-d8 (Surr)	94		80-120

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WWTP-09222017 Lab Sample ID: 460-141437-1

Lab Name: TestAmerica Edison Job No.: 460-141437-1

SDG ID.:

Matrix: Water Date Sampled: 09/22/2017 13:30

Reporting Basis: WET Date Received: 09/22/2017 15:34

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.64	2.0	0.64	ug/L	U		2	6020A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-09222017
Lab Sample ID: 460-141437-1
Lab Name: TestAmerica Edison
Job No.: 460-141437-1
SDG ID.:
Matrix: Water
Date Sampled: 09/22/2017 13:30
Reporting Basis: WET
Date Received: 09/22/2017 15:34

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
57-12-5	Cyanide, Total	0.0020	0.010	0.0020	mg/L	U		1	335.4

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison Job No.: 460-141835-1

SDG No.:

Client Sample ID: WWTP-20170928 Lab Sample ID: 460-141835-3

Matrix: Water Lab File ID: B21476.D

Analysis Method: 8260C Date Collected: 09/28/2017 14:05

Sample wt/vol: 5(mL) Date Analyzed: 10/03/2017 11:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 466539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	33		1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.28	J	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	116		74-132
460-00-4	4-Bromofluorobenzene	93		77-124
1868-53-7	Dibromofluoromethane (Surr)	102		72-131
2037-26-5	Toluene-d8 (Surr)	93		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-143064-1

SDG No.:

Client Sample ID: WWTP-10162017 | Lab Sample ID: 460-143064-5

Matrix: Water | Lab File ID: B22221.D

Analysis Method: 8260C | Date Collected: 10/16/2017 15:00

Sample wt/vol: 5(mL) | Date Analyzed: 10/17/2017 12:29

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 469893 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.26	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		74-132
460-00-4	4-Bromofluorobenzene	89		77-124
1868-53-7	Dibromofluoromethane (Surr)	107		72-131
2037-26-5	Toluene-d8 (Surr)	109		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-143732-1

SDG No.:

Client Sample ID: WWTP-10262017 | Lab Sample ID: 460-143732-1

Matrix: Water | Lab File ID: A48021.D

Analysis Method: 8260C | Date Collected: 10/26/2017 14:30

Sample wt/vol: 5(mL) | Date Analyzed: 10/27/2017 10:16

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 472589 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.13	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	124		74-132
460-00-4	4-Bromofluorobenzene	101		77-124
1868-53-7	Dibromofluoromethane (Surr)	108		72-131
2037-26-5	Toluene-d8 (Surr)	92		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison Job No.: 460-143826-1

SDG No.:

Client Sample ID: WWTP-10272017 Lab Sample ID: 460-143826-1

Matrix: Water Lab File ID: P36485.D

Analysis Method: 8260C Date Collected: 10/27/2017 12:15

Sample wt/vol: 5(mL) Date Analyzed: 10/28/2017 20:42

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 472846 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.54	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		74-132
460-00-4	4-Bromofluorobenzene	98		77-124
1868-53-7	Dibromofluoromethane (Surr)	99		72-131
2037-26-5	Toluene-d8 (Surr)	99		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-143908-1

SDG No.:

Client Sample ID: WWTP-10282017 | Lab Sample ID: 460-143908-1

Matrix: Water | Lab File ID: F55827.D

Analysis Method: 8260C | Date Collected: 10/28/2017 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 10/29/2017 10:14

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 473065 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.18	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		74-132
460-00-4	4-Bromofluorobenzene	111		77-124
1868-53-7	Dibromofluoromethane (Surr)	113		72-131
2037-26-5	Toluene-d8 (Surr)	102		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-143938-1

SDG No.:

Client Sample ID: WWTP-10292017 | Lab Sample ID: 460-143938-1

Matrix: Water | Lab File ID: J62065.D

Analysis Method: 8260C | Date Collected: 10/29/2017 13:30

Sample wt/vol: 5(mL) | Date Analyzed: 10/31/2017 10:26

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 473425 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.14	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	116		74-132
460-00-4	4-Bromofluorobenzene	100		77-124
1868-53-7	Dibromofluoromethane (Surr)	130		72-131
2037-26-5	Toluene-d8 (Surr)	103		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-143938-1

SDG No.:

Client Sample ID: WWTP-10302017 | Lab Sample ID: 460-143938-2

Matrix: Water | Lab File ID: J62064.D

Analysis Method: 8260C | Date Collected: 10/30/2017 12:40

Sample wt/vol: 5(mL) | Date Analyzed: 10/31/2017 09:59

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 473425 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.093	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	117		74-132
460-00-4	4-Bromofluorobenzene	104		77-124
1868-53-7	Dibromofluoromethane (Surr)	129		72-131
2037-26-5	Toluene-d8 (Surr)	106		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-144002-1

SDG No.:

Client Sample ID: WWTP-10312017 | Lab Sample ID: 460-144002-1

Matrix: Water | Lab File ID: B22945.D

Analysis Method: 8260C | Date Collected: 10/31/2017 12:30

Sample wt/vol: 5(mL) | Date Analyzed: 11/01/2017 10:47

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 473714 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.090	U	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		74-132
460-00-4	4-Bromofluorobenzene	95		77-124
1868-53-7	Dibromofluoromethane (Surr)	97		72-131
2037-26-5	Toluene-d8 (Surr)	100		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-144088-1

SDG No.:

Client Sample ID: WWTP11012017 | Lab Sample ID: 460-144088-1

Matrix: Water | Lab File ID: A48273.D

Analysis Method: 8260C | Date Collected: 11/01/2017 12:30

Sample wt/vol: 5(mL) | Date Analyzed: 11/02/2017 11:37

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 473976 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.25	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	120		74-132
460-00-4	4-Bromofluorobenzene	99		77-124
1868-53-7	Dibromofluoromethane (Surr)	102		72-131
2037-26-5	Toluene-d8 (Surr)	107		80-120

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-145711-1

SDG No.:

Client Sample ID: WWTP-112217 | Lab Sample ID: 460-145711-1

Matrix: Water | Lab File ID: P37896.D

Analysis Method: 8260C | Date Collected: 11/22/2017 13:50

Sample wt/vol: 5(mL) | Date Analyzed: 11/26/2017 13:08

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 479912 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.14	J	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		74-132
460-00-4	4-Bromofluorobenzene	99		77-124
1868-53-7	Dibromofluoromethane (Surr)	112		72-131
2037-26-5	Toluene-d8 (Surr)	109		80-120

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison Job No.: 460-145711-1

SDG No.:

Client Sample ID: WWTP-112217 Lab Sample ID: 460-145711-1

Matrix: Water Lab File ID: A111434.D

Analysis Method: 8270D Date Collected: 11/22/2017 13:50

Extract. Method: 3510C Date Extracted: 11/24/2017 10:12

Sample wt/vol: 240(mL) Date Analyzed: 11/25/2017 06:34

Con. Extract Vol.: 2(mL) Dilution Factor: 1

Injection Volume: 5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 479740 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	0.92	U	10	0.92
208-96-8	Acenaphthylene	0.68	U	10	0.68
120-12-7	Anthracene	0.59	U	10	0.59
191-24-2	Benzo[g,h,i]perylene	0.78	U	10	0.78
218-01-9	Chrysene	0.70	U	2.1	0.70
206-44-0	Fluoranthene	0.75	U	10	0.75
86-73-7	Fluorene	0.83	U	10	0.83
91-20-3	Naphthalene	0.83	U	10	0.83
85-01-8	Phenanthrene	0.68	U	10	0.68
129-00-0	Pyrene	0.86	U	10	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl	96		45-107
4165-60-0	Nitrobenzene-d5 (Surr)	108		51-108
1718-51-0	Terphenyl-d14 (Surr)	101		40-148

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-145711-1

SDG No.:

Client Sample ID: WWTP-112217 | Lab Sample ID: 460-145711-1

Matrix: Water | Lab File ID: h226215.D

Analysis Method: 8270D SIM | Date Collected: 11/22/2017 13:50

Extract. Method: 3510C | Date Extracted: 11/24/2017 10:12

Sample wt/vol: 240(mL) | Date Analyzed: 11/26/2017 16:42

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 479953 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
56-55-3	Benzo[a]anthracene	0.019	U	0.052	0.019
50-32-8	Benzo[a]pyrene	0.026	U	0.052	0.026
205-99-2	Benzo[b]fluoranthene	0.020	U	0.052	0.020
118-74-1	Hexachlorobenzene	0.0094	U	0.021	0.0094
193-39-5	Indeno[1,2,3-cd]pyrene	0.022	U X	0.052	0.022

INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WWTP-112217 Lab Sample ID: 460-145711-1

Lab Name: TestAmerica Edison Job No.: 460-145711-1

SDG ID.:

Matrix: Water Date Sampled: 11/22/2017 13:50

Reporting Basis: WET Date Received: 11/22/2017 16:50

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.64	2.0	0.64	ug/L	U		2	6020A
7440-02-0	Nickel	1.4	4.0	1.4	ug/L	U		2	6020A

INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-112217 | Lab Sample ID: 460-145711-1

Lab Name: TestAmerica Edison | Job No.: 460-145711-1

SDG ID.:

Matrix: Water | Date Sampled: 11/22/2017 13:50

Reporting Basis: WET | Date Received: 11/22/2017 16:50

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
57-12-5	Cyanide, Total	0.0020	0.010	0.0020	mg/L	U		1	335.4
	Turbidity	6.81	0.500	0.160	NTU			1	180.1
	Total Suspended Solids	4.1	1.0	1.0	mg/L			1	SM 2540D
	pH	8.5			SU	J	~~HF~~	1	SM 4500 H+ B

h

INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-112217 | Lab Sample ID: 460-145711-1

Lab Name: TestAmerica Pittsburgh | Job No.: 460-145711-1

SDG ID.:

Matrix: Water | Date Sampled: 11/22/2017 13:50

Reporting Basis: WET | Date Received: 11/22/2017 16:50

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Cyanide, Available	0.00036	0.0020	0.00036	mg/L	U		1	OIA-1677

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-147524-1

SDG No.:

Client Sample ID: WWTP-12212017 | Lab Sample ID: 460-147524-1

Matrix: Water | Lab File ID: P39209.D

Analysis Method: 8260C | Date Collected: 12/21/2017 14:30

Sample wt/vol: 5(mL) | Date Analyzed: 12/23/2017 18:10

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: Rtx-624 ID: 0.25(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 486706 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.090	U	1.0	0.090
100-41-4	Ethylbenzene	0.30	U	1.0	0.30
179601-23-1	m-Xylene & p-Xylene	0.28	U	1.0	0.28
95-47-6	o-Xylene	0.32	U	1.0	0.32
108-88-3	Toluene	0.25	U	1.0	0.25
1330-20-7	Xylenes, Total	0.28	U	2.0	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		74-132
460-00-4	4-Bromofluorobenzene	90		77-124
1868-53-7	Dibromofluoromethane (Surr)	101		72-131
2037-26-5	Toluene-d8 (Surr)	99		80-120

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-147524-1

SDG No.:

Client Sample ID: WWTP-12212017 | Lab Sample ID: 460-147524-1

Matrix: Water | Lab File ID: N170528.D

Analysis Method: 8270D | Date Collected: 12/21/2017 14:30

Extract. Method: 3510C | Date Extracted: 12/22/2017 23:37

Sample wt/vol: 250(mL) | Date Analyzed: 12/24/2017 19:06

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 486904 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	0.88	U	10	0.88
208-96-8	Acenaphthylene	0.65	U	10	0.65
120-12-7	Anthracene	0.57	U	10	0.57
191-24-2	Benzo[g,h,i]perylene	0.75	U	10	0.75
218-01-9	Chrysene	0.67	U	2.0	0.67
206-44-0	Fluoranthene	0.72	U	10	0.72
86-73-7	Fluorene	0.80	U	10	0.80
91-20-3	Naphthalene	0.80	U	10	0.80
85-01-8	Phenanthrene	0.65	U	10	0.65
129-00-0	Pyrene	0.83	U	10	0.83

CAS NO.	SURROGATE	%REC	Q	LIMITS
321-60-8	2-Fluorobiphenyl	72		45-107
4165-60-0	Nitrobenzene-d5 (Surr)	80		51-108
1718-51-0	Terphenyl-d14 (Surr)	113		40-148

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Edison | Job No.: 460-147524-1

SDG No.:

Client Sample ID: WWTP-12212017 | Lab Sample ID: 460-147524-1

Matrix: Water | Lab File ID: U5697.D

Analysis Method: 8270D SIM | Date Collected: 12/21/2017 14:30

Extract. Method: 3510C | Date Extracted: 12/22/2017 23:37

Sample wt/vol: 250(mL) | Date Analyzed: 12/23/2017 19:43

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 486838 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
56-55-3	Benzo[a]anthracene	0.075		0.050	0.018
50-32-8	Benzo[a]pyrene	0.27		0.050	0.025
205-99-2	Benzo[b]fluoranthene	0.47		0.050	0.019
118-74-1	Hexachlorobenzene	0.0090	U	0.020	0.0090
193-39-5	Indeno[1,2,3-cd]pyrene	0.38		0.050	0.021

INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WWTP-12212017 Lab Sample ID: 460-147524-1

Lab Name: TestAmerica Edison Job No.: 460-147524-1

SDG ID.:

Matrix: Water Date Sampled: 12/21/2017 14:30

Reporting Basis: WET Date Received: 12/21/2017 20:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.64	2.0	0.64	ug/L	U		2	6020A
7440-02-0	Nickel	1.4	4.0	1.4	ug/L	U		2	6020A

INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-12212017 | Lab Sample ID: 460-147524-1

Lab Name: TestAmerica Edison | Job No.: 460-147524-1

SDG ID.:

Matrix: Water | Date Sampled: 12/21/2017 14:30

Reporting Basis: WET | Date Received: 12/21/2017 20:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
57-12-5	Cyanide, Total	0.0020	0.010	0.0020	mg/L	U		1	335.4
	Turbidity	9.39	0.500	0.160	NTU			1	180.1
	Total Suspended Solids	3.7	1.0	1.0	mg/L			1	SM 2540D
	pH	8.6			SU	J	~~HF~~	1	SM 4500 H+ B

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INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: WWTP-12212017 | Lab Sample ID: 460-147524-1

Lab Name: TestAmerica Pittsburgh | Job No.: 460-147524-1

SDG ID.:

Matrix: Water | Date Sampled: 12/21/2017 14:30

Reporting Basis: WET | Date Received: 12/21/2017 20:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Cyanide, Available	0.00036	0.0020	0.00036	mg/L	U		1	OIA-1677

Appendix C

Support Documentation

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-138127-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-138127-1	WWTP-072817	Water	07/28/2017 1220	07/28/2017 1352

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Forster	Samplers Name (Printed) Brian Tate	Site/Project Identification Formo, Clifton NJ
Company AECom	P. O. # 60137363-500	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: NYSDEC, NYDES DKQP: ☐
Address 125 Broad Street 16th Floor	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 3 day	
Phone 212 377 8721 Fax		

Sample Identification	Date	Time	Matrix	No. of Cont.	Total Cr	Available Cr	Ni	8260 BTEX	8270 PAH + SIM	TSS	pH, turbidity					LAB USE ONLY Project No: Job No: 138129 Sample Numbers
WWTP-072817	7-28-17	1120	GW	10	X	X	X	X	X	X	X					-1

SHORT HOLD

460-138127 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water:

Special Instructions Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1) Brian Tate	AECom	7/28/17 1342	1)	TA Edison
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 7/28/17
Relinquished by 3)	Company	Date / Time	Received by 3)	Company 1352
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

2.5 OC IR#8 NO C5

08/08/2017

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 138127

Number of Coolers: 1 IR Gun # 8

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	2.5°C	2.5°C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other
1	-			<2								>12			

If pH adjustments are required record the information below:

Sample No(s). adjusted: NA

Preservative Name/Conc.: NA Volume of Preservative used (ml): NA

Lot # of Preservative(s): NA Expiration Date: NA

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: [signature] Date: 7/28/17

TestAmerica Edison
777 New Durham Road
Edison, NJ 08817
Phone (732) 549-3900 Fax (732) 549-3679

4/SDP

Chain of Custody Record

460-138127 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: DeGraw, Kristin B		COC No: 460-49036.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kristin.degraw@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 460-138127-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 8/2/2017			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Former Clifton MGP	Project #: 46018542			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1677/ Cyanide, Available (Flow Injection)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WWTP-072817 (460-138127-1)	7/28/17	12:20 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification Unconfirmed	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 7/31/17 1800	Company: TAL	Received by:
Relinquished by	Date/Time:	Company	Received by:
Relinquished by	Date/Time:	Company	Received by:

Received by:	Date/Time: 8/1/17 840	Company: TAL		
Received by:	Date/Time:	Company		
Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks

08/08/2017

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-138127-1

Login Number: 138127
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5°C IR#8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-138127-1

Login Number: 138127
List Number: 2
Creator: Say, Thomas C

List Source: TestAmerica Pittsburgh
List Creation: 08/01/17 06:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Edison Job No.: 460-138127-1

SDG No.:

Lab Sample ID: CCVIS 460-453192/2 Calibration Date: 08/01/2017 09:41

Instrument ID: CBNAMS9 Calib Start Date: 06/25/2017 08:54

GC Column: Rtxi-5Sil MS ID: 0.25(mm) Calib End Date: 06/25/2017 10:49

Lab File ID: h22146.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.5193	0.4744		183	200	-8.7	20.0
N-Nitrosodimethylamine	Ave	0.5989	0.4132		69.0	100	-31.0*	20.0
Bis(2-chloroethyl)ether	Ave	1.271	0.9303	0.7000	14.6	20.0	-26.8*	20.0
Naphthalene	Ave	1.070	0.9917	0.7000	18.5	20.0	-7.3	20.0
Acenaphthylene	Ave	2.281	2.168	0.9000	19.0	20.0	-4.9	20.0
Acenaphthene	Ave	1.391	1.392	0.9000	20.0	20.0	0.0	20.0
Fluorene	Ave	1.532	1.490	0.9000	19.4	20.0	-2.8	20.0
4,6-Dinitro-2-methylphenol	Ave	0.1093	0.0975	0.0100	357	400	-10.8	20.0
Hexachlorobenzene	Lin2		0.3917	0.1000	21.2	20.0	5.9	20.0
Pentachlorophenol	Ave	0.1818	0.1947	0.0500	107	100	7.1	20.0
Phenanthrene	Ave	1.274	1.176	0.7000	18.4	20.0	-7.8	20.0
Anthracene	Ave	1.153	1.212	0.7000	21.0	20.0	5.1	20.0
Fluoranthene	Ave	1.156	1.244	0.6000	21.5	20.0	7.7	20.0
Pyrene	Ave	1.662	1.516	0.6000	18.3	20.0	-8.7	20.0
Benzo[a]anthracene	Ave	1.371	1.287	0.8000	18.8	20.0	-6.1	20.0
Chrysene	Ave	1.529	1.585	0.7000	20.7	20.0	3.6	20.0
Benzo[b]fluoranthene	Ave	1.501	1.162		15.5	20.0	-22.6*	20.0
Benzo[k]fluoranthene	Ave	1.623	1.837	0.7000	22.6	20.0	13.2	20.0
Benzo[a]pyrene	Ave	1.203	1.203	0.7000	20.0	20.0	0.0	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.355	1.502	0.5000	22.2	20.0	10.8	20.0
Dibenz(a,h)anthracene	Ave	1.103	1.160	0.4000	21.0	20.0	5.2	20.0
Benzo[g,h,i]perylene	Ave	1.300	1.395	0.5000	21.5	20.0	7.3	20.0
Nitrobenzene-d5	Ave	0.3492	0.3209		368	400	-8.1	20.0
2-Fluorobiphenyl	Ave	1.529	1.463		383	400	-4.3	20.0
2,4,6-Tribromophenol	Ave	0.3041	0.3919		516	400	28.9*	20.0
Terphenyl-d14	Qua		0.7071		349	400	-12.9	20.0

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-138127-1

SDG No.:

Batch Number: 453286 Batch Start Date: 08/01/17 13:10 Batch Analys

Batch Method: SM 4500 H+ B Batch End Date: 08/01/17 15:42

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	SampleTemp	pHRead1	pHRead2
CCV 460-453286/1		SM 4500 H+ B		20 mL	20.1 Celsius	7.05 SU	7.04 SU
MB 460-453286/2		SM 4500 H+ B		20 mL	20.5 Celsius	6.02 SU	5.99 SU
LCSSRM 460-453286/3		SM 4500 H+ B		20 mL	20.2 Celsius	7.55 SU	7.53 SU
460-137823-A-2 DU		SM 4500 H+ B	T	20 mL	18.9 Celsius	7.96 SU	7.97 SU
CCV 460-453286/11		SM 4500 H+ B		20 mL	20.1 Celsius	7.04 SU	7.03 SU
460-138127-D-1	WWTP-072817	SM 4500 H+ B	T	20 mL	19.4 Celsius	8.17 SU	8.16 SU
CCV 460-453286/20		SM 4500 H+ B		20 mL	20.0 Celsius	7.04 SU	7.03 SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	WTpHLCS 00020			
CCV 460-453286/1		SM 4500 H+ B					
MB 460-453286/2		SM 4500 H+ B					
LCSSRM 460-453286/3		SM 4500 H+ B		20 mL			
460-137823-A-2 DU		SM 4500 H+ B	T				
CCV 460-453286/11		SM 4500 H+ B					
460-138127-D-1	WWTP-072817	SM 4500 H+ B	T				
CCV 460-453286/20		SM 4500 H+ B					

Batch Notes			
pH Buffer 1 ID	Buffer 1.68	Ricca/2604072	exp:03/31/18
pH Buffer 2 ID	Buffer 4.00	Orion/910104	exp;10/31/18
pH Buffer 3 ID	Buffer 7.00	Fisher/167801	exp:12/30/18
pH Buffer 4 ID	Buffer 10.00	Fisher/165150	exp:08/30/18
Instrument ID	pH meter : A		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed this reagent.

SM 4500 H+ B

SAMPLE SUMMARY

Client: AECOM, Inc. Job Number: 460-138700-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
~~460-138700-1~~	~~WWTP-080717IN~~	~~Water~~	~~08/07/2017 1300~~	~~08/07/2017 1713~~
460-138700-2	WWTP-080717	Water	08/07/2017 1305	08/07/2017 1713

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

08/10/2017

Name (for report and invoice) Robert Fairstein	Samplers Name (Printed) Brian Tate	Site/Project Identification Fairview Clifton MGP
Company AECOM	P. O. # 60132267 600	State (Location of site): NJ: ☐ NY: ☒ Other: 1
Address 125 Broad St	Analysis Turnaround Time: Standard ☐	Regulatory Program: NYSDEC NYDEC DKQP: ☐
City New York State	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 1 day	LAB USE ONLY Project No: Job No: 138700
Phone 701 377 8721 Fax		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.		Sample Numbers
WWTP-070717EN	8-7-17	1300	SW	3	X	1
WWTP-070717	8-7-17	1305	SW	3	X	2

460-138700 Chain of Custody

1-Day RUSH

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH 6 = Other _____, 7 = Other _____ Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	Aecom	8-7-17 17 13		
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 8/7/17
Relinquished by 3)	Company	Date / Time	Received by 3) IR	Company 17:13
Relinquished by 4)	Company	Date / Time	Received by 4) 2.9°C #9	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 138700

Number of Coolers: 1

IR Gun #: 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	2.9 °C	2.9 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: _____ Date: 8/7/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-138700-1

Login Number: 138700
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9°C IR#9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc. Job Number: 460-139137-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-139137-1	WWTP-081417	Water	08/14/2017 1535	08/14/2017 1721

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

08/16/2017

TestAmerica
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CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice)	Samplers Name (Printed)	Site/Project Identification
Robert Forstner	Brian Tate	National Grid Former Clifton MGP
Company: AECOM	P. O. #: 60137363	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: NYSDEC, SPDES DKQP: ☐
Address: 125 Broad Street 16th FL	Analysis Turnaround Time: Standard ☐	
City: New York State: NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 1 day	
Phone: 212 377 8721 Fax:		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

LAB USE ONLY
Project No:
Job No: 139137

Sample Identification	Date	Time	Matrix	No. of Cont.	8260 BTEX	Sample Numbers
WWTP-081417	8/14/17	1535	GW	3	X	-1

1-Day RUSH

460-139137 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH 6 = Other _____, 7 = Other _____

Soil:
Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	8/14/17 1721	1)	TA Edison
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 8/14/17
Relinquished by 3)	Company	Date / Time	Received by 3)	Company 1721
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

0.5°C IR#9 NO CF

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 139137

Number of Coolers: 1 IR Gun # 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	0.5 °C	0.5 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: _____ Date: 8/14/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-139137-1

Login Number: 139137
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5°C IR#9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc. Job Number: 460-139201-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-139201-1	WWTP-081517	Water	08/15/2017 1500	08/15/2017 1700

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

08/17/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page ____ of ____

Name (for report and invoice) Robert Feinstein	Samplers Name (Printed) Brian Tate	Site/Project Identification Former Clifton MGP
Company AECOM	P. O. # 60137363	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 125 Broad St	Analysis Turnaround Time: Standard ☐	Regulatory Program: NYSDEC SPDES DKQP: ☐
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 1 day	LAB USE ONLY Project No:
Phone 212 377 8721 Fax		Job No: 139101

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	1,4-Dioxane by 8270 SIM	Sample Numbers
WWTP-081517	8/15/17	1500	GW	3	X	1

460-139201 Chain of Custody

1-Day RUSH

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____ Soil: Water:

Special Instructions Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	AECOM	8/15/17 1700	1)	TAGd
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 1.9 26°C
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 139201

Number of Coolers: 1

IR Gun #: 49

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	2.6 °C	2.6 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: _____ Date: 8/16/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-139201-1

Login Number: 139201
List Number: 1
Creator: Meyers, Gary

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.6 ° C IR #9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-140857-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-140857-1	WWTP-091317	Water	09/13/2017 1430	09/13/2017 1750

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

09/14/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Brian Tate	Site/Project Identification Former Clifton MGP
Company AECOM	P. O. # 60137353-600	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 1 day	
Phone 212 377 8721 Fax		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

1-Day RUSH

8260 BTEX

LAB USE ONLY
Project No: 460185742
Job No: 140857

Sample Identification	Date	Time	Matrix	No. of Cont.		Sample Numbers
WWTP-090317	9/13/17	1730	GW	3	X	1

460-140857 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water: 3

Special Instructions

Water Metals Filtered (Yes/No)?

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	9/13/17 1750	1) Joseph Segreto	TA Edison 9/13/17 1750
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

0.7°C T.A #9 NNCS

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 140857

Number of Coolers: 1 IR Gun #: 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	0.7 °C	0.7 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-8)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: @ Date: 09/13/2017

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-140857-1

Login Number: 140857
List Number: 1
Creator: Villanueva, Angelica P

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7°C IR9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-140900-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-140900-1	WWTP-091417	Water	09/14/2017 1320	09/14/2017 1407

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Brian Tuttle	Site/Project Identification Former Clifton MGP
Company AECOM	P. O. # 6013736-6000	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: DKQP: ☐
Address 125 Broad Street 16th Floor	Analysis Turnaround Time: Standard ☐	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 24 hour	
Phone 212 377 Fax 8771		

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX 8260	LAB USE ONLY Project No: / Job No: 140900 / Sample Numbers
MW TP-091417	9/14/17	1320	GW	3	X	-1

1-Day RUSH

460-140900 Chain of Custody

Preservation Used: 1 = ICE, 2 = HC, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

Soil:
Water: 3

Special Instructions _____ Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	AECOM	9/14/17 1407		TA Edison
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 9/14/17 1407
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

0.7°C IR#9 NO COC

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 140900

Number of Coolers: 1 IR Gun # 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	0.7 °C	0.7 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: _____ Date: 9/14/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-140900-1

Login Number: 140900
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7°C IR#9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-141437-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-141437-1	WWTP-09222017	Water	09/22/2017 1330	09/22/2017 1534

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

09/27/2017

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Brian Tuk	Site/Project Identification Former Clifton MGP
Company AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 1 day	
Phone 212 377 3721 Fax		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX + 8260	Arsenic	Total CN	LAB USE ONLY Project No: / Job No: 141437 / Sample Numbers
WWTP-09222017		1330	GW	5	X	X	X	-1

460-141437 Chain of Custody

1-Day RUSH

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____ Soil: / Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	AECOM	9/22/17 | 15 34	1)	TAEDT 9/22/17 15:34
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

Nocls #9 2.9°C

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 141437

Number of Coolers: 1 IR Gun #: 4

Cooler Temperatures

	Blank	Corrected		Blank	Corrected		Blank	Corrected
Cooler #1:	4.1 °C	3.4 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other
1				<2								>12			

If pH adjustments are required record the information below:

Sample No(s). adjusted: NA

Preservative Name/Conc.: NA Volume of Preservative used (ml): NA

Lot # of Preservative(s): NA Expiration Date: NA

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: JO Date: 9/22/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-141437-1

Login Number: 141437
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9°C IR#9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-141835-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
~~460-141835-1~~	~~GAC 3-20170928~~	~~Water~~	~~09/28/2017 1400~~	~~09/28/2017 1500~~
~~460-141835-2~~	~~GAC 2-20170928~~	~~Water~~	~~09/28/2017 1335~~	~~09/28/2017 1500~~
460-141835-3	WWTP-20170928	Water	09/28/2017 1405	09/28/2017 1500

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

116510

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

10/04/2017

Regulatory Program: ☐ DW ☒ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Robert Forstner	Site Contact: Robert Forstner	Date: 9/28/2017	COC No:
Company Name: AECOM	Tel/Fax: (212)377-8721	Lab Contact: Kristin Pedraw	Carrier:	1 of 1 COCs
Address: 125 Broad St	Analysis Turnaround Time			Sampler: RF
City/State/Zip: New York NY 10004	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
Phone: (212)377-8721	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Clifton WWTP	☐ 1 week			
Site: Clifton MGP	☐ 2 days			Job / SDG No.: 141835
PO# 60137363-6006	☒ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	BTEX & MTBE Hold for MTBE		Sample Specific Notes:
GAC3-20170928	9/28/17	1400	G	W	3	N	N	✓		-1
GAC2-20170928	9/28/17	1355	G	W	3	N	N		✓	HOLD -2
WWTP-20170928	9/28/17	1403	G	W	3	N	N		✓	HOLD -3

460-141835 Chain of Custody

1-Day RUSH

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: Run only GAC3-20170928 - hold other 2 samples pend. results

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: AECOM	Date/Time: 9/28/17 1500	Received by:	Company: TA Edr	Date/Time: 9/29/17 1500
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

NO CS 0.9°C IR#9

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 141835

Number of Coolers: 1 IR Gun #: 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1	°C	°C	Cooler #4	°C	°C	Cooler #7	°C	°C
Cooler #2	°C	°C	Cooler #5	°C	°C	Cooler #8	°C	°C
Cooler #3	°C	°C	Cooler #6	°C	°C	Cooler #9	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: _____ Date: 9/28/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-141835-1

Login Number: 141835
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9°C IR#9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-143064-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-143064-1	GAC1-10162017	Water	10/16/2017 1430	10/16/2017 1604
460-143064-2	GAC2-10162017	Water	10/16/2017 1435	10/16/2017 1604
460-143064-3	GAC3-10162017	Water	10/16/2017 1440	10/16/2017 1604
460-143064-4	OWS1-10162017	Water	10/16/2017 1455	10/16/2017 1604
460-143064-5	WWTP-10162017	Water	10/16/2017 1500	10/16/2017 1604

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

10/18/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Chad Small	Site/Project Identification Former Clinton MGP
Company AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☑ Other:
Address 125 Broad Street 16th Floor	Analysis Turnaround Time: Standard ☐	Regulatory Program: NYDEC NYSRF DKQP: ☐
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 1 day	LAB USE ONLY Project No:
Phone 212 377 3721 Fax		Job No: 143064

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX 8260	1-Day RUSH	Sample Numbers
GAC1-10162017	10/16/17	1430	GW	3	X		1
GAC2-10162017	10/16/17	1435	GW	3	X		2
GAC3-10162017	10/16/17	1440	GW	3	X		3
DWS1-10162017	10/16/17	1445	GW	3	X		4
WWTP-10162017	10/16/17	1500	GW	3	X		5

460-143064 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____ Soil: Water:

Special Instructions 1.7° C IR#9 NO C.S. Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	AECOM	10/16/17 1604	1) Kelly Jean	TA
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 143064

Number of Coolers: 4 **IR Gun #** 6

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	1.8 °C	1.7 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: KQ **Date:** 10/16/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-143064-1

Login Number: 143064
List Number: 1
Creator: Jara, Kelly D

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-143732-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-143732-1	WWTP-10262017	Water	10/26/2017 1430	10/26/2017 1607

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

10/27/2017

Name (for report and invoice) Robert Furstner	Samplers Name (Printed) Brian Tate	Site/Project Identification Clifton MGP
Company AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: NYDEC ~~NJDES~~ DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 24 hours	
Phone 212 377 8721 Fax		

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX 8260	Sample Numbers
WWTP-10262017	10/26/17	1430	GW	3	X	-1

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

LAB USE ONLY
Project No:
Job No: 143732

1-Day RUSH

460-143732 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

Soil:
Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	10/26/17 1607	1)	TA Edison
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 1607
Relinquished by 3)	Company	Date / Time	Received by 3)	Company 10/26/17
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

0.7°C IR#9 No Cs

Page 1 of 1

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 143732

Number of Coolers: 1 IR Gun #: 9

Cooler Temperatures

Cooler #1:	[illegible] °C	[illegible] °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: ____________________

Preservative Name/Conc.: ____________________ Volume of Preservative used (ml): ____________________

Lot # of Preservative(s): ____________________ Expiration Date: ____________________

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

* *Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

EDS-WI-038, Rev 4, 06/09/2014 **Initials:** [signature] **Date:** 10/26/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-143732-1

Login Number: 143732
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-143826-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-143826-1	WWTP-10272017	Water	10/27/2017 1215	10/27/2017 1339

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

10/30/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice) Robert Furstner	Samplers Name (Printed) Brian Tuler	Site/Project Identification Clifton MGP
Company AECOM	P. O. # 60137363-800	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: NYDEC SPDES DKQP: ☐
Address 125 Broad St. 16th Floor	Analysis Turnaround Time: Standard ☐	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 24 hour	LAB USE ONLY Project No:
Phone 212 377 Fax 8721		Job No: 143826

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX 8260	Sample Numbers
WWTP-10272017	10/27/17	1215	GW	3	X	-1

1-Day RUSH

460-143826 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

Soil:
Water:

Special Instructions Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	10/27/17 1339	1)	TA Edison
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 10/27/17
Relinquished by 3)	Company	Date / Time	Received by 3)	Company 1339
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

NO
2.0 °C IR#9 CS

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 143826

Number of Coolers: 1 IR Gun #: 2

Cooler Temperatures

	Temp	Corrected Temp		Temp	Corrected Temp		Temp	Corrected Temp
Cooler #1:	2.1 °C	2.1 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: SR Date: 10/27/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-143826-1

Login Number: 143826
List Number: 1
Creator: Lysy, Susan

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-143908-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-143908-1	WWTP-10282017	Water	10/28/2017 1040	10/28/2017 1150

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

10/31/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Brian Tabor	Site/Project Identification clinton MGR
Company AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: DKQP: ☐
Address 12 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 24 hour	
Phone 212 377 8721 Fax		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

BTEX 8260

1-Day RUSH

LAB USE ONLY
Project No:
Job No: 143908

Sample Identification	Date	Time	Matrix	No. of Cont.	Sample Numbers
WWTP-10282017	10/28/17	1047	Gw	3	1

460-143908 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH 6 = Other _____, 7 = Other _____

Soil:
Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	10/28/17 1150	1) Kelly Jon	TA
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

TAL - 0016 (0715)

Massachusetts (M-NJ312), North Carolina (No. 578)

0.8° IR#9 NO C.S.

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 143908

Number of Coolers: 1 IR Gun # 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	0.8 °C	0.8 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: JKJ Date: 10/28/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-143908-1

Login Number: 143908
List Number: 1
Creator: Jara, Kelly D

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-143938-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-143938-1	WWTP-10292017	Water	10/29/2017 1330	10/30/2017 1348
460-143938-2	WWTP-10302017	Water	10/30/2017 1240	10/30/2017 1348

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

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CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Forstner	Samplers Name (Printed) Brian Tutt	Site/Project Identification Cliffside MGP
Company AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☑ Other:
		Regulatory Program: NY DEC SPDES	DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☑ 24hr	
Phone 212 377 8721 Fax		

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	BOD, 5200	LAB USE ONLY Sample Numbers
~~[illegible]~~	~~[illegible]~~					
WWTP-10292017	10/29/17	1330	GW	3	X	1
WWTP-10302017	10/30/17	1240	GW	3	X	2

LAB USE ONLY Project No:

Job No: 143938

460-143938 Chain of Custody

1-Day RUSH

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	10/30/17 1348	1)	TL
Relinquished by 2)	Company	Date / Time	Received by 2)	Company 10/30/17
Relinquished by 3)	Company	Date / Time	Received by 3)	Company 13:46
Relinquished by 4)	Company	Date / Time	Received by 4)	Company 1.1 - 4°C

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 143938

Number of Coolers: 1 IR Gun # 47

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	1.1 °C	1.1 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: _____ Date: 12/30/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-143938-1

Login Number: 143938
List Number: 1
Creator: Meyers, Gary

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1 ° C IR #9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-144002-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-144002-1	WWTP-10312017	Water	10/31/2017 1230	10/31/2017 1429

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Phone: (732) 549-3900 Fax: (732) 549-3679

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert [illegible]	Samplers Name (Printed) Brian Tate	Site/Project Identification Clifton MGP
Company ABCOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: NYDEC, [illegible] DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐; Rush Charges Authorized For: 2 Week ☐, 1 Week ☐, Other ☒ 24 hour	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST): BTEX 8260
City New York State NY		LAB USE ONLY Project No:
Phone 212 377 Fax 8721		Job No: 144002

Sample Identification	Date	Time	Matrix	No. of. Cont.	BTEX 8260											Sample Numbers
~~WWTP-2017~~ WWTP-103120[illegible]	10/31/17	1230	GW	3	X											1

460-144002 Chain of Custody

1-Day RUSH

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other ______, 7 = Other ______ — Soil: — Water:

Special Instructions ______ Water Metals Filtered (Yes/No)? ______

Relinquished by	Company	Date / Time	Received by	Company
1) [signature]	AECOM	10/31/17 1429	1) [signature]	TA [illegible]
2)			2)	10/31/17
3)			3)	14:29
4)			4)	1.6 [illegible]

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 146002

Number of Coolers: 1 IR Gun # 49

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	1.6 °C	1.6 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: _____ Date: 10/31/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-144002-1

Login Number: 144002
List Number: 1
Creator: Meyers, Gary

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

SAMPLE SUMMARY

Client: AECOM, Inc. Job Number: 460-144088-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-144088-1	WWTP11012017	Water	11/01/2017 1230	11/01/2017 1337

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

11/02/2017

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Furstner	Samplers Name (Printed) Brian Tate	Site/Project Identification Clinton MGP
Company ABCom	P. O. # 60137 383-603	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: NY DEC SPDES / DKQP: ☐
Address 125 Broad St 18th floor	Analysis Turnaround Time: Standard ☐	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 24hr	
Phone 212 377 8721 Fax		

Sample Identification	Date	Time	Matrix	No. of Cont.	BTEX 8260	Sample Numbers
WWTP-11012017	11/1/17	1230	GW	3	X	1

1-Day RUSH

LAB USE ONLY
Project No:
Job No: 144088

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water:

Special Instructions Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	ABCom	11/1/17 1337	1)	TAEDS
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Co
Relinquished by 4)	Company	Date / Time	Received by 4)	Co

460-144088 Chain of Custody

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

Massachusetts (M-NJ312), North Carolina (No. 578) IRG-L1 NO CS

TAL - 0016 (0715)

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 144088

Number of Coolers: 1 IR Gun # 2

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	2.1 °C	2.1 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: RC Date: 1/1/17

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-144088-1

Login Number: 144088
List Number: 1
Creator: Meyers, Gary

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-145711-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-145711-1	WWTP-112217	Water	11/22/2017 1350	11/22/2017 1650

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

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THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Robert Pearson	Samplers Name (Printed) Brian Tate	Site/Project Identification Former Clifton MGP
Company AECOM	P. O. # 60137563-600	State (Location of site): NJ: ☐ NY: ☒ Other:
		Regulatory Program: DEC SPDES ☐ DKQP: ☐
Address 125 Broad Street	Analysis Turnaround Time: Standard ☐	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☒ 3 day	
Phone Fax		

Sample Identification	Date	Time	Matrix	No. of Cont.	Amenable CN	Total CN	8260 BTEX	8270 PP PAH +SIM	TSS	PH + Turbidity	As, Ni	LAB USE ONLY Project No: / Job No: 145711 / Sample Numbers
WWTP-112217	11/22/17	1350	GW	10	X	X	X	X	X	X	X	1

SHORT HOLD

460-145711 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

Soil:
Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
	AECOM	11/23/17 1650	1) Kelly Jan	TA
Relinquished by 2)	Company	Date / Time	Received by 2)	Company
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

3.9° IR#9 No C-S.

11/29/2017

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 145711

Number of Coolers: 1 IR Gun # 6

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	3.9 °C	°C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other
1				C2								712			

If pH adjustments are required record the information below:

Sample No(s). adjusted: NA

Preservative Name/Conc.: NA Volume of Preservative used (ml): NA

Lot # of Preservative(s): NA Expiration Date: NA

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: [illegible] Date: 11/22/17

TestAmerica Edison
777 New Durham Road
Edison, NJ 08817
Phone (732) 549-3900 Fax (732) 549-3679

10 B3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Nayyar, Sapna	Carrier Tracking No(s):	COC No: 460-50130.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sapna.nayyar@testamericainc.com	State of Origin: New Jersey	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 460-145711-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 11/28/2017			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: National Grid - Former Clifton MGP	Project #: 46018542			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1677/ Cyanide, Available (Flow Injection)	Total Number of containers	Special
			Preservation Code:						
WWTP-112217 (460-145711-1)	11/22/17	13:50 Eastern		Water			X	1	

460-145711 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	11/24/17 1800	TAL	D. Watson	11-25-17	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 900	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 09/20/2016

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11/29/2017

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-145711-1

Login Number: 145711
List Number: 1
Creator: Rivera, Kenneth

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-145711-1

Login Number: 145711
List Number: 2
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 11/25/17 10:03 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Edison Job No.: 460-145711-1

SDG No.:

Matrix: Water Level: Low Lab File ID: h226239.D

Lab ID: LCS 460-479607/4-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Benzo[a]anthracene	0.800	0.941	118	49-135	
Benzo[a]pyrene	0.800	0.993	124	40-141	
Benzo[b]fluoranthene	0.800	0.993	124	46-143	
Hexachlorobenzene	0.800	0.853	107	29-132	
Indeno[1,2,3-cd]pyrene	0.800	1.24	155	18-150	*

Column to be used to flag recovery and RPD values

FORM III 8270D SIM

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Edison Job No.: 460-145711-1

SDG No.:

Lab Sample ID: CCVIS 460-479953/2 Calibration Date: 11/26/2017 08:22

Instrument ID: CBNAMS9 Calib Start Date: 11/24/2017 14:24

GC Column: Rtxi-5Sil MS ID: 0.25(mm) Calib End Date: 11/24/2017 16:39

Lab File ID: h226196.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.5199	0.5185		199	200	-0.3	20.0
N-Nitrosodimethylamine	Ave	0.5442	0.6125		113	100	12.5	20.0
Bis(2-chloroethyl)ether	Ave	1.074	1.179	0.7000	21.9	20.0	9.7	20.0
Naphthalene	Ave	1.064	1.110	0.7000	20.9	20.0	4.4	20.0
Acenaphthylene	Ave	1.941	1.917	0.9000	19.8	20.0	-1.2	20.0
Acenaphthene	Ave	1.364	1.344	0.9000	19.7	20.0	-1.5	20.0
Fluorene	Ave	1.455	1.545	0.9000	21.2	20.0	6.2	20.0
4,6-Dinitro-2-methylphenol	Qua		0.0429	0.0100	222	400	-44.6*	20.0
Hexachlorobenzene	Ave	0.3141	0.3017	0.1000	19.2	20.0	-3.9	20.0
Pentachlorophenol	Ave	0.1567	0.1491	0.0500	95.1	100	-4.9	20.0
Phenanthrene	Ave	1.117	1.084	0.7000	19.4	20.0	-2.9	20.0
Anthracene	Ave	1.086	0.9615	0.7000	17.7	20.0	-11.4	20.0
Fluoranthene	Ave	1.104	1.123	0.6000	20.3	20.0	1.7	20.0
Pyrene	Ave	1.389	1.339	0.6000	19.3	20.0	-3.6	20.0
Benzo[a]anthracene	Ave	1.163	1.119	0.8000	19.3	20.0	-3.7	20.0
Chrysene	Ave	1.284	1.151	0.7000	17.9	20.0	-10.4	20.0
Benzo[b]fluoranthene	Ave	1.092	1.112		20.4	20.0	1.8	20.0
Benzo[k]fluoranthene	Ave	1.394	1.303	0.7000	18.7	20.0	-6.5	20.0
Benzo[a]pyrene	Ave	1.040	0.9599	0.7000	18.5	20.0	-7.7	20.0
Indeno[1,2,3-cd]pyrene	Ave	0.9181	1.151	0.5000	25.1	20.0	25.4*	20.0
Dibenz(a,h)anthracene	Ave	0.9737	0.9405	0.4000	19.3	20.0	-3.4	20.0
Benzo[g,h,i]perylene	Ave	1.078	1.028	0.5000	19.1	20.0	-4.6	20.0
Nitrobenzene-d5	Ave	0.3272	0.3336		408	400	2.0	20.0
2-Fluorobiphenyl	Ave	1.515	1.315		347	400	-13.2	20.0
2,4,6-Tribromophenol	Ave	0.2430	0.2373		391	400	-2.4	20.0
Terphenyl-d14	Ave	0.7321	0.7260		397	400	-0.8	20.0

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-145711-1

SDG No.:

Batch Number: 480186 Batch Start Date: 11/27/17 14:23 Batch Analys

Batch Method: SM 4500 H+ B Batch End Date: 11/27/17 16:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	SampleTemp	pHRead1	pHRead2
CCV 460-480186/1		SM 4500 H+ B		20 mL	22.3 Celsius	7.04 SU	7.02 SU
MB 460-480186/2		SM 4500 H+ B		20 mL	22.0 Celsius	6.21 SU	6.20 SU
LCSSRM 460-480186/3		SM 4500 H+ B		20 mL	22.5 Celsius	7.56 SU	7.53 SU
460-145240-A-1 DU		SM 4500 H+ B	T	20 mL	21.0 Celsius	7.70 SU	7.76 SU
CCV 460-480186/11		SM 4500 H+ B		20 mL	22.5 Celsius	7.03 SU	7.01 SU
CCV 460-480186/22		SM 4500 H+ B		20 mL	22.6 Celsius	7.03 SU	7.00 SU
460-145711-E-1	WWTP-112217	SM 4500 H+ B	T	20 mL	21.6 Celsius	8.44 SU	8.46 SU
CCV 460-480186/25		SM 4500 H+ B		20 mL	22.5 Celsius	7.03 SU	7.01 SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	WTpHLCS 00020			
CCV 460-480186/1		SM 4500 H+ B					
MB 460-480186/2		SM 4500 H+ B					
LCSSRM 460-480186/3		SM 4500 H+ B		20 mL			
460-145240-A-1 DU		SM 4500 H+ B	T				
CCV 460-480186/11		SM 4500 H+ B					
CCV 460-480186/22		SM 4500 H+ B					
460-145711-E-1	WWTP-112217	SM 4500 H+ B	T				
CCV 460-480186/25		SM 4500 H+ B					

Batch Notes			
pH Buffer 1 ID	Buffer 1.68	Ricca/2702E32	exp:04/31/19
pH Buffer 2 ID	Buffer 4.0	Orion/910104	exp:10/31/19
pH Buffer 3 ID	Buffer 7.0	Orion / 910107	exp; 05/30/19
pH Buffer 4 ID	Buffer 10.0	Orion /910110	exp:05/31/19
Instrument ID	pH meter A		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed this reagent.

SM 4500 H+ B

SAMPLE SUMMARY

Client: AECOM, Inc.

Job Number: 460-147524-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-147524-1	WWTP-12212017	Water	12/21/2017 1430	12/21/2017 2030

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice): Robert Forstner	Samplers Name (Printed): Brian Tait	Site/Project Identification: Former Clifton MGP
Company: AECOM	P. O. # 60137363-600	State (Location of site): NJ: ☐ NY: ☐ Other:
		Regulatory Program: DKQP: ☐
Address: 125 Broad St	Analysis Turnaround Time: Standard ☐; Rush Charges Authorized For: 2 Week ☐, 1 Week ☐, Other ☒ 3 day	LAB USE ONLY — Project No:
City: New York State: NY		Job No: 147524
Phone: 212 377 Fax: 8721		

ANALYSIS REQUESTED (ENTER 'X' BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of. Cont.	167.7 Avail CN	335.4 total CN	22700 PP metal + SIM	2540 TSS	4500 pH 1801 turbidity	8260C BTEX	6020A As, Ni					Sample Numbers
WWTP-12212017	12/21/17	1430	GW	10	X	X	X	X	X	X	X					1

3-Day RUSH

460-147524 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other ______, 7 = Other ______ Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? ______

Relinquished by	Company	Date / Time	Received by	Company
1) [signature]	AECOM	12/21/17 1530	1) [signature]	TA
2) Zeesl	TA	12/21/17 2030	2) Kelly [signature]	TA Ed 12/21/17 2030
3)			3)	
4)			4)	

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

IR#9 0.9°C

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 147524

Number of Coolers: 1 **IR Gun #** 9

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	0.9 °C	0.9 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other available CN	Other
1				<2								>12		>12	

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ **Volume of Preservative used (ml):** _____

Lot # of Preservative(s): _____ **Expiration Date:** _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: ZI **Date:** 12/21/17

TestAmerica Edison
777 New Durham Road
Edison, NJ 08817
Phone (732) 549-3900 Fax (732) 549-3679

2301

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Nayyar, Sapna	Carrier Tracking No(s):	COC No: 460-50406.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sapna.nayyar@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 460-147524-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 12/27/2017			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: National Grid - Former Clifton MGP	Project #: 46018542			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1677/ Cyanide, Available (Flow Injection)	Total Number of containers	Special
			Preservation Code:						
WWTP-12212017 (460-147524-1)	12/21/17	14:30 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	12/22/17 1800	TAL	Received by: D Watson	12-23-17 11:20	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∧ Yes ∧ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-147524-1

Login Number: 147524
List Number: 1
Creator: Jara, Kelly D

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-147524-1

Login Number: 147524
List Number: 2
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 12/23/17 11:55 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-147524-1

SDG No.:

Batch Number: 487147 Batch Start Date: 12/26/17 12:55 Batch Analys

Batch Method: SM 4500 H+ B Batch End Date: 12/26/17 16:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	SampleTemp	pHRead1	pHRead2
CCV 460-487147/1		SM 4500 H+ B		20 mL	22.7 Celsius	7.03 SU	7.02 SU
MB 460-487147/2		SM 4500 H+ B		20 mL	22.5 Celsius	6.14 SU	6.14 SU
LCSSRM 460-487147/3		SM 4500 H+ B		20 mL	22.9 Celsius	7.55 SU	7.53 SU
460-146884-A-6 DU		SM 4500 H+ B	T	20 mL	22.3 Celsius	5.44 SU	5.43 SU
CCV 460-487147/12		SM 4500 H+ B		20 mL	22.9 Celsius	7.02 SU	7.01 SU
460-147524-E-1	WWTP-12212017	SM 4500 H+ B	T	20 mL	21.9 Celsius	8.65 SU	8.64 SU
CCV 460-487147/21		SM 4500 H+ B		20 mL	22.4 Celsius	7.02 SU	7.01 SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	WTpHLCS 00020			
CCV 460-487147/1		SM 4500 H+ B					
MB 460-487147/2		SM 4500 H+ B					
LCSSRM 460-487147/3		SM 4500 H+ B		20 mL			
460-146884-A-6 DU		SM 4500 H+ B	T				
CCV 460-487147/12		SM 4500 H+ B					
460-147524-E-1	WWTP-12212017	SM 4500 H+ B	T				
CCV 460-487147/21		SM 4500 H+ B					

Batch Notes		
pH Buffer 1 ID	Buffer 1.68 Fisher /2702E32	exp:04/30/19
pH Buffer 2 ID	Buffer 4.0 Orion/910104 exp:07/31/19	
pH Buffer 3 ID	Buffer 7.0 Fisher / 172901 exp; 04/30/19	
pH Buffer 4 ID	Buffer 10.0 Fisher /170678	exp:03/30/19
Instrument ID	pH meter A	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed this reagent.

SM 4500 H+ B

Appendix B

Waste Manifests

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
			001112652 VES

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1.	9		2700		
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

107241

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: X — Signature: X — Month: 07 — Day: 05 — Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit:

Transporter signature (for exports only): — Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month: 07 — Day: 05 — Year: 17

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month — Day — Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NYD980532071	1	(877) 818-0087	**001112955 VES**

GENERATOR

5. Generator's Name and Mailing Address KATHERINE WALTER
BROOKLYN UNION GAS DBA NAT. GRID/FMR CLIFTON MGP SITE
287 MASPETH AVENUE
BROOKLYN, NY 11211

Generator's Site Address (if different than mailing address)
40 WILLOW AVE
STATEN ISLAND, NY 10305

Generator's Phone: 609 907-8948

6. Transporter 1 Company Name
VEOLIA ES TECHNICAL SOLUTIONS
U.S. EPA ID Number NJD080631369

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address VEOLIA ES TECHNICAL SOLUTIONS
125 FACTORY LANE
MIDDLESEX, NJ 08846
U.S. EPA ID Number NJD002454544

Facility's Phone: 732 469-5100

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes			
X	1. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (COAL TAR DISTILLATE), 3, II, RQ (D001)	6	DM	1000 (typed value struck out)	P	D001	B		
						D018			
	2.								
	3.								
	4.								

14. Special Handling Instructions and Additional Information
ER Service Contracted by VESTS
107219

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
JARED WAGNER AGENT FOR NAT'L GRID	[signature]	10	09	17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
JARED WAGNER	[signature]	10	09	17
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

GENERATOR

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	[illegible]	1	[illegible]	001330242 VES

5. Generator's Name and Mailing Address

KATHERINE VATER, NATIONAL GRID
BROOKLYN UNION GAS,DBA NAT GRID/FMR CLIFTON MGP SITE
287 MASPETH AVENUE
BROOKLYN, NY 11211

Generator's Phone: [illegible]

Generator's Site Address (if different than mailing address)

40 WILLOW AVE
STATEN ISLAND, NY 10305

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD080631359

7. Transporter 2 Company Name: ENVIRON TRANSPORT GROUP INC — U.S. EPA ID Number: NJD000692051

8. Designated Facility Name and Site Address

VEOLIA ES TECHNICAL SOLUTIONS
L.L.C.
1 EDEN LANE
FLANDERS, NJ 07836

Facility's Phone: 973 347-7111

U.S. EPA ID Number: NJD980536593

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, n.o.s., (BENZENE), 9, III, RQ (D018)	4	DM	1000	P	D018 B
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

ER Service Contracted by VESTS

TRUCK# 107241

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: X [illegible] | Signature: X [illegible] Veolia [illegible] of National Grid | Month 11 Day 29 Year 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:

Transporter signature (for exports only):

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: PATRICK OCONNOR | Signature: [illegible] | Month 11 Day 29 Year 17

Transporter 2 Printed/Typed Name: | Signature: | Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: | Signature: | Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
NYD980532071	1	(877) 818-0067	001330243 VES

GENERATOR

5. Generator's Name and Mailing Address: KATHERINE VATER, NATIONAL GRID
BROOKLYN UNION GAS,D/B/A NAT GRID/EMR CLIFTON MGP SITE
287 MASPETH AVENUE
BROOKLYN, NY 11211
Generator's Phone: 608 807-8965

Generator's Site Address (if different than mailing address):
40 WILLOW AVE
STATEN ISLAND, NY 10305

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD063136959

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: VEOLIA ES TECHNICAL SOLUTIONS L.L.C.
125 FACTORY LANE
MIDDLESEX, NJ 08846
Facility's Phone: 732 469-5100 — U.S. EPA ID Number: NJD002454544

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (COAL TAR DISTILLATE), 3, II, RQ (D001)	5	D M	900	P	D001	E	
						D018		
X	2. NA3077, HAZARDOUS WASTE, SOLID, n.o.s., (BENZENE), 9, III, RQ (D018)	6	D M	1200	P	D018		
						E		
	3.							
	4.							

14. Special Handling Instructions and Additional Information: ER Service Contracted by VESTS
TRUCK# 107241

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: X [illegible] — Signature: [signature] — Month: 11 — Day: 29 — Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: PATRICK OCONNOR — Signature: [signature] — Month: 11 — Day: 29 — Year: 17

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month — Day — Year

VEOLIA
ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT

1. Generator ID Number: NYD988053207 1
2. Page 1 of: 1
3. Emergency Response Phone: (877) 818-0097
4. Shipping Document Tracking Number: ZZ 00462498

GENERATOR

5. Generator's Name and Mailing Address:
KATHERINE VATER, NATIONAL GRID
BROOKLYN UNION GAS,DBA NAT GRID/FMR CLIFTON MGP SITE
287 MASPETH AVENUE
BROOKLYN, NY 11211
Generator's Phone: 609 807 9969

Generator's Site Address (if different than mailing address):
40 WILLOW AVE
STATEN ISLAND, NY 10305

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS
U.S. EPA ID Number: N J D 0 8 0 6 3 1 3 6 9

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
VEOLIA ES TECHNICAL SOLUTIONS L.L.C.
125 FACTORY LANE
MIDDLESEX, NJ 08846
Facility's Phone: 732 469-5100
U.S. EPA ID Number: N J D 0 0 2 4 5 4 5 4 4

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
	1. EMPTY DRUMS	5	D M	200	P	NONE / R
	2. NON RCRA AND DOT NON REGULATED LIQUID	13	D M	5200	P	ID72 / T
	3. NON RCRA AND DOT NON REGULATED SOLID	2	D M	800	P	ID27 / B
	4.					

14. Special Handling Instructions and Additional Information:
ER Service Contracted by VESTS
TRUCK# 107241

15. **GENERATOR S/OFFEROR S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: K Vater
Signature: K Vater — Veolia On Behalf of National Grid
Month: 11 Day: 29 Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Shipment
Transporter 1 Printed/Typed Name: PATRICK O'CONNOR
Signature:
Month: 11 Day: 29 Year: 17
Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Shipping Document Tracking Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a
Printed/Typed Name: Signature: Month: Day: Year:

GENERATOR / SHIPPER'S INITIAL COPY

Appendix C

Groundwater Sampling Forms

Well ID: RW-22

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/20/2017 Time: Start 1040 am/pm
Project No: 60137363 Finish 1140 am/pm
Site Location: Clifton SI, NY
Weather Conds: cold, windy Collector(s): SC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 20.49 c. Length of Water Column 13.81 (a-b)

Casing Diameter/Material 1.5" / PVC

b. Water Table Depth 6.68 d. Calculated System Volume (see back) 1.3 gal

2. WELL PURGE DATA

a. Purge Method: Peri-pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	HACH	2100Q	040937
~~SC 4-58~~	HORIBA	U52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1055	-	16.34	6.75	46.8	0.00	-	58.5	500	7.78	cloudy / none
1100	-	16.29	6.75	46.8	0.00	-	29.2	500	7.76	"
1105	-	16.21	6.74	46.8	0.00	-	12.0	400	7.76	clear / none
1110	-	16.07	6.74	46.9	0.00	-	4.34	400	7.76	"
1115	-	15.95	6.74	46.8	0.00	-	2.91	400	7.76	"
1120	-	15.97	6.74	46.8	0.00	-	3.24	400	7.76	"
1125	-	16.02	6.74	46.8	0.00	-	2.89	400	7.76	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

If no or N/A - Explain below.

~~(continued on back)~~

3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-22		SEE COC			1130

Comments 0.0 ppm HS

Signature [signature] Date 12/20/2017

Well ID: RW-23

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/20/2017 Time: Start 1210 am/pm
Project No: 60137363 Finish 1300 am/pm
Site Location: Clifton SI, NY
Weather Conds: cold, windy Collector(s): JC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 13.15 c. Length of Water Column 6.74 (a-b) Casing Diameter/Material 1.5 "/PVC

b. Water Table Depth 6.41 d. Calculated System Volume (see back) 0.6 gal

2. WELL PURGE DATA

a. Purge Method: peri-pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100Q	040937
	Horiba	U52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1220	-	14.45	7.16	12.4	0.00	-	20.5	400	6.41	clear/none
1225	-	15.07	7.11	11.4	0.00	-	16.3	400	6.41	"
1230	-	14.84	7.20	11.3	0.00	-	11.9	400	6.41	"
1235	-	14.16	7.26	11.3	0.00	-	10.4	400	6.41	"
1240	-	14.04	7.41	11.3	0.88	-	9.26	400	6.41	"
1245	-	13.80	7.58	11.2	4.16	-	7.44	400	6.41	"
1250	-	13.69	7.64	11.2	0.00	-	4.19	400	6.41	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-23		SEE COC			1255

Comments 0.4 ppm H2S

Signature [signature] Date 12/20/17

Well ID: RW-25

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/20/2017 Time: Start 1340 am/pm
Project No: 60137363 Finish 1445 am/pm
Site Location: Clifton SI, NY
Weather Conds: Cold, windy Collector(s): JC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length UNK c. Length of Water Column UNK (a-b)

Casing Diameter/Material 1.5" / PVC

b. Water Table Depth 6.54 d. Calculated System Volume (see back) UNK

2. WELL PURGE DATA

a. Purge Method: Peri-pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100 Q	040937
	Hor. Ba	V-52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1400	–	14.53	7.07	5.70	6.00	–	34.2	~400	6.55	cloudy / none
1405	–	14.61	7.08	5.72	0.00	–	29.8	~400	6.55	"
1410	–	14.68	7.09	5.77	0.00	–	27.4	~400	6.55	"
1415	–	14.79	7.02	5.79	0.00	–	14.9	~400	6.55	clear / none
1420	–	14.92	7.08	5.82	0.00	–	11.6	~400	6.55	"
1425	–	15.04	7.16	5.86	0.00	–	9.47	~400	6.55	"
1430	–	15.19	7.11	5.88	0.00	–	6.23	~400	6.55	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

If no or N/A - Explain below.

~~(continued on back)~~

3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-25		SEE COC			1435

Comments 0.0 ppm HS

Signature [signature] Date 12/20/2017

Well ID: RW-26

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/21/2017 Time: Start 720 am/pm
Project No: 60137363 Finish 825 am/pm
Site Location: Clifton, SI, NY
Weather Conds: Cold, calm Collector(s): JC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 12.14 c. Length of Water Column 4.75 (a-b) Casing Diameter/Material 1.5"/PVC

b. Water Table Depth 7.39 d. Calculated System Volume (see back) 0.4

2. WELL PURGE DATA

a. Purge Method: peri pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100Q	040937
	Horiba	U-52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
735	-	11.89	7.39	1.53	0.00	-	21.2	450	7.52	clear/none
740	-	12.12	7.38	1.48	0.00	-	16.3	450	7.52	"
745	-	13.31	7.30	1.18	0.00	-	16.0	450	7.52	"
750	-	14.02	7.24	1.04	0.00	-	15.4	450	7.52	"
755	-	14.51	7.18	0.960	0.00	-	14.9	450	7.52	"
800	-	13.95	7.16	1.26	0.00	-	13.4	450	7.52	"
805	-	13.99	7.14	0.975	0.00	-	14.6	450	7.52	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

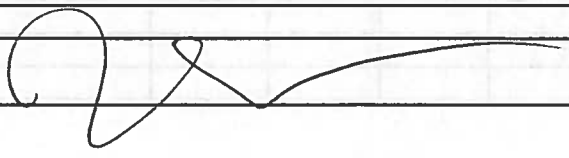
If no or N/A - Explain below.

(continued on back)

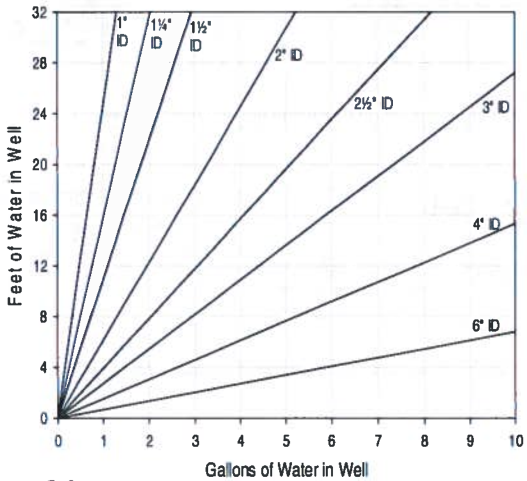
3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-26		SEE COC			815

Comments 0.8 ppm HS

Signature  Date 12/21/17

Purge Volume Calculation



Volume / Linear Ft. of Pipe		
ID (in)	Gallon	Liter
0.25	0.0025	0.0097
1	0.0408	0.1544
1.25	0.0637	0.2413
1.5	0.0918	0.3475
2	0.1632	0.6178
2.5	0.2550	0.9653
3	0.3672	1.3900
4	0.6528	2.4711
6	1.4688	5.5600

RW-20

(continued from front)

Time (24 hr)	Volume Removed (Liters)	Temp (°C)	pH	Spec. Cond (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (ft)	Color/Odor
810	~	14.08	7.13	0.971	0.00	~	16.2	450	7.52	clear / none

5

Low Flow Ground Water Sample Collection Record

Client: National Grid
Project No: 60137363-610
Site Location: Former Clifton MGP, Staten Island, NY
Weather Conds:

Date: 12/20/17
Time: Start 1005 am/
Finish ~~1215~~ 1207 am/
Collector(s): B. Tate

1. WATER LEVEL DATA: (measured from Top of Casing, 0.01 foot accuracy)

a. Total Well Length 23.0
b. Water Table Depth 3.36
c. Water Column (a-b) 19.4
d. Screen Length 10
e. Pump Intake
f. Calculated Water Column Volume
Casing Diameter 4
Sump Length 3

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (as per AECOM workplan)

Temperature	±3%	D.O.	±10%	Turbidity	< 50 NTU or ±10%
pH	±0.1 unit	ORP	± 10mV		
Sp. Cond.	±3%	Drawdown	< 0.3'		

c. Field Testing Equipment used:

Make	Model	Serial Number
Horiba	U-52	
LaMotte	2020	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (feet)	Color (What color?)	Odo (What type o
1040	1.1	14.23	8.95	0.156	4.78	44	17.2	220	4.11	none	none
1045	2.2	14.33	8.96	0.239	3.11	37	4.7	220	5.71		
1050	3.3	14.67	8.94	0.239	3.12	23	3.4		5.95		
1055	4.4	14.71	8.94	0.239	3.02	14	3.2		6.12		
1100	5.5	14.84	8.94	0.240	2.87	6	3.4		6.37		
1105	6.6	14.87	9.00	0.240	2.72	-4	2.8		6.42		
1110	7.7	14.96	8.97	0.241	2.77	-9	2.7		6.42		

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed?	☐	☐	☑
Has required turbidity been reached?	☑	☐	☐
Have parameters stabilized?	☐	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method:

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Tim
RW-200S				BTEX, PAHs by SIM, COD, Ammonia, Nitrate	1/2
				Nitrogen, Ferrous Iron, Total & Dissolved Fe,	
				Total & Dissolved Mn, Sulfate, Sulfide,	
				Methane, CO2, Alkalinity	

Comments

Signature Date 12/20/17

I

Low Flow Ground Water Sample Collection Record

Client: National Grid
Project No: 60137363-610
Site Location: Former Clifton MGP, Staten Island, NY
Weather Conds:
Date: 12/20/17
Time: Start 1000 am/
Finish 1200 am/
Collector(s): B. Tat-

1. WATER LEVEL DATA: (measured from Top of Casing, 0.01 foot accuracy)

a. Total Well Length 37.0
b. Water Table Depth 3.09
c. Water Column (a-b) 36.91
d. Screen Length 10
e. Pump Intake
f. Calculated Water Column Volume
Casing Diameter 4
Sump Length 3

2. WELL PURGE DATA

a. Purge Method: Low

b. Acceptance Criteria defined (as per AECOM workplan)

Temperature	±3%	D.O.	±10%	Turbidity	< 50 NTU or ±10%
pH	±0.1 unit	ORP	± 10mV		
Sp. Cond.	±3%	Drawdown	< 0.3'		

c. Field Testing Equipment used:

Make	Model	Serial Number
Horiba	U-52	
LaMotte	2020	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (feet)	Color (What color?)	Odo (What type o
1040	1	15.32	8.68	0.223	3.57	64	15.7	200	6.71	Clear	none
1045	2	15.30	8.74	0.222	3.02	64	9.7		7.10		
1050	3	15.28	8.76	0.222	2.27	66	1.7		8.17		
1055	4	15.09	8.75	0.221	1.97	66	0.6		8.54		
1100	5	14.99	8.77	0.221	1.81	64	0.71		8.61		
1105	6	15.05	8.76	0.221	1.87	64	1.0		8.65		

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed?	☑	☐	☐
Has required turbidity been reached?	☐	☐	☑
Have parameters stabilized?	☑	☐	☐

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method:

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-200I				BTEX, PAHs by SIM, COD, Ammonia, Nitrate Nitrogen, Ferrous Iron, Total & Dissolved Fe, Total & Dissolved Mn, Sulfate, Sulfide, Methane, CO2, Alkalinity	1105

Comments 11

Signature
Date 12/20/17

Low Flow Ground Water Sample Collection Record

Client: National Grid | Date: 12/20/17 | Time: Start 1230 am/
Project No: 60137363-610 | Finish 1430 am/
Site Location: Former Clifton MGP, Staten Island, NY
Weather Conds: Sun | Collector(s): B. Tak

1. WATER LEVEL DATA: (measured from Top of Casing, 0.01 foot accuracy)

a. Total Well Length 42.5 | d. Screen Length 10 | Casing Diameter 4
b. Water Table Depth 1.02 | e. Pump Intake | Sump Length 5
c. Water Column (a-b) 40.98 | f. Calculated Water Column Volume

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (as per AECOM workplan)

Temperature	±3%	D.O.	±10%	Turbidity	< 50 NTU or ±10%
pH	±0.1 unit	ORP	± 10mV		
Sp. Cond.	±3%	Drawdown	< 0.3'		

c. Field Testing Equipment used:

Make	Model	Serial Number
Horiba	U-52	
LaMotte	2020	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (feet)	Color (What color?)	Odo (What type or
1310	1.1	12.05	11.22	0.398	6.57	-16	7.7	220	1.89	None	None
1315	2.2	12.26	11.07	0.404	4.47	-18	1.81		1.95		
1320	3.3	12.71	11.09	0.396	4.41	-23	1.62		2.05		
1325	4.4	13.73	11.08	0.415	4.43	-26	2.01		2.12		
1330	5.5	13.75	11.22	0.416	4.31	-33	1.94		2.27		
1335	6.6	13.76	11.26	0.416	4.50	-33	1.77		2.31		
1340	7.7	13.73	11.26	0.417	4.59	-33	1.90		2.41		

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed?	☐	☐	☑
Has required turbidity been reached?	☑	☐	☐
Have parameters stabilized?	☐	☐	☑

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method:

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
202F				BTEX, PAHs by SIM, COD, Ammonia, Nitrate Nitrogen, Ferrous Iron, Total & Dissolved Fe, Total & Dissolved Mn, Sulfate, Sulfide, Methane, CO2, Alkalinity	1350

Comments

Signature | Date 12/20/17

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/20/17 Time: Start 1250 am/
Project No: 60137363-610 Finish 1450 am/
Site Location: Former Clifton MGP, Staten Island, NY
Weather Conds: _____ Collector(s): R. Tutt

1. WATER LEVEL DATA: (measured from Top of Casing, 0.01 foot accuracy)

a. Total Well Length 25 d. Screen Length 10 Casing Diameter 4
b. Water Table Depth 2.32 e. Pump Intake _____ Sump Length 5
c. Water Column (a-b) 22.18 f. Calculated Water Column Volume _____

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (as per AECOM workplan)

Temperature	±3%	D.O.	±10%	Turbidity	< 50 NTU or ±10%
pH	±0.1 unit	ORP	± 10mV		
Sp. Cond.	±3%	Drawdown	< 0.3'		

c. Field Testing Equipment used:

Make	Model	Serial Number
Horiba	U-52	
LaMotte	2020	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (feet)	Color (What color?)	Odc (What type or
1310	1.1	14.42	9.48	0.450	5.21	71	1.62	220	3.10		
1315	2.2	14.47	9.48	0.450	4.21	64	6.0		3.41		
1320	3.3	14.54	9.48	0.450	4.40	55	5.7		3.61		
1325	4.4	14.62	9.48	0.450	4.38	47	5.6		3.67		
1330	5.5	14.44	9.46	0.448	3.98	39	7.4		3.74		
1335	6.6	13.49	9.46	0.445	3.87	50	5.8		3.81		
1340	7.7	13.78	9.45	0.440	3.87	59	6.2		3.79		

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed?	☐	☐	☑
Has required turbidity been reached?	☑	☐	☐
Have parameters stabilized?	☐	☐	☑

If no or N/A - Explain below.

(continued on back)

1400

3. SAMPLE COLLECTION: Method: _____

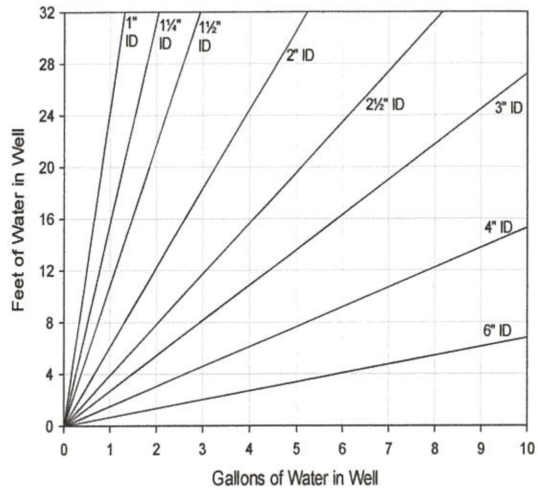
Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
2025				BTEX, PAHs by SIM, COD, Ammonia, Nitrate Nitrogen, Ferrous Iron, Total & Dissolved Fe, Total & Dissolved Mn, Sulfate, Sulfide, Methane, CO2, Alkalinity	

Comments _____

Signature _____ Date 12/2017

Well ID: 2025

Purge Volume Calculation



Volume / Linear Ft. of Pipe	
ID (in)	Liter
0.25	0.0097
0.375	0.0217
0.5	0.0386
0.75	0.0869
1	0.1544
1.25	0.2413
1.5	0.3475
2	**0.6178**
2.5	0.9653
3	1.3900
4	**2.4711**
6	5.5600

(continued from front)

Time (24 hr)	Volume Removed (Liters)	Temp (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (ft)	Color/Odor (Provide type of color and odor, not Yes or No)
1345	8.8	12.86	9.54	0.444	4.00	65	6.7			
1350	9.9	12.92	9.54	0.444	4.03	62	6.5			

Well ID: RW-203I

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/21/17 Time: Start 850 am/pm
Project No: 60137763 Finish 1010 am/pm
Site Location: Clifton SI, NY
Weather Conds: Cold, Calm Collector(s): SC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 36.68 c. Length of Water Column 34.16 (a-b) Casing Diameter/Material 4" / pvc

b. Water Table Depth 2.52 d. Calculated System Volume (see back) 22.3 gal

2. WELL PURGE DATA

a. Purge Method: ~~bladder~~ peristaltic pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100Q	040937
	Horiba	U-52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
900	–	14.03	9.24	0.272	0.00	–	12.0	600	2.99	clear / ~~Haze~~
905	–	14.17	9.50	0.267	0.00	–	10.1	400	2.98	"
910	–	14.29	9.51	0.264	0.00	–	9.88	400	3.04	"
915	–	14.75	9.51	0.262	0.00	–	8.82	400	3.22	"
920	–	14.77	9.54	0.262	0.00	–	7.59	400	3.24	"
925	–	14.52	9.56	0.261	0.00	–	9.02	400	3.24	"
930	–	14.58	9.58	0.260	0.00	–	8.73	400	3.24	"

(continued on back)

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

If no or N/A - Explain below.

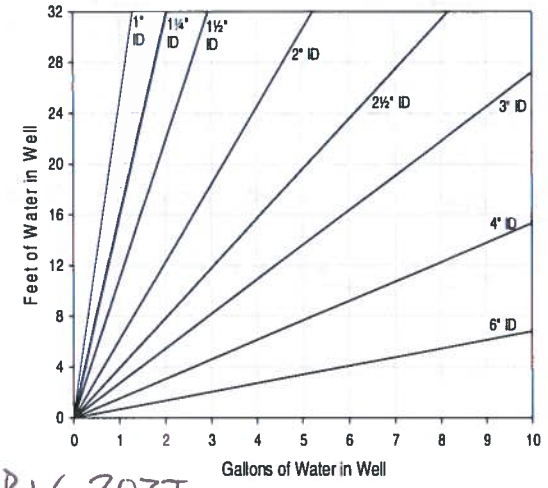
3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-203I		SEE COC			1000

Comments 236.9 ppm HS

Signature Date 12/21/17

Purge Volume Calculation



RW-203I

Volume / Linear Ft. of Pipe		
ID (in)	Gallon	Liter
0.25	0.0025	0.0097
1	0.0408	0.1544
1.25	0.0637	0.2413
1.5	0.0918	0.3475
2	0.1632	0.6178
2.5	0.2550	0.9653
3	0.3672	1.3900
4	0.6528	2.4711
6	1.4688	5.5600

(continued from front)

	Time (24 hr)	Volume Removed (Liters)	Temp (°C)	pH	Spec. Cond (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (ft)	Color/Odor
Ic	~~945~~	935 –	14.62	9.59	0.260	0.00	–	7.61	400	3.29	clear / naph
Tc	~~950~~	940 –	14.66	9.60	0.260	0.00	–	6.24	400	3.31	"
Jc	~~9~~	945 –	14.69	9.60	0.260	0.00	–	6.18	400	3.32	"
	950	–	14.83	9.62	0.260	0.00	–	6.41	400	3.34	"
	955	–	14.88	9.63	0.260	0.00	–	6.92	400	3.34	"

Well ID: RW-203S

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/21/17 Time: Start 1035 am/pm
Project No: 60137363 Finish 1200 am/pm
Site Location: Clifton, SI NY
Weather Conds: Cold, Calm Collector(s): JE

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 27.36 c. Length of Water Column 24.25 (a-b) Casing Diameter/Material 4" / PVC

b. Water Table Depth 3.11 d. Calculated System Volume (see back) 15.8 gal

2. WELL PURGE DATA

a. Purge Method: Peri-pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	± 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100 Q	040937
	Horiba	U-52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1045	-	13.71	8.69	0.382	0.00	-	18.3	450	3.30	clear / faint
1050	-	14.24	8.57	0.383	0.00	-	17.1	450	3.41	"
1055	-	14.96	8.42	0.384	0.00	-	13.3	450	3.49	"
1100	-	15.01	8.17	0.386	0.00	-	11.9	450	3.54	"
1105	-	14.92	8.18	0.386	0.00	-	11.6	450	3.56	"
1110	-	14.85	8.21	0.386	0.00	-	11.2	450	3.58	"
1115	-	14.86	8.21	0.386	0.00	-	10.4	450	3.62	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☒	☐	☐

(continued on back)

If no or N/A - Explain below.

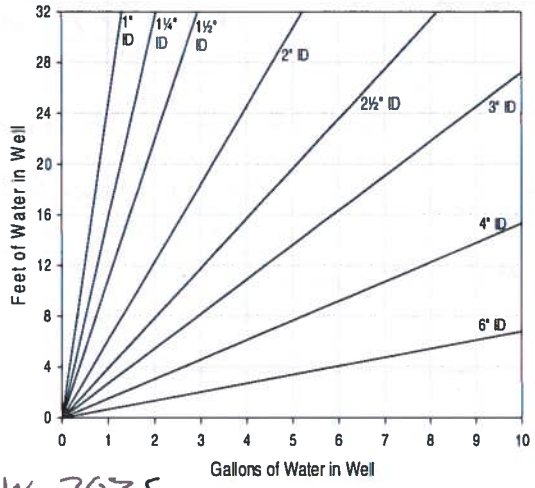
3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-203S		SEE COC			1145

Comments 15.9 ppm HS

Signature [signature] Date 12/21/17

Purge Volume Calculation



Volume / Linear Ft. of Pipe		
ID (in)	Gallon	Liter
0.25	0.0025	0.0097
1	0.0408	0.1544
1.25	0.0637	0.2413
1.5	0.0918	0.3475
2	0.1632	0.6178
2.5	0.2550	0.9653
3	0.3672	1.3900
4	0.6528	2.4711
6	1.4688	5.5600

RW-2035

(continued from front)

Time (24 hr)	Volume Removed (Liters)	Temp (°C)	pH	Spec. Cond (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (ft)	Color/Odor
1120	-	14.87	8.20	0.386	0.00	-	9.66	450	3.64	clear / none
1125	-	14.88	8.20	0.385	0.00	-	9.24	450	3.65	"
1130	-	14.99	8.18	0.384	0.00	-	8.91	450	3.67	"
1135	-	1501	8.18	0.384	0.00	-	8.66	450	3.67	"
1140	-	15.13	8.17	0.384	0.00	-	8.44	450	3.69	"

Low Flow Ground Water Sample Collection Record

Client: National Grid | Date: 12/21/17 | Time: Start 840 am
Project No: 60137363-610 | Finish 950 am
Site Location: Former Clifton MGP, Staten Island, NY
Weather Conds: | Collector(s): B. Tate

1. WATER LEVEL DATA: (measured from Top of Casing, 0.01 foot accuracy)

a. Total Well Length 43 | d. Screen Length 10 | Casing Diameter 4
b. Water Table Depth 0.82 | e. Pump Intake | Sump Length 5
c. Water Column (a-b) 42.18 | f. Calculated Water Column Volume

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (as per AECOM workplan)

Temperature	±3%	D.O.	±10%	Turbidity	< 50 NTU or ±10%
pH	±0.1 unit	ORP	± 10mV		
Sp. Cond.	±3%	Drawdown	< 0.3'		

c. Field Testing Equipment used:

Make	Model	Serial Number
Horiba	U-52	
LaMotte	2020	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	DTW (feet)	Color (What color?)	Odor (What type of
855	1.25	12.70	8.64	0.683	1.92	16	11.6	250	0.92	none	none
900	2.5	12.92	8.60	0.680	1.87	29	16.4		1.00		
905	3.75	13.12	8.60	0.677	1.71	34	14.2		1.12		
910	5.0	13.21	8.59	0.675	1.62	37	12.9		1.14		
915	6.25	13.39	8.59	0.673	1.60	34	8.01		1.21		
920	7.50	13.46	8.60	0.671	1.54	35	6.17		1.24		
925	8.75	13.51	8.60	0.671	1.58	33	5.19		1.26		

(continued on back)

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed?	☐	☐	☑
Has required turbidity been reached?	☑	☐	☐
Have parameters stabilized?	☐	☐	☑

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method:

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Tim
MW-204				BTEX, PAHs by SIM, COD, Ammonia, Nitrate	938
				Nitrogen, Ferrous Iron, Total & Dissolved Fe,	
				Total & Dissolved Mn, Sulfate, Sulfide,	
				Methane, CO2, Alkalinity	

Comments

Signature | Date 12/21/17

Well ID: RW-210I

AECOM

Low Flow Ground Water Sample Collection Record

Client: National Grid Date: 12/21/2017 Time: Start 1300 am/pm
Project No: 60137363 Finish 1420 am/pm
Site Location: Clifton SI, NY
Weather Conds: Cold, calm Collector(s): JC

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 37.85 c. Length of Water Column 37.85 (a-b) Casing Diameter/Material 4" / PVC

b. Water Table Depth 0' d. Calculated System Volume (see back) 24.7 gal

2. WELL PURGE DATA

a. Purge Method: Peri - pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	±1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

	Make	Model	Serial Number
	Hach	2100 Q	040937
	Horiba	U-52	21168

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1310	-	12.98	8.11	0.437	0.00	-	8.39	450	0	clear / none
1315	-	13.06	8.09	0.440	0.00	-	8.64	450	0	"
1320	-	13.03	8.09	0.440	0.00	-	8.75	450	0	"
1325	-	12.97	8.09	0.440	0.00	-	8.41	450	0	"
1330	-	12.92	8.10	0.440	0.00	-	7.98	450	0	"
1335	-	12.91	8.09	0.440	0.00	-	8.62	450	0	"
1340	-	12.88	8.08	0.440	0.00	-	8.75	450	0	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☒	☐	☐
Has required turbidity been reached	☒	☐	☐
Have parameters stabilized	☑	☐	☐

(continued on back)

If no or N/A - Explain below.

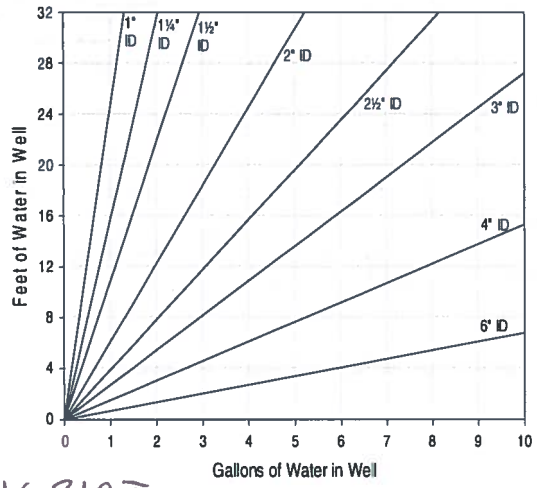
3. SAMPLE COLLECTION: Method: low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
RW-210I		SEE COC			1410

Comments 0.0 ppm HS

Signature Date 12/21/17

Purge Volume Calculation



Volume / Linear Ft. of Pipe		
ID (in)	Gallon	Liter
0.25	0.0025	0.0097
1	0.0408	0.1544
1.25	0.0637	0.2413
1.5	0.0918	0.3475
2	0.1632	0.6178
2.5	0.2550	0.9653
3	0.3672	1.3900
4	0.6528	2.4711
6	1.4688	5.5600

RW-210I

(continued from front)

Time (24 hr)	Volume Removed (Liters)	Temp (°C)	pH	Spec. Cond (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (ft)	Color/Odor
1345	-	12.61	8.11	0.440	0.00	-	8.81	450	0	Clear/none
1350	-	12.45	8.16	0.440	0.00	-	9.38	450	0	"
1355	-	12.21	8.12	0.440	0.00	-	9.51	450	0	"
1400	-	12.05	8.09	0.440	0.00	-	9.46	450	0	"
1405	-	12.03	8.08	0.440	0.00	-	9.22	450	0	"