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SUBMITTED VIA ELECTRONIC MAIL

Mr. Sal Priore, P.E.
NYSDEC Division of Environmental Remediation
Remedial Bureau C
625 Broadway, 11th Floor
Albany, NY 12233-7014

RE: Pre-Design Investigation Summary Report
NYSEG – Auburn Green St. Site, Auburn NY
NYSDEC Site No. 7-06-009

Dear Mr. Priore,

On behalf of NYSEG, AECOM submits this pre-design investigation summary report for the completed investigation described in the *Remedial Design Work Plan* (RDWP) and accompanying *Pre-Design Investigation Work Plan* (PDIWP) dated July 2022 (final) for the above-referenced Auburn Green St. former manufactured gas plant (MGP) Site (Site).

The history of the Site is described in the PDIWP. Based upon investigations conducted to date, the primary contaminants of concern include arsenic in limited areas of surface soils, volatile organic compounds (VOC) (benzene, ethylbenzene, toluene, and xylene [BTEX]), semi-volatile organic compounds (SVOC), and arsenic in subsurface soils, with VOCs (BTEX), SVOCs, and cyanide in groundwater.

The PDI was completed to collect additional information required to complete the RD for the Site. The February 2020 Proposed Remedial Action Plan (PRAP) and July 2020 Record of Decision (ROD) identify targeted excavations of surface soil to address arsenic, and in-situ enhanced biodegradation as the preferred remedial technology to treat VOCs and SVOCs in groundwater within and outside of the subsurface former MGP gas holder. A PDI biosparging pilot study was performed to evaluate the ability of biosparging to distribute dissolved oxygen (DO) in groundwater in the shallow overburden unit. Results from the pilot study are used to estimate the radius of influence (ROI) of injected air at various air flow rates, which is a critical parameter for the remedial design.

This PDI summary report presents and evaluates data collected from the biosparging pilot study to evaluate technology feasibility, provide estimates of key design parameters such as the ROI for various air flow rates, and recommend a biosparging treatment system design for the Site. Included in the pilot study assessment is an evaluation of the ability of biosparging to create and sustain aerobic conditions in groundwater that will enhance aerobic biodegradation of contaminants.

An initial version of the RDWP/PDIWP was submitted to New York State Department of Environmental Conservation (NYSDEC) in August 2021. The initial version of the PDIWP was conditionally approved by NYSDEC on September 26, 2021.

The goals of the PDI are as follows:

- Confirm distribution of contaminants of concern and understand oxidation/reduction (“redox”) conditions in groundwater to support delineation of the treatment area in the remedial design;
- Evaluate groundwater flow direction and velocity to support remedial design;
- Perform a field-scale biosparging pilot study to determine physical parameters for the remedial design and confirm feasibility of biosparging to meet remedial action objectives;

- Refine horizontal delineation of surface soil impacts;
- Update the survey.

Results of the PDI will be used in the RD for the Site to address the treatment of areas to the extent feasible. **Figure 1** presents the Site plan with the planned PDI investigation locations.

The scope of work in the initial version of the PDIWP included borings for new well installations, groundwater sampling, slug testing, biosparging pilot study, surface soil evaluation for arsenic, and survey of new investigation features. Elements of the initial PDI included the following:

Completed August/ September/ October 2021 (per August 2021 PDIWP):

- Installed two new monitoring wells (MW-9 and MW-10) to approximately 20 feet below ground surface (ft bgs) in the vicinity of MW-4.
- Collected groundwater samples from eight existing wells (MW-1 to MW-8) and two new wells (MW-9 and MW-10) to confirm distribution of groundwater contaminants of concern and redox conditions. Prior to the PDI, the most recent groundwater monitoring event for MW-1 through MW-8 was May 2014.
- Performed slug testing at five wells in the vicinity of the biosparging pilot study area to estimate hydraulic conductivity. Hydraulic conductivity will be used to confirm feasibility of biosparging and estimate groundwater velocity in support of the design of the biosparging and oxygen-releasing compound (ORC) wells (if needed).
- Performed delineation sampling of the upper foot of surface soils in a limited area west of the substation fence to confirm excavation limits and the suitability of existing surface and near surface soil as a site cover.
- Confirmed the extent of the crushed stone fill inside the substation fence to ensure it is sufficient for a site cover.

During installation of MW-9 and MW-10, it was determined that the location of the former gas holder was slightly further south of the previously estimated location, and that MW-4, previously believed to be inside the footprint of the former gas holder, was actually just north of and outside the former gas holder. MW-9 was also installed outside the former gas holder. MW-10 was installed inside the former gas holder. Following initial data reduction of MW-9 and MW-10 installation data, a technical meeting was held with NYSDEC and New York State Department of Health (NYSDOH) representatives on November 1, 2021, to discuss the updated conceptual site model (CSM) (i.e., location of the former gas holder). Pursuant to that meeting, NYSDEC/NYSDOH requested two additional wells be installed and one additional round of groundwater sampling be performed: The two new wells included: MW-11, to be installed within the footprint of the former gas holder; and, MW-12, as an additional site characterization well to be installed downgradient of the former gas holder near the northeast property corner. The additional round of groundwater sampling was requested to provide additional data from existing and new wells to supplement and provide more current data for evaluation of groundwater characteristics.

Subsequent to the November 2021 meeting, the August 2021 RDWP and PDIWP were updated to reflect the update to the CSM, summarize fall 2021 PDI investigations, and outline the requested additional well installations and groundwater sampling. The revised RDWP/PDIWP was submitted to NYSDEC for review in May 2022. Following review and comment/response communications, the revised plans were approved in July 2022.

The additional PDI scope and the biosparge pilot study was completed August/ September/ October 2022, and included:

- Installed two additional new monitoring wells: MW-11 (20 ft bgs) within the former gas holder and MW-12 (18 ft bgs) downgradient of the former gas holder near the northeast property boundary.

- Collected an additional round of groundwater samples from all wells (MW-1 through MW-12) to assess potential seasonal variations in groundwater quality. Measured depth to water and calculate groundwater elevations during the groundwater sampling event to determine the direction and magnitude of hydraulic gradients in the shallow aquifer.
- Implemented a biosparging pilot-scale study to more clearly define design parameters for enhanced bioremediation.
- Collected a post-pilot study round of groundwater samples from nine wells in the vicinity of the biosparging pilot study area (MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12). Measured depth to water and calculated groundwater elevations during the groundwater sampling event to determine the direction and magnitude of hydraulic gradients in the shallow aquifer.

This PDI summary report has been prepared to transmit a summary and analysis of the investigation work described above.

INVESTIGATION ACTIVITIES

Utility Clearance

Prior to the start of work for each of the well installation events (August 30, 2021, and August 3, 2022), Dig Safely New York was contacted for public utility mark outs. Utility clearance was performed using ground penetrating radar (GPR) by subcontractor Ground Penetrating Radar Systems (2021) and by Matrix Environmental Technologies Inc. (Matrix) (2022). AECOM marked the proposed drilling locations with pin-flags prior to the utility mark out.

Soil Borings, Well Installation and Development

On August 30, 2021, two soil borings were completed using hollow stem auger (HSA) methods and were completed as a biosparge pilot air injection well/monitoring well (MW-9) and a biosparge pilot monitoring well (MW-10). Following initial data collection in fall 2021 and PDIWP revisions in winter and spring 2022, on August 3, 2022, two additional soil borings were completed using HSA methods and were completed as a biosparge pilot monitoring well (MW-11) and a downgradient monitoring well (MW-12).

MW-9 was completed as a biosparging air injection well. This location was originally believed to be inside the former gas holder along with existing well MW-4. Upon evaluation of boring information and GPR data, it was determined that the location of the former gas holder was several feet south of the previously estimated location and MW-4 was located just outside of the holder. MW-9 was also installed outside and several feet north of the former gas holder.

MW-10 and MW-11 were installed as observation wells for the biosparge pilot study and are located inside the former gas holder footprint.

MW-12 was installed downgradient of the former gas holder, north of MW-2 and east of MW-7, near the northeast property corner as a new monitoring well providing additional groundwater quality data near the downgradient property boundary.

Borings and well installations in 2021 and 2022 were performed by Matrix Environmental Technologies Inc., using a Geoprobe® Model 6620DT rig under the direction of an AECOM geologist.

Borings were advanced to the bedrock surface refusal (approximately 18-21 feet bgs).

Potential impacts were not observed (based on visual and olfactory characteristics) in any of the borings except for a slight odor in MW-9 at approximately 13.5 ft bgs. Photoionization detector (PID) readings at this depth were 4.9 parts per million (ppm). There were no other elevated PID readings above background associated with the soil.

Boring locations were hand-cleared using an air knife and hand auger to a depth of approximately 5 feet bgs, after which soil samples were collected for the purpose of performing soil descriptions continuously to the bottom of the boring using 5-foot long, 2-inch diameter MacroCore™ samplers through HSAs. Soil samples were visually described and recorded by the field geologist. The descriptions were in accordance with the Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), American Society for Testing and Materials (ASTM) D2487-17. The field geologist recorded the soil descriptions and any other observations (e.g., visual and olfactory observations, soil staining, etc.) in the field logbook. Immediately after describing the soil core, the field geologist scanned the soil with a 10.2 eV PID for organic vapors and recorded results. Boring logs are provided in **Attachment 1**. Well construction logs are provided in **Attachment 1**. Well development logs are presented in **Attachment 1**. In accordance with the PDIWP, no soil samples were collected from the borings for laboratory analysis.

Following new well installation, wells were developed by AECOM in accordance with the PDIWP. See **Attachment 1** for well development logs.

Groundwater Well Sampling

Three separate rounds of groundwater sampling were performed during the PDI. For each event, groundwater sampling was performed using low-flow protocols with a peristaltic pump. Field parameters for purge water and well samples were collected using a YSI water quality meter (temperature, pH, conductivity, DO, oxidation-reduction potential (ORP), and turbidity). Field parameter data are presented in **Table 1**. Groundwater well sampling forms are presented in **Attachment 1.**

The three rounds of groundwater sampling took place as follows:

- September 30-October 4, 2021 following the installation and development of new wells MW-9 and MW-10. Samples were collected from existing wells (MW-1 through MW-10).
- August 2022 after the installation of MW-11 and MW-12 and prior to the start of the biosparge pilot study. Samples were collected from existing wells (MW-1 through MW-12);
- October 3-4, 2022 after completion of the biosparge pilot study. Samples were collected from select wells within and close to the biosparge pilot study area (MW-1 through MW-4, and MW-7, and MW-9 through MW-12).

For each event, the groundwater samples were delivered to Eurofins TestAmerica, Amherst, New York.

Monitoring well low-flow groundwater samples were collected for the following analyses:

- VOCs (BTEX, + acetone, and styrene) by USEPA Method SW846 8260C;
- Site Specific SVOCs (PAHs) by USEPA Method SW846 8270D (2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, Benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, naphthalene, and phenol);
- Cyanide by 9012B.

Groundwater samples for select monitoring wells were collected for the following additional monitored natural attenuation (MNA) analyses:

- Dissolved Iron by USEPA Method 6010C;
- Nitrate by USEPA Method 300.0/4500; and
- Sulfate by USEPA Method 300.0.

A summary of the groundwater sample results is provided below in the Investigation Results section.

A round of water levels from all existing groundwater wells at the times of sampling was collected concurrent with the sampling rounds. Depth to water and groundwater elevation data are presented in **Table 2**. **Figure 2 through Figure 4** presents the groundwater elevation contours for the three rounds of groundwater sampling.

Slug Tests

Aquifer testing (slug testing) was completed October 4, 2021, at five wells (MW-1, MW-2, MW-4, MW-7, and MW-10) to estimate hydraulic conductivity. Prior to the start of slug testing, the depth to water was measured.

Both rising and falling head tests were performed. Slug tests were performed in a similar manner as described in ASTM D-4044. The tests were performed using slugs of varying lengths, diameters, and materials. Slugs used included a PVC slug 2 foot long by 1.5 inches in diameter, a PVC slug 2 foot long by 1.25 inches in diameter, and a stainless-steel slug approximately 4 feet long by 1 inch in diameter. Prior to testing, a Level TROLL 700 data logger was placed in the well. A slug was inserted into the well, and the drop in water level (falling head) was monitored using a Rugged Reader connected to the Level TROLL. The slug was removed after water level returned to approximately 95% of the original, static water level. The water level recovery (rising head) was then monitored to approximately 95% of the original, static water level.

The equipment (slug, water level meter, transducer) used in the test was decontaminated prior to use at the next well. A new length of polypropylene cord was used at each well to suspend the slug.

The electronic transducer was set to collect water levels at appropriate intervals to provide adequate data to determine the hydraulic conductivity of the monitoring well. Data collected by the data logger was checked in the field immediately following each test. If the data were not adequate (incorrect timing, transducer cable moved or disturbed, etc.) from the judgement of the field geologist, the test was re-run so that adequate data were collected. Results of the slug tests are discussed in the Investigation Results section.

Surface Soil Delineation Sampling

On September 28, 2021 AECOM performed delineation sampling of the upper foot of surface soils in a limited area west of the substation fence to confirm excavation limits to address arsenic concentrations in excess of 6 NYCRR Part 375 Soil Cleanup Objectives (SCO) for Unrestricted Use. Delineation samples were collected from the 0-6 inch and 6- inch to 12-inch intervals at location SS-13 shown on **Figure 1.**

The surface soil samples were delivered to Eurofins TestAmerica, Amherst, New York.

Surface soil samples were analyzed for Total Metals (Total Arsenic) by USEPA Method 6010C.

Results of the surface soil analyses are discussed in the Investigation Results section.

Biosparge Pilot Test

The biosparge pilot test was conducted between September 20, 2022 and October 3, 2022. Following setup and connection of the biosparge air-supply system to MW-9 on September 19, 2022, air injection step tests started on September 20, 2022. Prior to Step 1, baseline redox conditions in groundwater were measured at the monitoring well network. Following completion of the third step test on September 22, 2022, an extended air injection test was performed from September 23 to October 3, 2022.

During the pilot study, the following data was collected to support evaluation of biosparging at the Site:

- Air injection flowrates and pressures during the step and extended tests,
- DO, ORP, groundwater elevation, and observation of bubbling in select monitoring wells before, during, and after the step and extended tests,
- Continuous monitoring of DO and ORP at MW-4 during the three (3) step tests, and
- VOCs concentrations via a PID in MW-4 when bubbling was observed during the step tests.

The pilot study data and evaluation of the data are discussed in the Pilot Study Results section.

INVESTIGATION RESULTS

Aquifer Data (Slug Test) Evaluation

The testing data were reduced following the Bouwer and Rice Slug Test method (Bouwer and Rice, 1976; Bouwer, 1989) using AQTESOLV Version 4.50 software. Outside the former gas holder in native soils, the results indicate hydraulic conductivities range from 1.05×10^{-4} centimeters per second (cm/sec) in well MW-4 to 4.85×10^{-3} cm/sec in well MW-2. Inside the former gas holder in backfilled material/soil, a hydraulic conductivity value of 1.72×10^{-1} cm/sec was calculated for well MW-10. Hydraulic conductivity testing results are provided in **Attachment 2**.

Groundwater Sampling Analytical Results

Table 3 and **Figure 5** present the historical groundwater sample results and the results from the PDI's new and existing Site wells from October 2021, August 2022, and October 2022. The concentrations of the detected compounds were compared against the criteria in *NYSDEC Technical and Operational Guidance Series TOGS (1,1,1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, April 2000*.

September-October 2021

Following installation of new monitoring wells MW-9 and MW-10, groundwater samples were collected from existing monitoring wells (MW-1 through MW-10).

Three VOCs were detected above the groundwater criteria as follows: benzene, toluene, and xylene (total and m&p), Well locations where criteria exceeded groundwater standards in 2021 included: MW-4, MW-9, and MW-10. All three VOCs were detected above standards in MW-4 and MW-9. Only benzene was detected slightly above the standard in MW-10.

Two SVOCs (PAHs) at one location (MW-9) were detected above groundwater criteria as follows: naphthalene and phenol. The PDI VOC and SVOCs groundwater data are consistent with the results of the last previous sampling (2014 Site Characterization [SC]) (i.e., the results were similar in variety and concentration to VOCs and SVOCs detected in the SC).

Cyanide was detected in 9 of 10 locations and ranged from non-detect at 0.0050U milligrams per liter (mg/L) to 0.55 mg/L; one location (MW-4) had cyanide detected above groundwater criteria (0.2 mg/L).

Select wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from all Fall 2021 groundwater samples are included below:

- Sulfate ranged from 6.2J mg/L to 52.4 mg/L. In 7 of 10 well locations, sulfate concentrations were greater than 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation.

- Nitrate-Nitrogen ranged from non-detect to 3.5 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.

- Iron ranged from non-detect to 15.9 mg/L.
- pH ranged from 6.83 to 9.85, two locations, MW-04 (9.85) and MW-10 (9.23) had pH above 8.50.
- ORP ranged from -137.6 milliVolts (mV) to +294.3 mV.
- DO ranged from 0.65 mg/L to 2.28 mg/L.

August 15-16, 2022

Following installation of new monitoring wells MW-11 and MW-12 and prior to the biosparging pilot test, groundwater samples were collected from all twelve existing Site monitoring wells (MW-1 through MW-12).

Four VOCs were detected above the groundwater criteria as follows: benzene, styrene, toluene, and xylene (total and m&p). All four VOCs were detected above standards in MW-4. Only benzene was detected above the standard in four other locations: MW-9, MW-10, MW-11, and MW-12.

The slightly more elevated detection of benzene at new monitoring well MW-12 was consistent with other Site wells where the initial groundwater sample returned a more elevated result than subsequent samples. It is believed this behavior may be related to near-term disturbance associated with well installation and development.

Three SVOCs (PAHs) were detected above groundwater criteria as follows: 2-Methylphenol (o-cresol), naphthalene and phenol. Wells affected included: MW-4, MW-9 and MW-11. Naphthalene and phenol were above standard at location MW-4. Only phenol was above standard at MW-9. 2-Methylphenol (o-cresol) and naphthalene were above standard at MW-11. The PDI VOC and SVOCs groundwater data are consistent with the results of the SC and fall 2021 sampling event.

Cyanide was detected in 9 of 12 locations and ranged from 0.0054 J to 0.76 mg/L. Two locations (MW-4 and MW-11) had cyanide detected above groundwater criteria (0.2 mg/L)

Wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from all August 2022 groundwater samples are included below:

- Sulfate ranged from 6.5 J mg/L to 81.2 mg/L. In 7 of 12 well locations, sulfate concentrations were greater than 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation.
- Nitrate-Nitrogen ranged from non-detect to 1.5 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.
- Iron ranged from non-detect to 18.2 mg/L
- pH ranged from 6.75 to 9.97, Three locations MW-04 (9.97), MW-10 (8.89) and MW-11 (8.96) had pH above 8.50.
- ORP ranged from –215.5 milliVolts (mV) to +18.4 mV, all ORPs were negative except MW-02.
- Dissolved oxygen ranged from 0.51 mg/L to 4.26 mg/L.

October 3-4, 2022

Following the biosparge pilot test, groundwater samples were collected from nine of the existing Site wells (MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12). The post-pilot study VOC and SVOC groundwater data show a decrease in VOC and SVOC concentrations when compared to the September 2021 and August 2022 data collected prior to the biosparge pilot study.

Three VOCs were detected above the groundwater criteria as follows: benzene, toluene, and xylene

(total and m&p). All three VOCs were detected above standards in MW-4. Only benzene was detected above the standard in four other locations: MW-9, MW-10, MW-11, and MW-12. Benzene was detected in MW-2 below criteria. Acetone and ethylbenzene were detected below criteria in MW-4. Acetone and toluene were detected below criteria in MW-9.

As observed in other Site wells with additional time since installation and development, the benzene concentration at MW-12 was much lower in October 2022 than the initial August 2022 sample. It is believed the declining trend in concentration will continue as additional time to reach equilibrium is provided.

One SVOC (PAH) was detected above groundwater criteria and only at one well location. Phenol was detected above criteria at MW-4. Phenol was also detected below criteria in MW-9.

Cyanide was detected in 4 of 9 locations and ranged from 0.023 mg/L to 0.36 mg/L. One location (MW-4) had cyanide detected above groundwater criteria (0.2 mg/L).

Wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from October 2022 groundwater samples are included below:

- Sulfate ranged from 9.3 J mg/L to 239 mg/L. In 4 of 9 well locations, sulfate concentrations were greater that 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation. Greater sulfate concentrations at MW-4 and MW-9 after the pilot study indicate that sulfide was oxidized to sulfate during the aerobic conditions when biosparging. This increase also indicates that sulfate was previously reduced to sulfide under anaerobic conditions prior to biosparging and supported natural attenuation of dissolved hydrocarbons.
- Nitrate-Nitrogen ranged from non-detect to 0.68 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.
- Iron ranged from non-detect to 15.3 mg/L
- pH ranged from 6.90 to 8.89, two locations MW-10 (8.56) and MW-11 (8.89) had pH above 8.50.
- ORP ranged from +33 milliVolts (mV) to +116.9 mV, all ORPs were positive.
- Dissolved oxygen ranged from 0.59 mg/L to 2.80 mg/L, with the highest value at the biosparge air injection location MW-9.

Soil Sampling Analytical Results

Table 4 and Figure 6 present the total arsenic results collected from location SS-13 in a limited area west of the substation fence at 0-6 in and 6-12 inch intervals. Arsenic was detected above the Part 375 Unrestricted Use SCO (13 ppm) and Protection of Groundwater and Commercial SCOs (16 ppm) in both intervals and the duplicate at the sampling location. Arsenic ranged from 21.2 mg/kg to 27 mg/kg.

Data Validation

A Data Usability Summary Report (DUSR) was prepared for the groundwater samples. The DUSR was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B-Guidance for Data Deliverables and the Development of Data Usability and Summary Report*s, May 2010. The DUSR is provided as **Attachment 3**. All sample analyses were found to be compliant with the method criteria, except where noted in the DUSR. Those results qualified 'J' or UJ are considered conditionally usable. Those results qualified "U" should be considered non-detect. All other sample results are usable as reported. AECOM does not recommend the recollection of any samples.

Community Air Monitoring Plan (CAMP) Results

Community air monitoring was performed during 2021 and 2022 drilling activities and during the 2022 biosparge pilot study to verify that contaminants from the site activity did not impact nearby residents or visitors during the PDI in accordance with the NYSDOH's Generic CAMP (NYSDOH, 2000). Monitoring was performed using perimeter air monitoring (PAM) stations equipped to monitor for VOCs and airborne particulates (PM-10).

A total of two temporary monitoring stations collected data on the upwind and downwind perimeter and nearest receptor during intrusive activities. VOCs and dust monitoring results did not exceed the levels identified in the PDIWP. CAMP data are stored in the project file and can be provided upon request.

PILOT STUDY RESULTS

Airflow Rates and Pressures

Three step tests with durations of approximately 6 hours each at different airflow rates provided information on breakthrough pressures and pressures required to maintain various airflow rates at the Site. The breakthrough pressures, injection pressures, and average airflow rate for each step test is summarized in the following table.

Test ID	Breakthrough Pressure (psi)	Injection Pressure (psi)	Average Airflow Rate (scfm)
Step Test 1	25	Range: 9 to 14 Average: 12	2.7
Step Test 2	17	Range: 14 to 21 Average: 17	7.5
Step Test 3	18	Range: 20 to 21 Average: 20	15.7

Breakthrough and air injection pressures were measured using instrumentation in the mobile injection system and includes back pressure from friction loss through valves, hoses and instrumentation. Thus, breakthrough pressures are greater than the estimated pressure (7 pound per square inch) required to displace the water column in the air injection well (MW-9). As expected, greater injection pressures were required to maintain greater airflow rates. In addition, injection pressures were greatest at the beginning of each test and decreased during each test as continuous air channels developed in the formation between the injection well screen and the vadose zone.

Step Tests

During each step test, DO and ORP were measured in monitoring wells to evaluate the lateral influence of the injected air. In addition, observation of bubbling in monitoring wells was recorded to indicate influence. During Step 1 with an average air injection rate of 2.7 scfm, DO concentration remained less than 1 mg/L indicated limited influence within the monitoring well network (**Figure 7**). At the nearest (10 feet) well to the injection well (MW-4), ORP remained highly negative indicating no changes to redox conditions during Step 1 (**Figure 8**). Note that the ORP at MW-1 (27 feet from the injection well) was positive before and during Test 1 indicating aerobic conditions are likely present in groundwater upgradient of the injection well.

During Step 2 with an average air injection rate of 7.5 scfm, DO concentration increased above 1 mg/L and bubbling was observed at MW-4 indicating DO influence at 10 feet from the injection well (**Figure 9**). At MW-1, DO concentrations increased during the test but remained less than 1 mg/L. DO concentrations remained less than 1 mg/L at other monitoring wells. At MW-4, ORP increased during the test but remained negative indicating high oxidant demand (**Figure 10**). At MW-1, ORP was positive and greater than Step 1 and light bubbling was observed in the well towards the end of the test indicating influence.

PID monitoring in MW-4 during Step 2 showed an increase in VOCs as air channels were established between the injection well and MW-4. The PID reading at MW-4 increased to a maximum of 270 ppm as VOCs partitioned to the air flowing through the formation and out of MW-4. By the end of Step 2, VOCs at MW-4 were less than 43 ppm. VOCs were not detected by the PID in the light bubbling in MW-1, where VOCs are non-detect in groundwater.

During Step 3 with an average air injection rate of 15.7 scfm, DO concentration increased at MW-4 to 9 mg/L and ORP increased to 13 millivolts (**Figures 11** and **12**). DO concentrations remained less than 1 mg/L at other monitoring wells. However, ORP also increased at MW-1, MW-10, and MW-11 indicating that biosparging was likely influencing these wells. In addition, bubbling was observed in MW-1 and MW-4. The maximum PID reading was 423 ppm in the air bubbling through MW-4.

Oxygen Utilization Rates

The data from continuous measurement of DO and ORP at MW-4 during and after the step tests are presented in **Figures 13, 14,** and **15**. Following the completion of Tests 2 and 3, DO concentrations decrease as oxygen is utilized by microbes and other oxidation-reduction reactions. In addition, ORP continued to increase after Steps 2 and 3 as oxygen was utilized. Oxygen utilization or consumption rates typically follow first-order decay and the decay rate constants are estimated by fitting exponential curves to the data. After Step 2, the estimated first-order oxygen utilization rate constant is 0.16 per hour (1/hr) (**Figure 16**). Following Step 3, the first-order rate constant decreased to 0.032/hr indicating that the oxygen utilization rate slowed during Step 3.

Extended Test

Based on the DO responses during the step tests, the air injection flowrate for the extended test was set at 6 scfm. In addition, air injection was set to cycle on and off every 4 hours, which was expected to maintain DO concentration greater than 1 mg/L at MW-4 during an off cycle based on estimates of oxygen utilization rates. During the 10-day test, DO and ORP measurements indicate that aerobic conditions were maintained in groundwater monitored by MW-1 and MW-4 (**Figures 17** and **18**). Downgradient groundwater near MW-7 remained anaerobic and groundwater within the footprint of the former gas holder at MW-10 and MW-11 also remained anaerobic.

Radius of Influence

Per the workplan, the radius of influence (ROI) is estimated by the distance from the injection well where DO concentrations exceed 1 mg/L and can create aerobic conditions. To estimate the radius of influence at different air injection rates, maximum DO concentrations observed during the step tests are plotted versus distance from the injection well (**Figure 19**). The estimated ROI was greatest (~25 feet) at an air injection rate of 15.7 scfm (Step 3) and slightly less (~23 feet) at an air injection rate of 7.5 scfm (Step 2). However, data from the extended test showed that cycled operation for a longer duration at an air injection rate of 6 scfm has an ROI of at least 27 feet, which is the distance between MW-1 and the injection well.

The estimated ROI of at least 27 feet is greater than the distances between the injection well (MW-9) and MW-10 (20 feet) and MW-11 (19 feet) where DO did not increase above 1 mg/L during the step

and extended tests. These results indicate that the subsurface structure of the former gas holder may be a barrier to migration of injected air and diffusion of DO in groundwater. Thus, a biosparge well within the footprint of the former gas holder would be required if groundwater treatment is needed.

CONCLUSIONS

The intent of the PDI was to confirm distribution of contaminants and gain better understanding of the redox conditions at the Site, evaluate groundwater flow and velocity to support the remedial design, determining the feasibility of biosparging to meet Site objectives, and refine the horizontal delineation of surface soil arsenic impacts.

New monitoring wells and recent groundwater monitoring results show that the location of the groundwater plume and its source is limited to the area outside of the former gas holder footprint near MW-4 and MW-9, which was the location of the biosparge pilot study. Within the footprint of the former gas holder at MW-10 and MW-11, contaminant concentrations are significantly less and near or below their criteria in groundwater.

The biosparge pilot study results show that biosparging can be feasibly implemented in the plume near MW-4 and MW-9. In addition, groundwater monitoring results show that biosparging significantly decreased the concentrations of contaminants at MW-4 and MW-9, which define the likely plume source. Thus, biosparging is the recommended remedial alternative to remove the plume source near MW-4 and MW-9 and achieve groundwater criteria at the Site. Recommended design parameters for biosparging are an air injection rate of at least 6 scfm and injection well spacing of 40 feet based on an ROI of at least 27 feet if additional injection wells are needed.

Groundwater elevation maps indicate groundwater flows from the area near MW-4 and MW-9 east-northeast towards MW-2, MW-7, and MW-12. The area where groundwater exceeds criteria has significantly decreased since 2014 to a narrow zone that extends from the MW-4 and MW-9 area to MW-12 that is bounded by MW-2 and MW-7 where groundwater is below criteria. The recommended remedial approach of biosparging is expected to remove the plume source and cause attenuation of the downgradient concentrations near MW-12. Thus, the previously proposed design presented in the RDWP that includes a series of wells to deliver oxygen is not expected to be needed near the property boundary to treat groundwater near MW-12. However, if groundwater treatment is needed near the property boundary, additional biosparge wells are expected to be more effective than oxygen delivery wells.

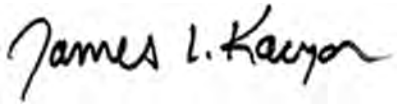
To support development of the remedial design for biosparging, a groundwater monitoring event should be performed following the methods and procedures outlined in the PDI Work Plan at monitoring wells MW-1, MW-2, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12 to evaluate the following:

- Rebound in contaminant concentrations at MW-4 and MW-9 to evaluate if contaminant mass was significantly reduced by the pilot study;
- How changes in contaminant concentrations and mass near MW-4 and MW-9 affect contaminant concentrations in downgradient groundwater near the property boundary at MW-12;
- The need to treat groundwater with biosparging near the property boundary and MW-12; and
- The need to implement biosparging within the former gas holder footprint where contaminant concentrations at MW-10 and MW-11 are low and may continue to decrease to less than criteria.

Results from surface soil sample location SS-13 were consistent with historical results along the outside of the western property fence indicating the shallow surface soil excavation planned for that area be extended southward to an extension of the southern property line (see Figure 6). The remedial design will incorporate this extended area for excavation and backfill.

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

Very truly yours,



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Tables
Figures
Attachment 1 – Field Forms
Attachment 2 – Hydraulic Conductivity Calculations
Attachment 3 - DUSR

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Harolyn Hood, NYSDOH, Harolyn.hood@health.ny.gov

Tables

TABLE 1

GROUNDWATER SAMPLING FIELD PARAMETER DATA
Auburn Green Street MGP Site, Auburn, NY
NYSDEC Site No. 7-06-009

Monitoring Well ID	Date	Temperature (deg C)	Specific Conductance (mS/cm)	Dissolved Oyxgen (mg/L)	pH (standard units)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-01	9/30/2021	16.0	0.668	0.79	6.83	45.7	28.27
	8/16/2022	15.0	1.352	1.26	6.83	-60.0	11.0
	10/3/2022	16.2	1.260	0.89	6.90	108.5	40.0
MW-02	10/4/2021	16.3	0.973	1.21	6.77	294.3	3.01
	8/17/2022	15.4	0.839	4.26	6.75	18.4	2.44
	10/3/2022	16.3	0.840	1.93	6.92	98.00	2.77
MW-03	9/30/2021	15.8	3.59	0.68	6.99	-122.6	15.31
	8/15/2022	15.2	3.782	1.81	7.08	-215.5	18.2
	10/3/2022	15.5	3.490	0.60	7.10	89.1	6.60
MW-04	9/30/2021	15.3	0.387	0.75	9.85	-150.8	2.61
	8/15/2022	16.7	0.324	0.51	9.97	-108.2	9.49
	10/4/2022	14.8	1.397	2.08	7.76	110.4	65.0
MW-05	9/30/2021	15.8	1.132	2.28	6.98	147.3	347.34
	8/15/2022	20.7	1.231	1.23	7.14	-22.0	NM
MW-06	9/30/2021	18.1	1.529	0.80	7.06	-64.8	12.96
	8/15/2022	17.7	0.997	0.56	7.08	-32.0	53.22
MW-07	10/4/2021	15.4	1.134	0.65	7.04	-122.6	13.06
	8/16/2022	14.4	1.400	0.65	7.00	-103.1	44.66
	10/4/2022	14.7	1.380	0.65	7.03	89.0	21.00
MW-08	10/4/2021	17.6	2.669	0.68	7.05	-137.6	4.14
	8/15/2022	17.5	3.110	0.53	7.08	-159.0	62.76
MW-09	10/4/2021	15.2	1.900	0.75	7.29	-77.3	85.30
	8/15/2022	15.4	2.610	1.20	7.37	-180.3	136
	10/4/2022	14.3	2.137	2.80	7.67	116.9	24.50
MW-10	10/4/2021	14.9	0.229	0.73	9.23	-44.0	11.09
	8/15/2022	14.4	0.319	1.29	8.89	-167.7	5.61
	10/3/2022	14.9	0.270	0.66	8.56	49.7	4.29
MW-11	8/15/2022	14.6	0.213	0.59	8.96	-35.2	18.37
	10/3/2022	14.5	0.218	0.61	8.89	40.5	4.67
MW-12	8/16/2022	15.2	1.204	0.60	6.94	-87.0	95.96
	10/3/2022	15.2	1.394	0.59	6.98	33.2	13.24

Notes:

deg C - degrees Celcius
mS/cm - milliSiemens per centimeter
mg/L - milligrams per Liter
mV - milliVolts
NTU - nephelometric turbidity unit
NM - not measured

TABLE 2

GROUNDWATER ELEVATION DATA
Auburn Green Street MGP Site, Auburn, NY
NYSDEC Site No. 7-06-009

Location ID	Northing	Easting	Ground Elevation (feet)	Casing Elevation (feet)	Meas.point (Riser) Elev. (feet)	Geol. Zone	10/4/2021		8/15/22-8/16/22		10/3/22-10/4/22	
							Depth to Water (feet)	Water Elev. (feet)	Depth to Water (feet)	Water Elev. (feet)	Depth to Water (feet)	Water Elev. (feet)
MW-01	1068697.849	823538.421	666.54	666.54	666.13	OB	5.43	660.70	7.24	658.89	6.90	659.23
MW-02	1068710.462	823619.474	664.87	664.87	664.48	OB	6.50	657.98	7.95	656.53	7.45	657.03
MW-03	1068668.327	823618.748	666.75	666.75	666.35	OB	7.22	659.13	7.71	658.64	7.75	658.60
MW-04	1068693.101	823575.046	666.54	666.54	666.23	OB	8.14	658.09	8.51	657.72	9.32	656.91
MW-05	1068605.684	823497.747	668.12	668.12	667.77	OB	12.65	655.12	14.58	653.19	NM	NM
MW-06	1068632.896	823660.439	665.85	665.85	665.50	OB	5.45	660.05	6.28	659.22	NM	NM
MW-07	1068724.513	823575.102	665.5	665.5	665.0	OB	7.12	657.88	8.43	656.57	7.79	657.21
MW-08	1068616.910	823582.108	667.0	667.0	666.6	OB	4.64	661.96	5.62	660.98	NM	NM
MW-09	1068693.533	823558.675	666.85	666.85	666.23	OB	5.98	660.25	7.30	658.93	9.31	656.92
MW-10	1068683.478	823583.105	666.93	666.93	666.60	OB	4.81	661.79	5.20	661.40	5.12	661.48
MW-11	1068677.587	823574.298	667.14	667.14	666.67	OB	NA	NA	5.32	661.35	5.22	661.45
MW-12	1068735.580	823608.627	664.74	664.74	664.30	OB	NA	NA	8.00	656.30	7.39	656.91

Notes:

Geologic Zone: OB Shallow Unconfined Zone in Overburden

NM - Not measured - MW-5, MW-6, and MW-8 not measured in October 2022.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-01	MW-01	MW-01	MW-02	MW-02
Sample ID			MW-1	MW-01	MW-01	MW-2	MW-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/16/22	10/03/22	10/04/21	08/16/22
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.43 U	0.42 U	0.40 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.39 U	0.38 U	0.36 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.51 U	0.49 U	0.47 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.37 U	0.35 U	0.34 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.79 U	0.76 U	0.73 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	0.36 U	0.34 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.46 U	0.44 U	0.42 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.51 U	0.49 U	0.47 U	0.47 U
Naphthalene	UG/L	10	0.76 U	0.83 U	0.79 U	0.76 U	0.76 U
Phenol	UG/L	1	0.39 U	0.42 U	0.41 U	0.39 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.019 U	0.019 U	0.32	0.050 U	0.050 U
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0073 J	0.0051 J	0.0041 U	0.053	0.11
Nitrate-Nitrogen	MG/L	10	2.6	0.15	0.24	1.7	1.5

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-01	MW-01	MW-01	MW-02	MW-02
Sample ID			MW-1	MW-01	MW-01	MW-2	MW-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/16/22	10/03/22	10/04/21	08/16/22
Parameter	**Units**	**Criteria***					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	0.020 U	NA	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	39.3	15.5	17.9	32.1	31.6

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-02	MW-03	MW-03	MW-03	MW-04
Sample ID			MW-02	MW-3	MW-03	MW-03	MW-4
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/03/22	09/30/21	08/15/22	10/03/22	09/30/21
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	240 U
Benzene	UG/L	1	0.53 J	0.41 U	0.41 U	0.41 U	3,200
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	59 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	58 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	150
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	120 J
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	2.0 U	0.42 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	1.8 U	0.38 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	2.4 U	0.49 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	1.7 U	0.35 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	3.7 U	0.76 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	1.7 U	0.34 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	2.1 U	0.44 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	2.4 U	0.49 U	0.49 U	0.47 U
Naphthalene	UG/L	10	0.76 U	3.8 U	0.79 U	0.79 U	0.76 U
Phenol	UG/L	1	0.39 U	2.0 U	0.41 U	0.41 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.068	15.9	16.5 J	15.3	0.22
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.046	0.0091 J	0.012 J	0.010 U	0.55
Nitrate-Nitrogen	MG/L	10	0.68	0.020 U	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-02	MW-03	MW-03	MW-03	MW-04
Sample ID			MW-02	MW-3	MW-03	MW-03	MW-4
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/03/22	09/30/21	08/15/22	10/03/22	09/30/21
Parameter	**Units**	**Criteria***					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	NA
Sulfate (as SO4)	MG/L	2.50E+05	30.3	8.9 J	13.4 J	9.3 J	23.0

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-5	MW-05	DUPLICATE
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/15/22	10/04/22	09/30/21	08/15/22	09/30/21
Parameter	**Units**	**Criteria***					Field Duplicate (1-1)
Volatile Organic Compounds							
Acetone	UG/L	50	120 U	17 J	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	1,200	88	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	30 U	2.0	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	29 J	1.5 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	270	12	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	150	9.2	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	2.0 U	2.0 U	0.40 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	1.8 U	1.8 U	0.36 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	2.4 U	2.4 U	0.47 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	1.7 U	1.7 U	0.34 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	3.7 U	3.7 U	0.73 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	1.7 U	1.7 U	0.33 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	2.1 U	2.1 U	0.42 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	2.4 U	2.4 U	0.47 U	0.49 U	0.47 U
Naphthalene	UG/L	10	95	3.8 U	0.76 U	0.79 U	0.76 U
Phenol	UG/L	1	2.6 J	4.7 J	0.39 U	0.41 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.21	0.45	0.019 U	0.050 U	0.97
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.76	0.36	0.0050 U	0.0050 U	0.0057 J
Nitrate-Nitrogen	MG/L	10	0.37	0.086	3.5	1.4	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-5	MW-05	DUPLICATE
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/15/22	10/04/22	09/30/21	08/15/22	09/30/21
Parameter	**Units**	**Criteria***					Field Duplicate (1-1)
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	0.046 J	NA	NA	0.042 J	NA
Sulfate (as SO4)	MG/L	2.50E+05	36.0	56.8	52.4	81.2	26.2

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-06	MW-06	MW-06	MW-07	MW-07
Sample ID			MW-6	DUPLICATE	MW-06	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/15/22	08/15/22	10/04/21	08/16/22
Parameter	**Units**	**Criteria***		Field Duplicate (1-1)			
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.42 U	0.40 U	0.40 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.38 U	0.36 U	0.36 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.35 U	0.34 U	0.34 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	0.34 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.44 U	0.42 U	0.42 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U
Naphthalene	UG/L	10	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U
Phenol	UG/L	1	0.39 U	0.41 U	0.39 U	0.39 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.99	0.34	0.35	10	8.0
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0063 J	0.0050 U	0.0050 U	0.0088 J	0.0062 J
Nitrate-Nitrogen	MG/L	10	0.020 U	0.076	0.065	0.020 U	0.040 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

Advanced Selection: amk-temp
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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-06	MW-06	MW-06	MW-07	MW-07
Sample ID			MW-6	DUPLICATE	MW-06	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/15/22	08/15/22	10/04/21	08/16/22
Parameter	**Units**	**Criteria***		Field Duplicate (1-1)			
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	0.020 U	0.020 U	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	26.4	27.9	28.0	6.2 J	14.7

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-07	MW-08	MW-08	MW-09	MW-09
Sample ID			MW-07	MW-8	MW-08	MW-09	MW-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/16/22	10/04/21	08/15/22
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	60 U	24 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	1,200	190
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	15 U	5.9 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	15 U	5.8 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	22	4.1 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	25 J	5.3 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.42 U	0.40 U	0.43 U	0.40 U	0.45 U
Benzo(a)anthracene	UG/L	0.002	0.38 U	0.36 U	0.39 U	0.36 U	0.41 U
Benzo(a)pyrene	UG/L	ND	0.49 U	0.47 U	0.51 U	0.47 U	0.53 U
Benzo(b)fluoranthene	UG/L	0.002	0.35 U	0.34 U	0.37 U	0.34 U	0.39 U
Benzo(k)fluoranthene	UG/L	0.002	0.76 U	0.73 U	0.79 U	0.73 U	0.83 U
Chrysene	UG/L	0.002	0.34 U	0.33 U	0.36 U	0.33 U	0.38 U
Dibenz(a,h)anthracene	UG/L	-	0.44 U	0.42 U	0.46 U	0.42 U	0.48 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.49 U	0.47 U	0.51 U	0.47 U	0.53 U
Naphthalene	UG/L	10	0.79 U	0.76 U	0.83 U	26	1.0 J
Phenol	UG/L	1	0.41 U	0.39 U	0.42 U	2.0 J	2.8 J
Dissolved Metals							
Iron	MG/L	-	9.7	14.5	18.2	0.92 B	5.8
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0041 U	0.0054 J	0.0050 U	0.088	0.017
Nitrate-Nitrogen	MG/L	10	0.020 U	0.37	0.027 J	0.036 J	0.11

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-07	MW-08	MW-08	MW-09	MW-09
Sample ID			MW-07	MW-8	MW-08	MW-09	MW-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/16/22	10/04/21	08/15/22
Parameter	**Units**	**Criteria***					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	10.8	19.5 J	15.2 J	20.6	6.5 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.


Concentration Exceeds Criteria

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-09	MW-10	MW-10	MW-10	MW-10
Sample ID			MW-09	MW-10	MW-10	DUPLICATE	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/15/22	10/03/22	10/03/22
Parameter	**Units**	**Criteria***				Field Duplicate (1-1)	
Volatile Organic Compounds							
Acetone	UG/L	50	7.7 J	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	6.1	2.0	1.6	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.70 J	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.40 U	0.42 U	0.42 U	0.45 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.36 U	0.38 U	0.38 U	0.41 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.47 U	0.49 U	0.49 U	0.53 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.34 U	0.35 U	0.35 U	0.39 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.73 U	0.76 U	0.76 U	0.83 U
Chrysene	UG/L	0.002	0.33 U	0.33 U	0.34 U	0.34 U	0.38 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.42 U	0.44 U	0.44 U	0.48 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.47 U	0.49 U	0.49 U	0.53 U
Naphthalene	UG/L	10	0.76 U	5.8	0.79 U	0.79 U	0.86 U
Phenol	UG/L	1	0.74 J	0.39 U	0.41 U	0.41 U	0.44 U
Dissolved Metals							
Iron	MG/L	-	0.019 U	0.11 B	0.085	0.11	0.067
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.023	0.28	0.19	0.15	0.15
Nitrate-Nitrogen	MG/L	10	0.020 U	0.029 J	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-09	MW-10	MW-10	MW-10	MW-10
Sample ID			MW-09	MW-10	MW-10	DUPLICATE	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/15/22	10/03/22	10/03/22
Parameter	**Units**	**Criteria***				Field Duplicate (1-1)	
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	NA
Sulfate (as SO4)	MG/L	2.50E+05	239	23.2	18.8	21.2	21.1

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-11	MW-11	MW-12	MW-12
Sample ID			MW-11	MW-11	MW-12	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-
Date Sampled			08/15/22	10/03/22	08/16/22	10/03/22
Parameter	**Units**	**Criteria***				
Volatile Organic Compounds						
Acetone	UG/L	50	6.0 U	6.0 U	3.0 U	3.0 U
Benzene	UG/L	1	3.2	1.9 J	25	7.3
Ethylbenzene	UG/L	5	1.5 U	1.5 U	0.74 U	0.74 U
Styrene	UG/L	5	1.5 U	1.5 U	0.73 U	0.73 U
Toluene	UG/L	5	1.0 U	1.0 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	1.3 U	1.3 U	0.66 U	0.66 U
Semivolatile Organic Compounds						
2-Methylphenol (o-cresol)	UG/L	1	7.8 J	4.2 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	3.8 U	3.8 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	4.9 U	4.9 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	3.5 U	3.5 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	7.6 U	7.6 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	3.4 U	3.4 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	4.4 U	4.4 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	4.9 U	4.9 U	0.49 U	0.47 U
Naphthalene	UG/L	10	210	7.9 U	0.79 U	0.76 U
Phenol	UG/L	1	4.1 U	4.1 U	0.74 J	0.39 U
Dissolved Metals						
Iron	MG/L	-	0.14	0.13	6.5	8.8
Miscellaneous Parameters						
Total Cyanide	MG/L	0.2	0.31	0.010 U	0.0070 J	0.010 U
Nitrate-Nitrogen	MG/L	10	0.020 U	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-11	MW-11	MW-12	MW-12
Sample ID			MW-11	MW-11	MW-12	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-
Date Sampled			08/15/22	10/03/22	08/16/22	10/03/22
Parameter	**Units**	**Criteria***				
Miscellaneous Parameters						
Nitrite-Nitrogen	MG/L	1	0.020 U	NA	0.020 U	NA
Sulfate (as SO4)	MG/L	2.50E+05	25.8	17.3	22.6	19.0

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'WG'

TABLE 4
SOIL ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID					SS-13	SS-13	SS-13
Sample ID					SS-13-0-6"	SS-13 6-12	SS-13-0-6"-12"
Matrix					Soil	Soil	Soil
Depth Interval (ft)					0.0-6.0	6.0-12.0	6.0-12.0
Date Sampled					09/28/22	09/28/22	09/28/22
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**	**Criteria (3)**		Field Duplicate (1-1)	
Metals							
Arsenic	MG/KG	13	16	16	21.2	27.0	24.1

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Criteria (3)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Commercial, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria 1

Concentration Exceeds Criteria (2)

Border Concentration Exceeds Criteria (3)

Detection Limits shown are MDL

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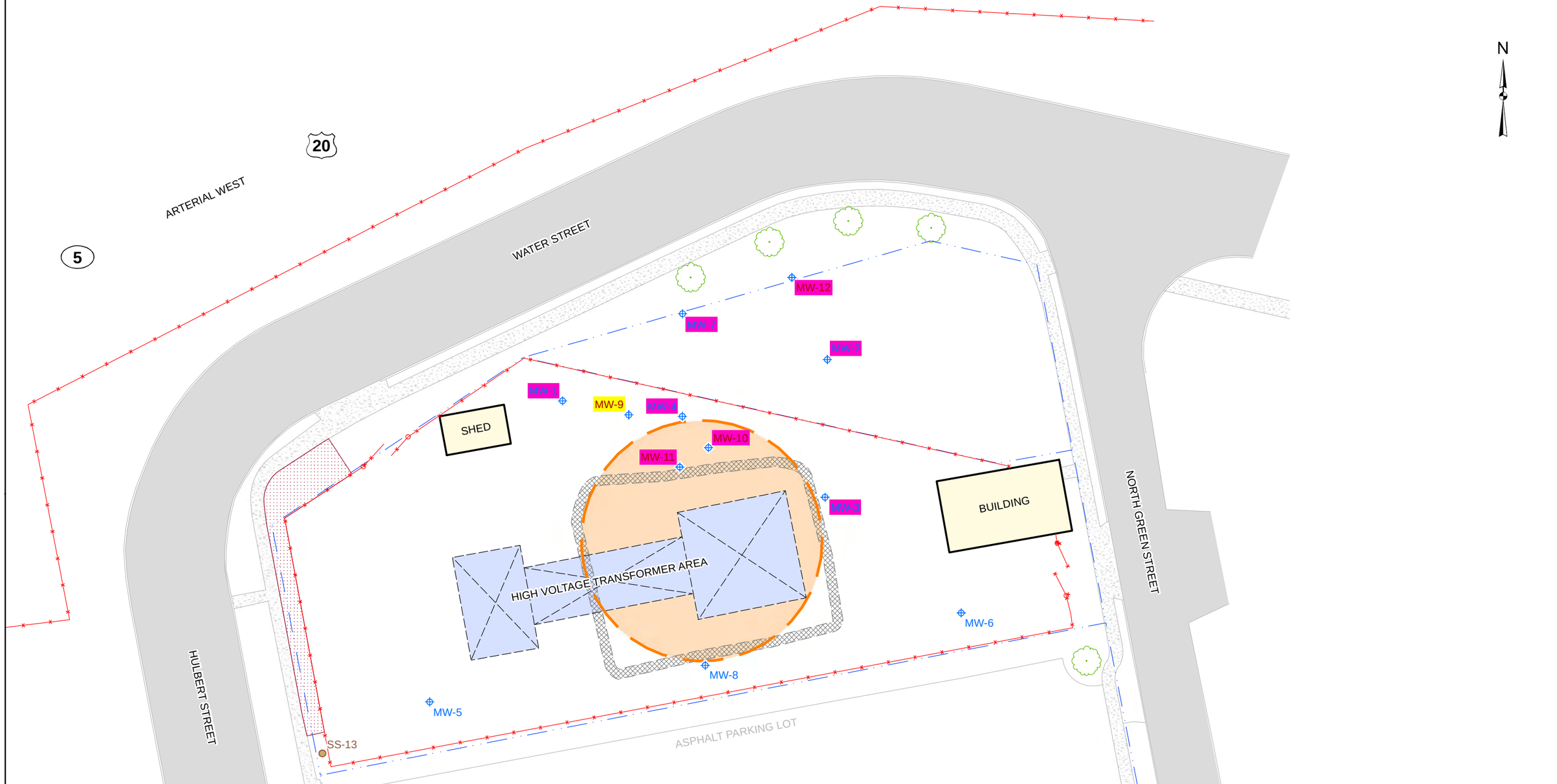
Figures



LEGEND

- MONITORING WELL LOCATION
- NEW MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BIOSPARGE STEP TEST MONITORING WELL
- BIOSPARGE STEP TEST AIR INJECTION WELL
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

0 15 30 60
SCALE IN FEET

SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

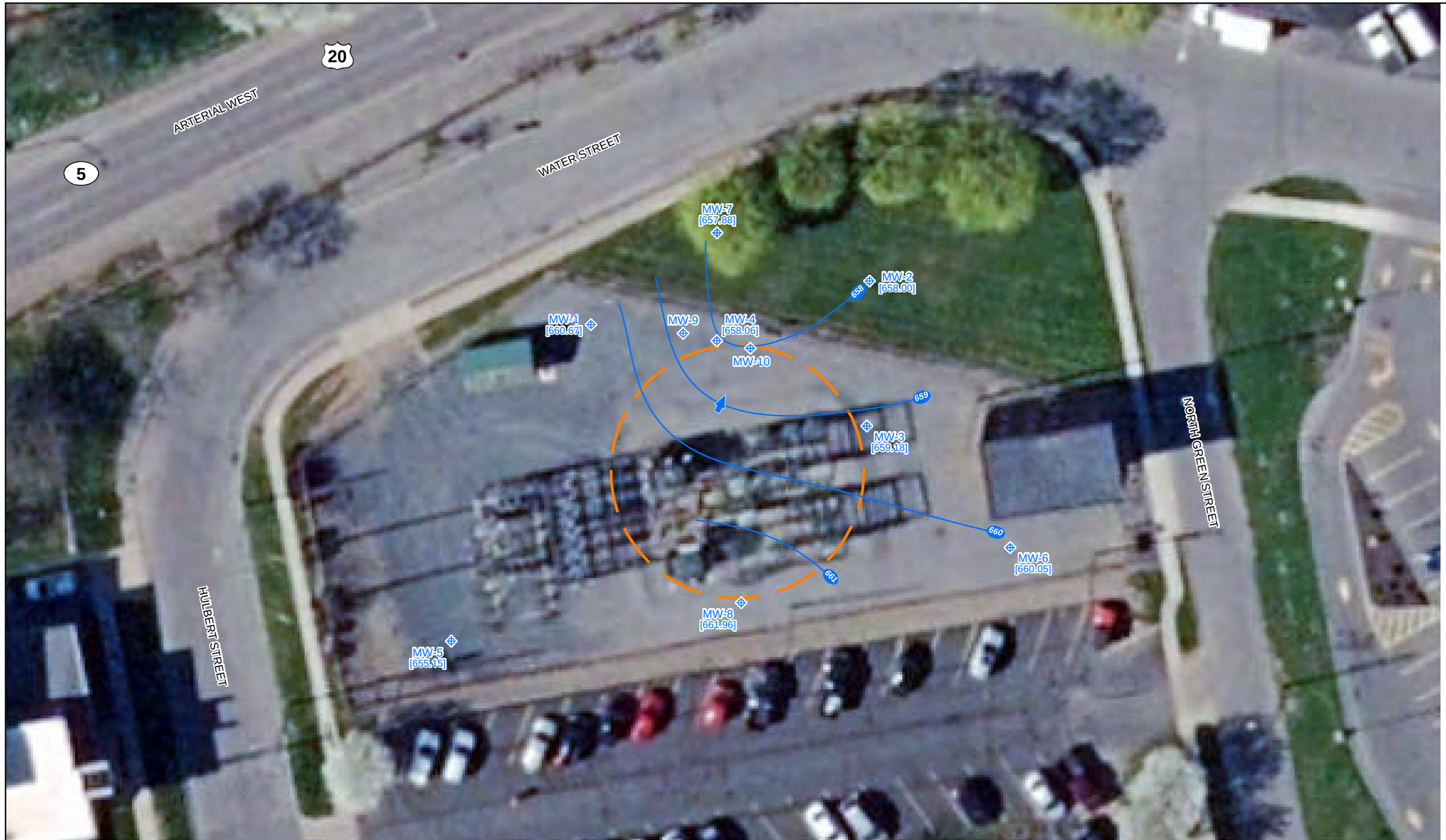
AECOM
1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 1
Site Plan and Pre-Design Investigation Wells and Sampling Locations

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 1 Site Plan & PDI Wells & Sampling Locations.mxd 3/31/2023



LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON OCTOBER 4, 2021.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.
3. MW-9 AND MW-10 WERE NOT INCLUDED IN CONTOURING AS THEY HAVE NOT BEEN SURVEYED YET.

0 15 30 60
SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

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1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
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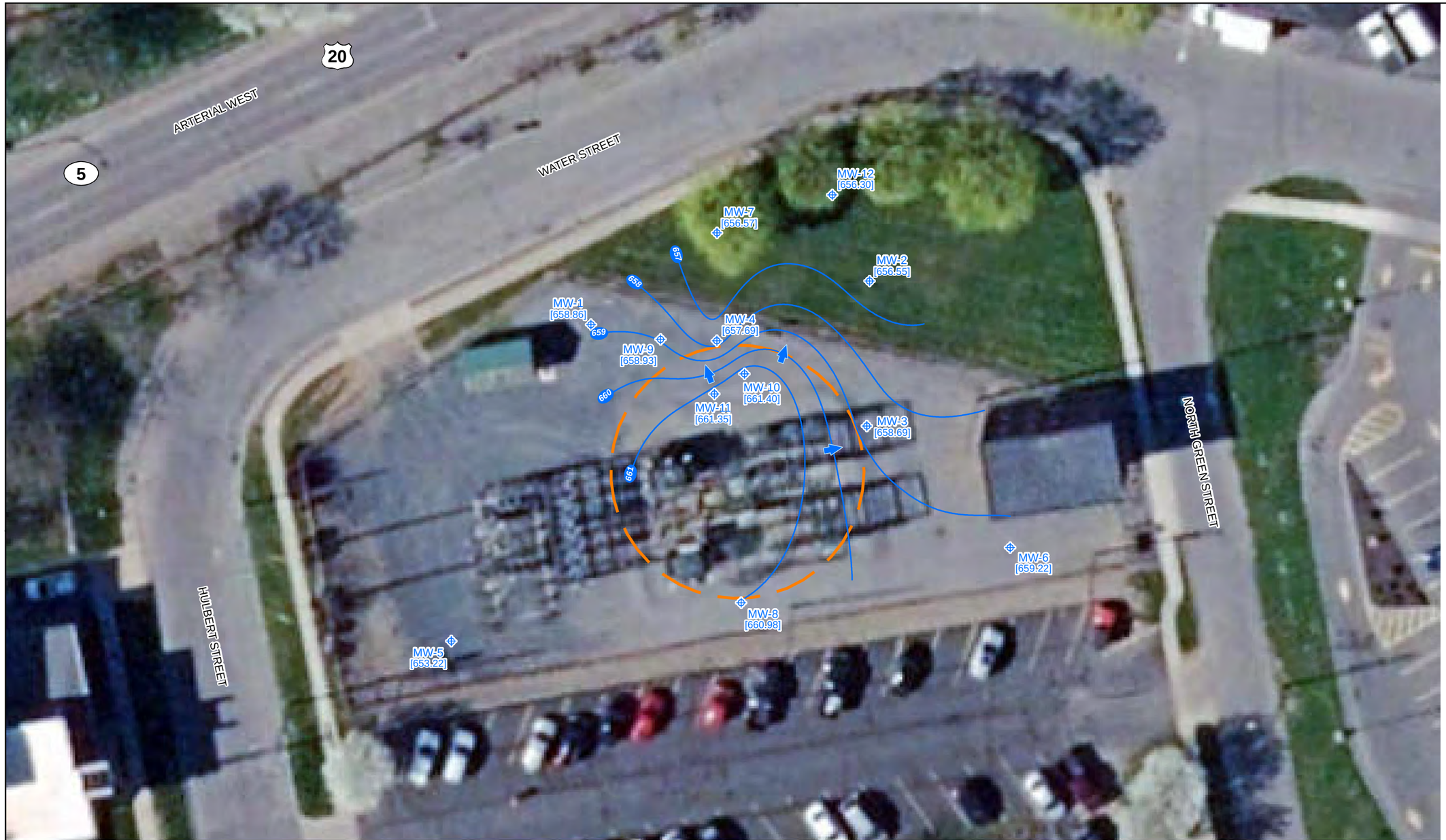
Figure 2
Groundwater Elevation Contours Map
(October 4, 2021)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 2 Groundwater Contour Map (Oct 2021).mxd 3/31/2023



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LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON AUGUST 15 & 16, 2022.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.

0 15 30 60
SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

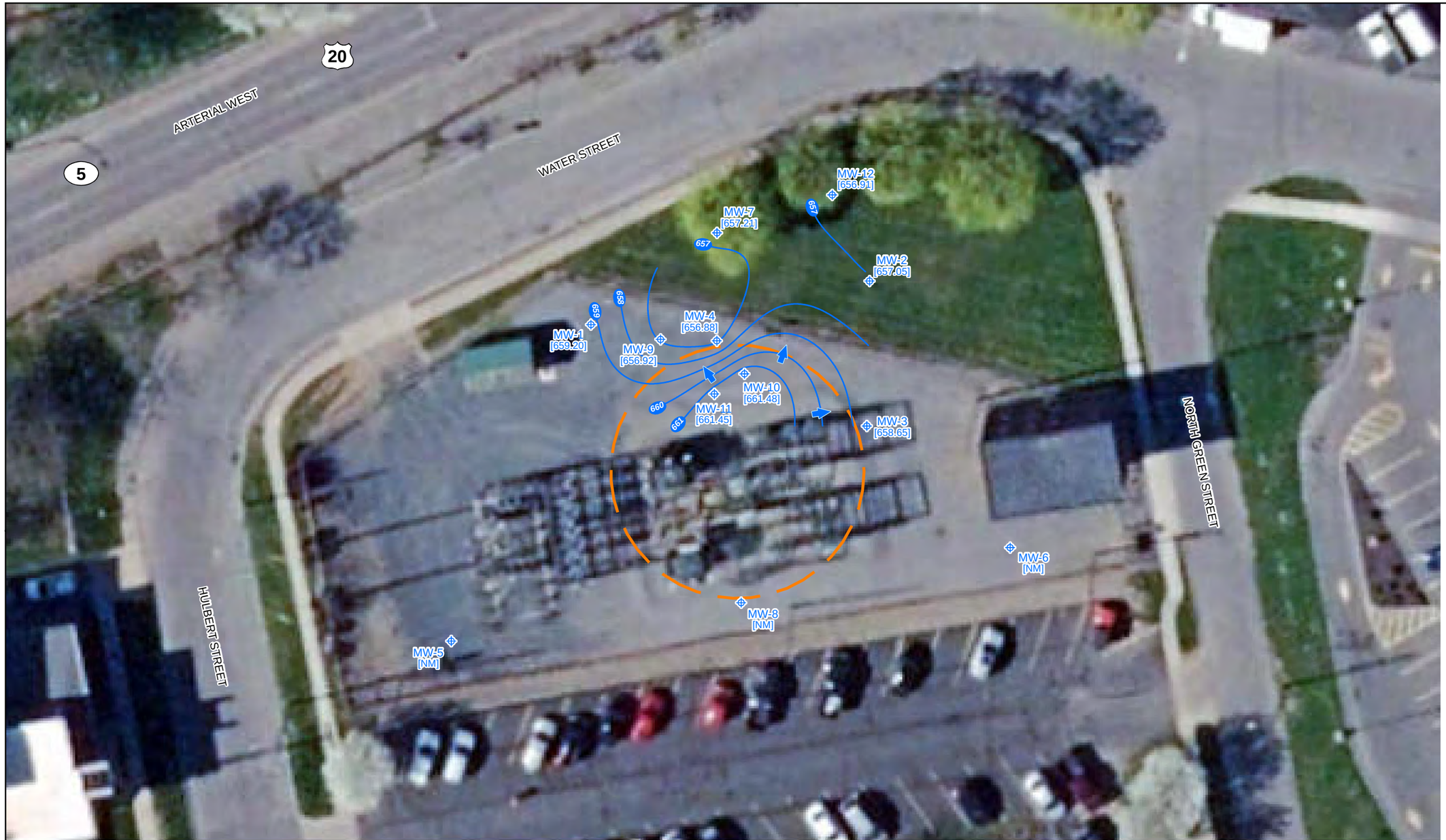
AECOM
1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 3
Groundwater Elevation Contours Map
(August 15 & 16, 2022)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 3 Groundwater Contour Map (Aug 2022).mxd 3/31/2023



LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON OCTOBER 3, 2022.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.
3. NM = NOT MEASURED

0 15 30 60

SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

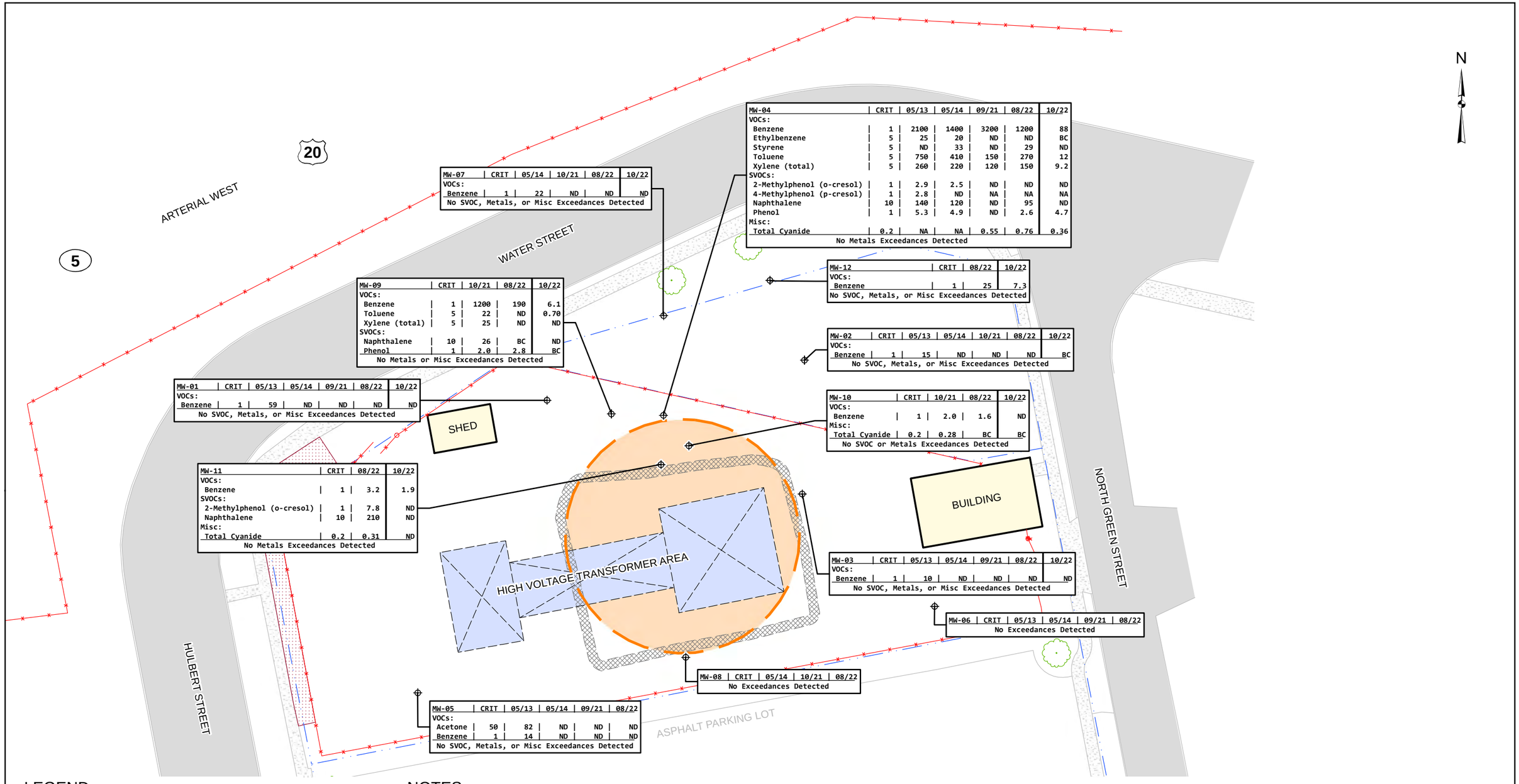
AECOM
1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 4
Groundwater Elevation Contours Map (October 3, 2022)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 4 Groundwater Contour Map (Oct 2022).mxd 3/31/2023



LEGEND

- MONITORING WELL LOCATION
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

NOTES

1. THE PDI BIOSPARGE PILOT TEST TOOK PLACE IN SEPTEMBER 2022.
2. THE BLACK DIVIDER LINE IN RESULTS INDICATES POST-BIOSPARGE PILOT TEST DATA.
3. BC = BELOW CRITERIA
4. NA = NOT ANALYZED
5. ND = NOT DETECTED

0 15 30 60
SCALE IN FEET

CRITERIA: NYSDEC TOGS (1.1.1), AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

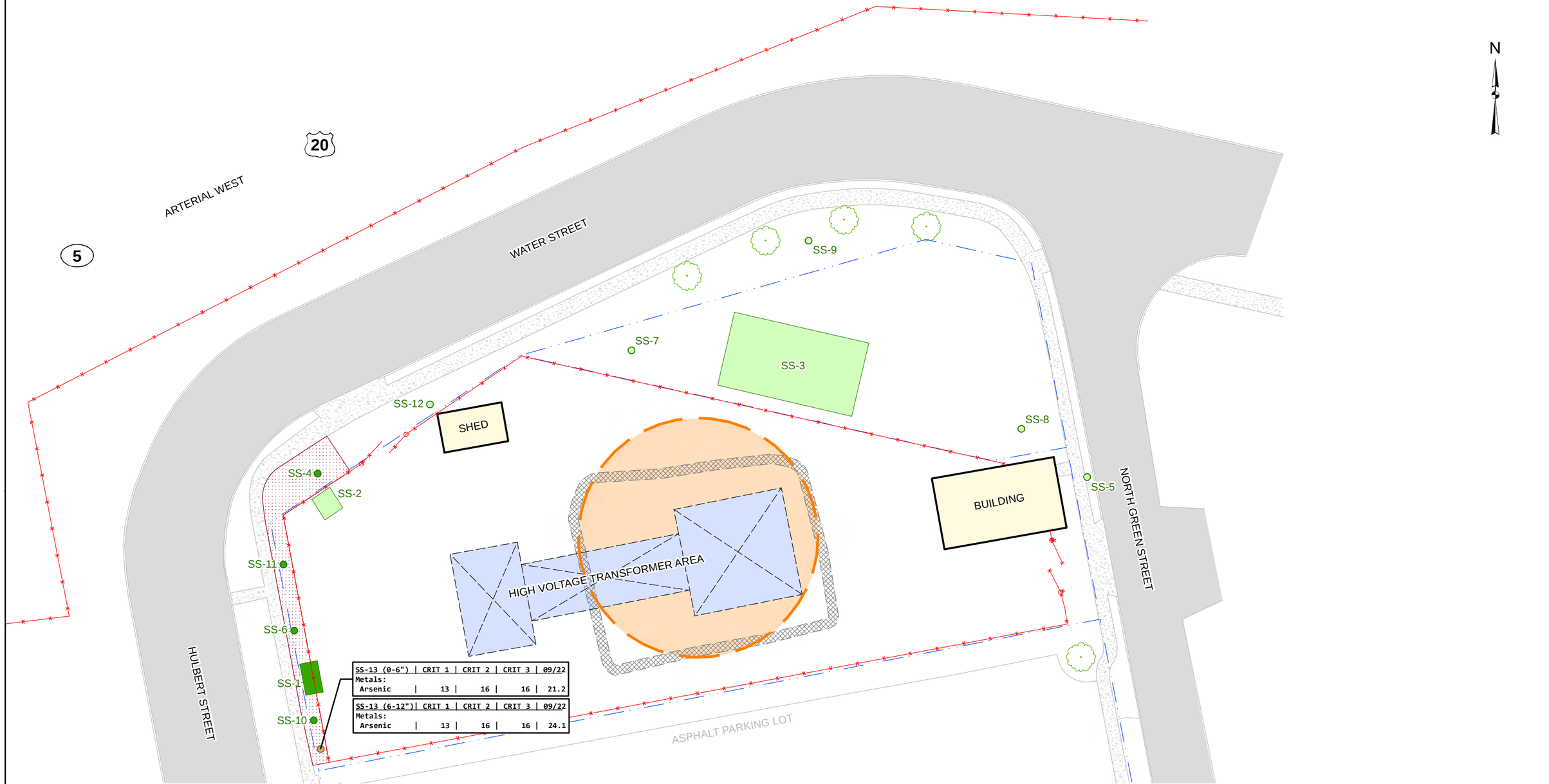
AECOM
1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 5
Historical and Pre-Design Investigation Groundwater Exceedances

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

April 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 5 Groundwater Exceedances.mxd 4/10/2023



LEGEND

- PDI SURFACE SOIL SAMPLE
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS ABOVE CRITERIA
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS BELOW CRITERIA
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

CRITERIA: (1) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. UNRESTRICTED USE, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(2) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. RESTRICTED USE. PROTECTION OF GROUNDWATER, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(3) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. PROTECTION OF PUBLIC HEALTH, COMMERCIAL, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

0 15 30 60
SCALE IN FEET

AECOM
1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 6
Pre-Design Investigation
Soil Exceedances

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

April 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 6 Soil Exceedances.mxd 4/28/2023

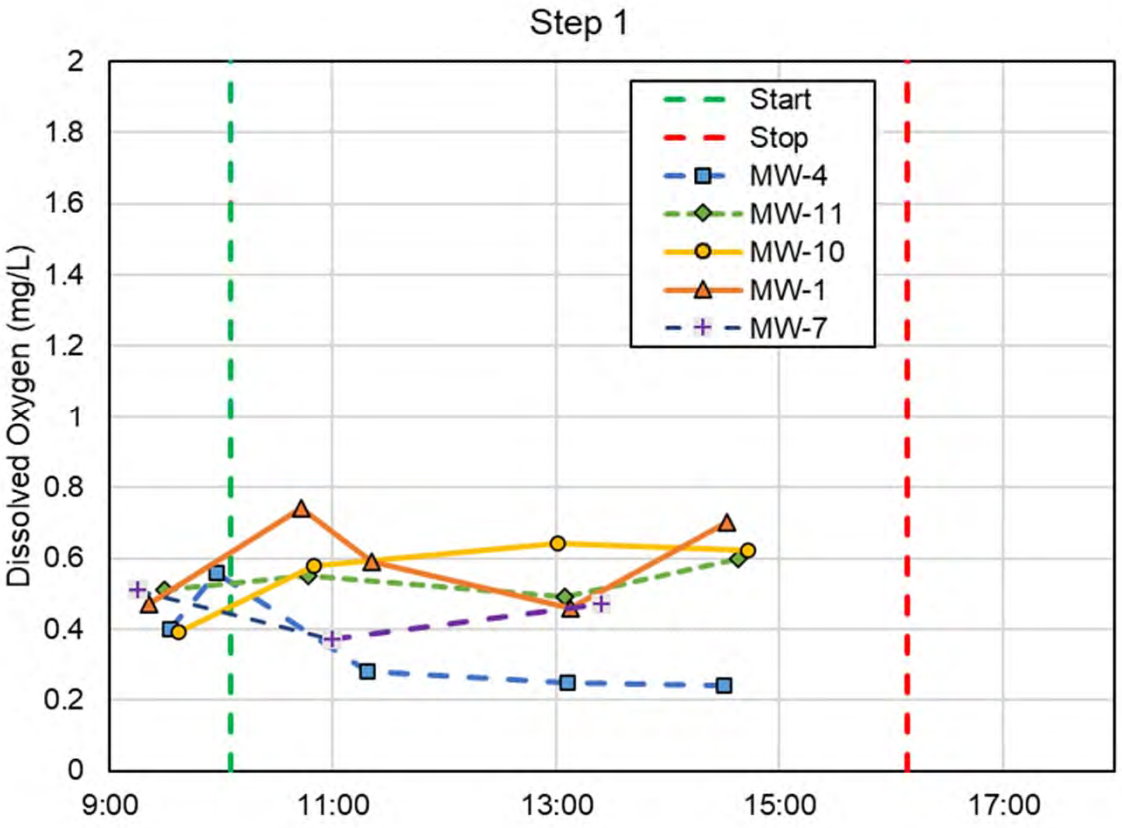


Figure 7. Dissolved oxygen concentrations in groundwater during Step 1 (2.7 scfm).

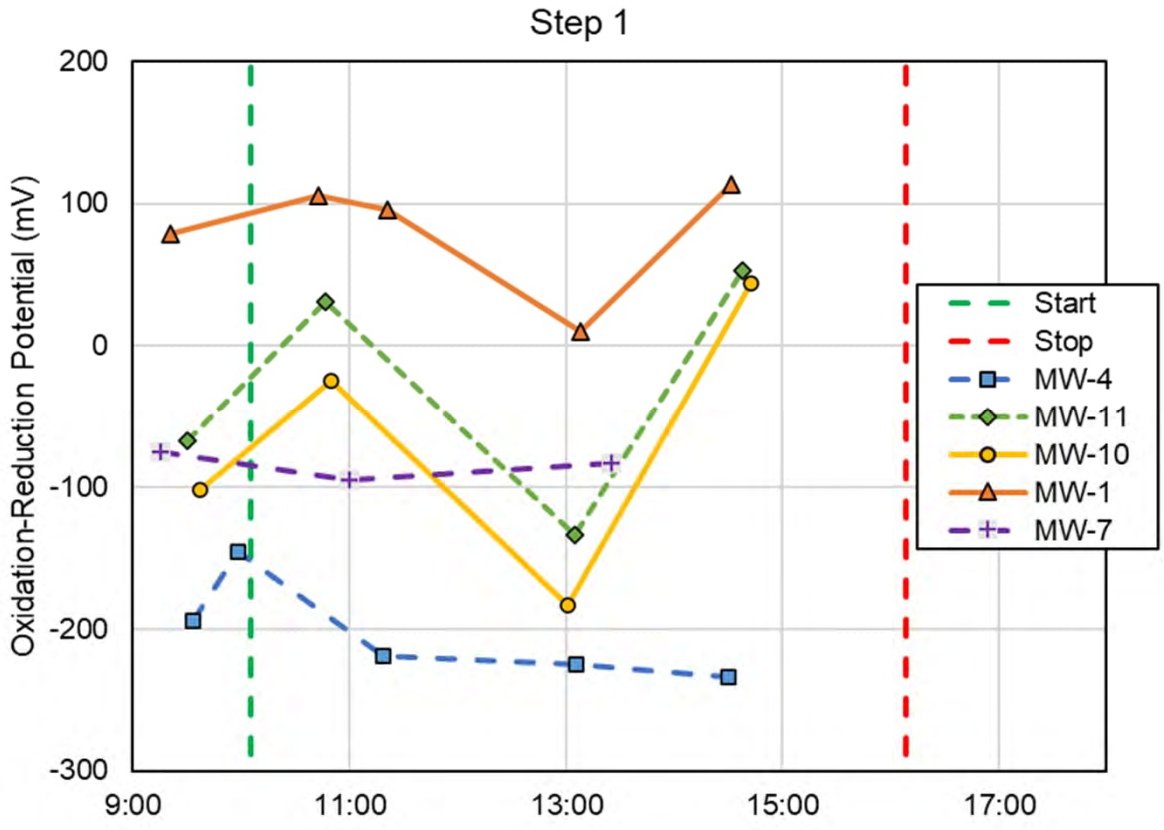


Figure 8. Oxidation-reduction potential in groundwater during Step 1 (2.7 scfm).

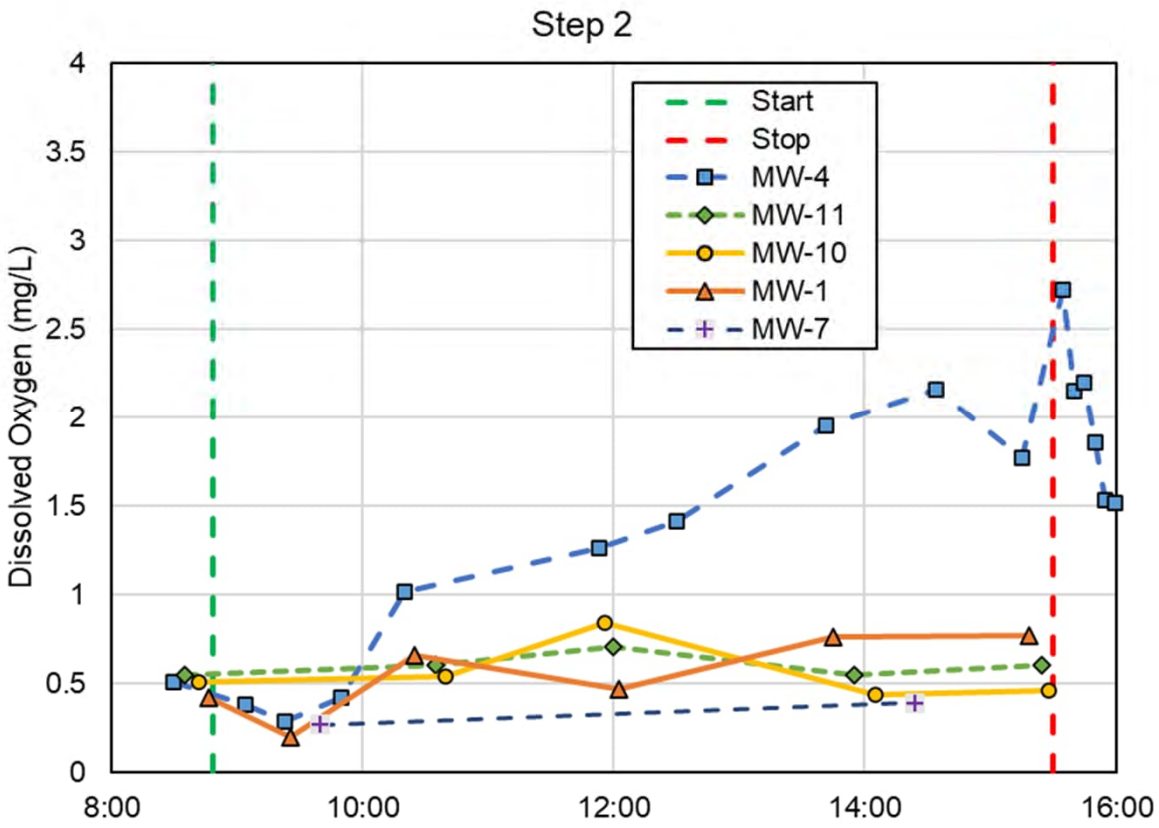


Figure 9. Dissolved oxygen concentrations in groundwater during Step 2 (7.5 scfm).

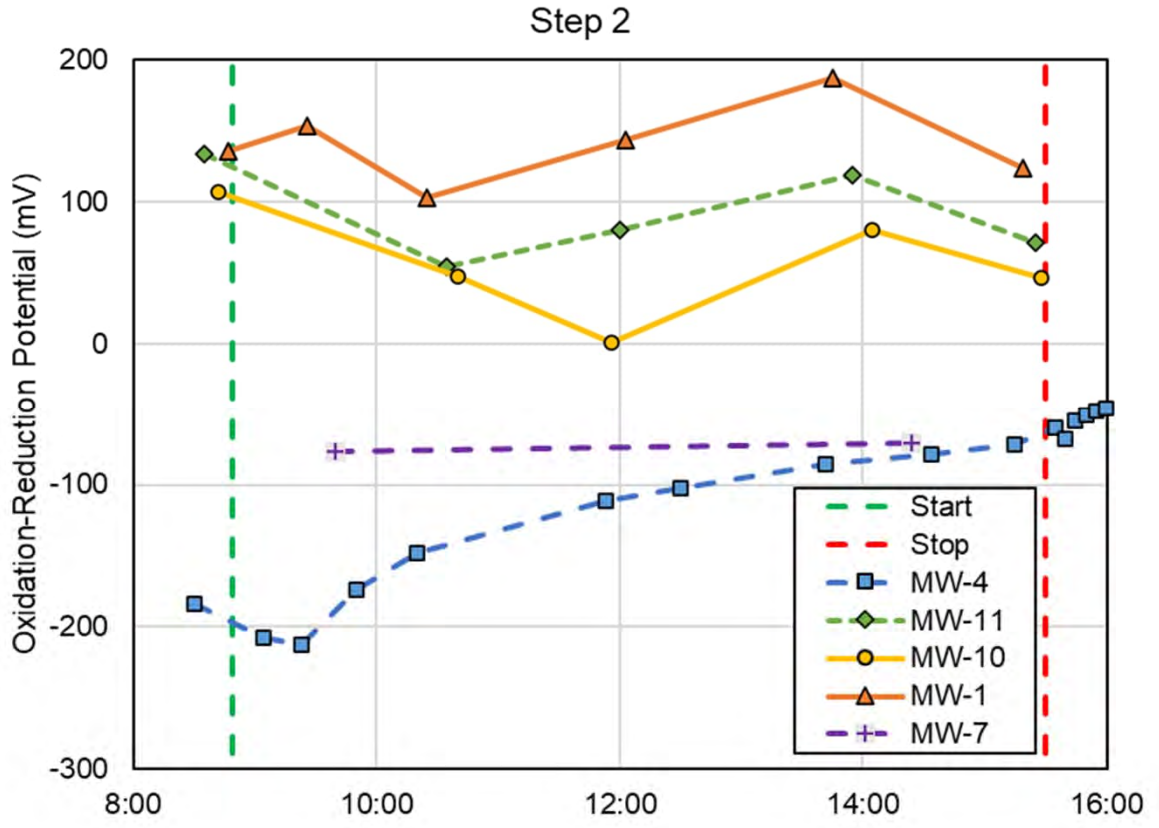


Figure 10. Oxidation-reduction potential in groundwater during Step 1 (7.5 scfm).

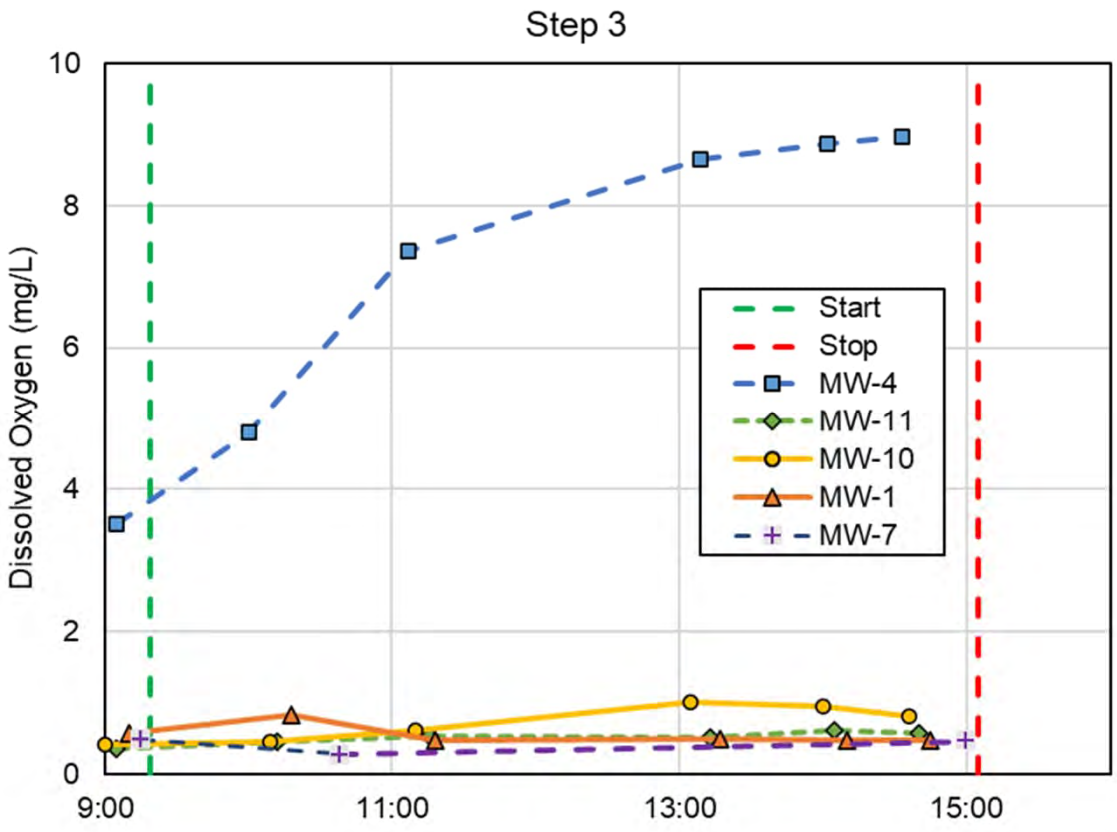


Figure 11. Dissolved oxygen concentrations in groundwater during Step 3 (15.7 scfm).

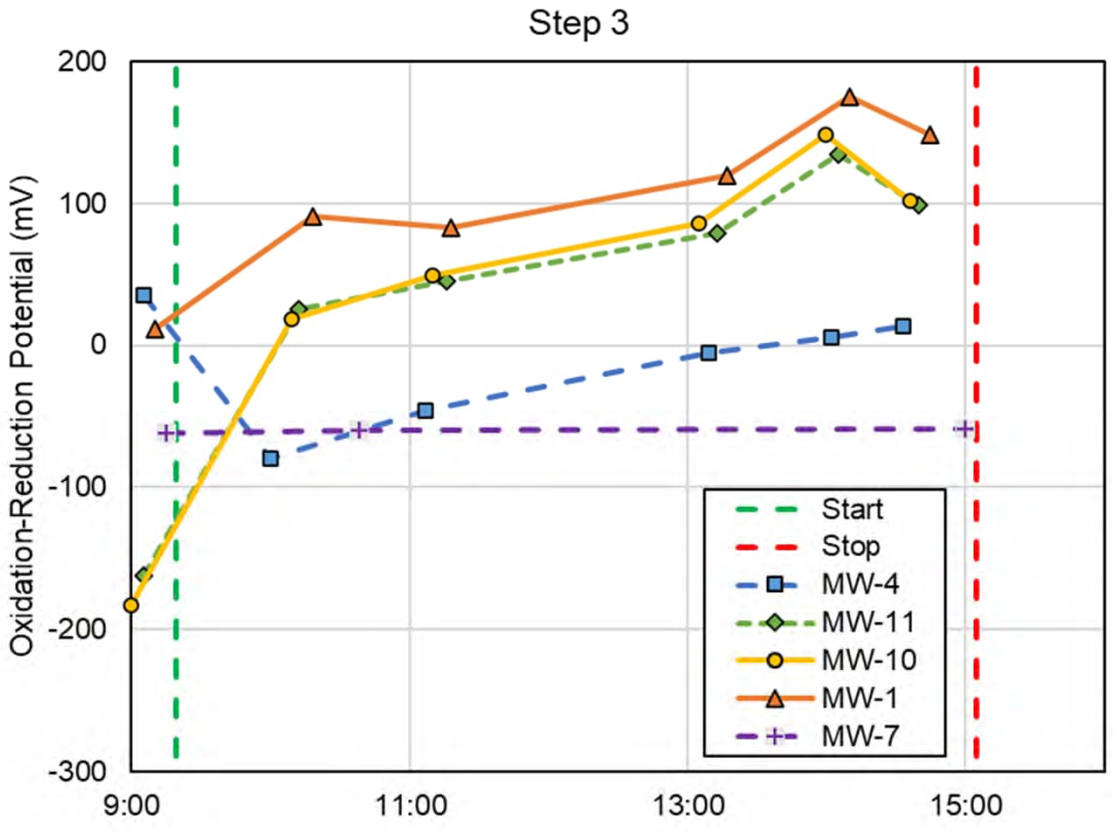


Figure 12. Oxidation-reduction potential in groundwater during Step 1 (15.7 scfm).

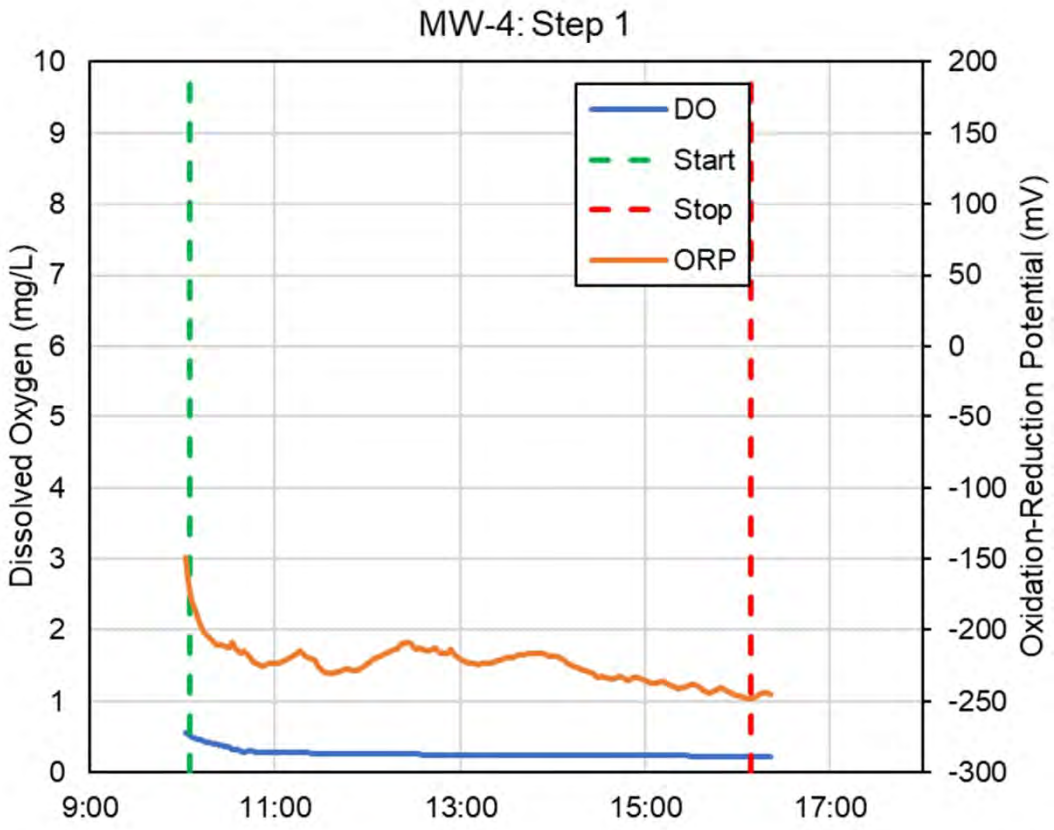


Figure 13. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 1 (2.7 scfm).

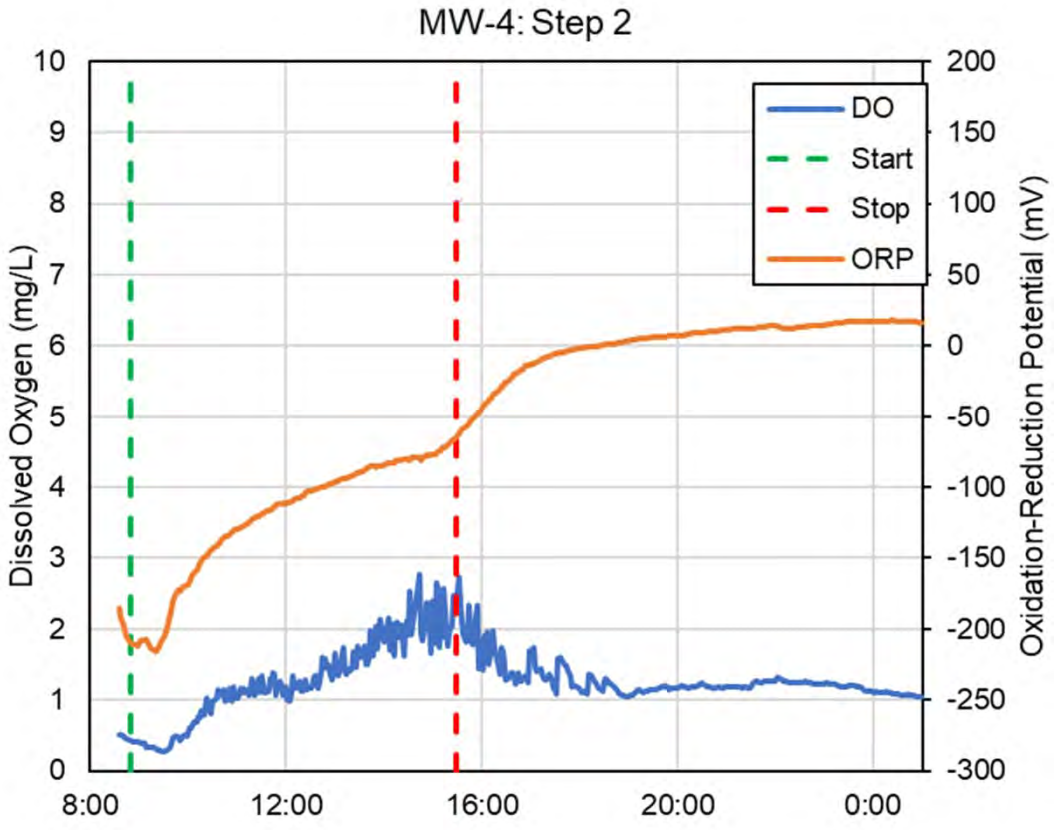


Figure 14. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 2 (7.5 scfm).

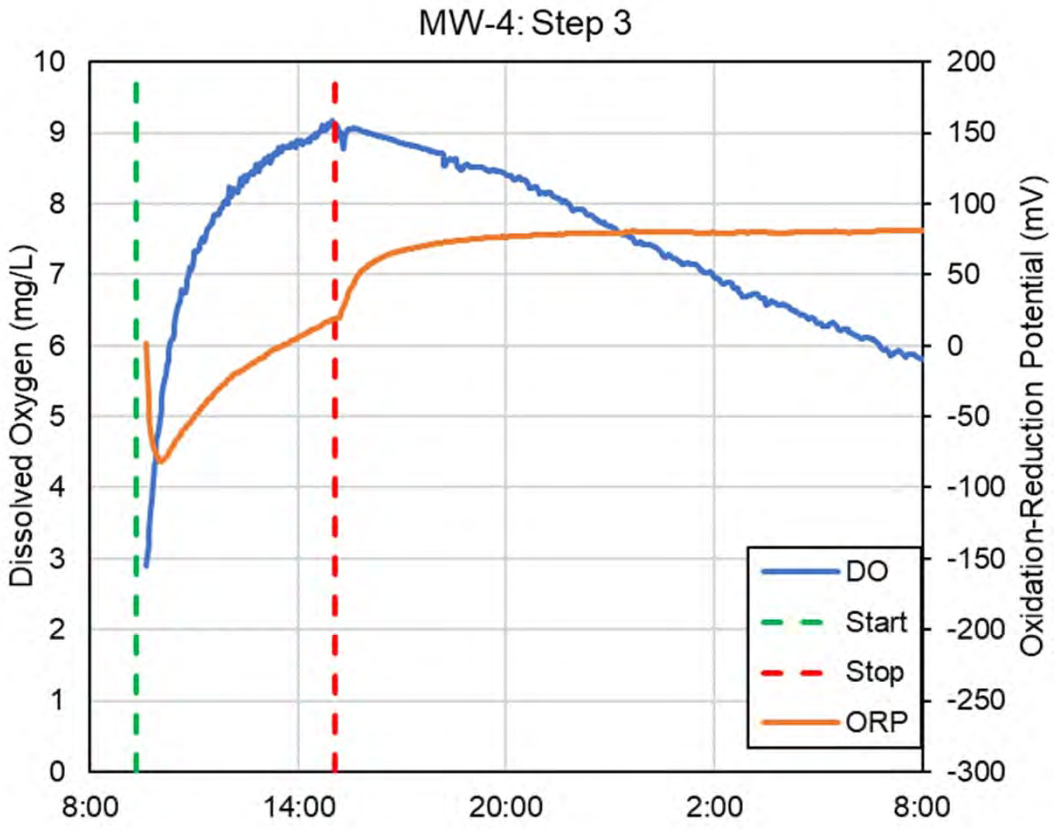


Figure 15. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 3 (15.7 scfm).

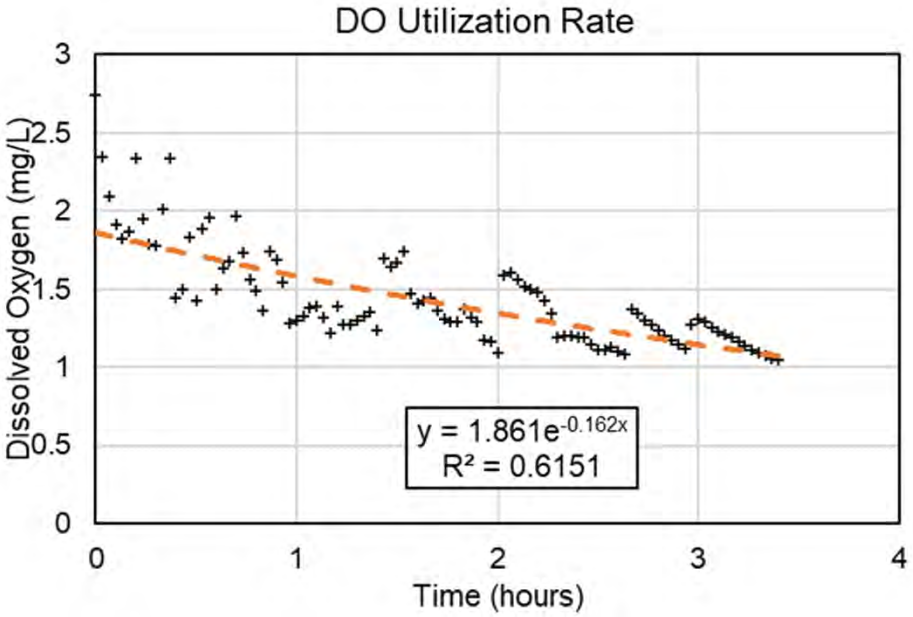


Figure 16. Dissolved oxygen utilization rate evaluation in groundwater at MW-4 after Step 2.

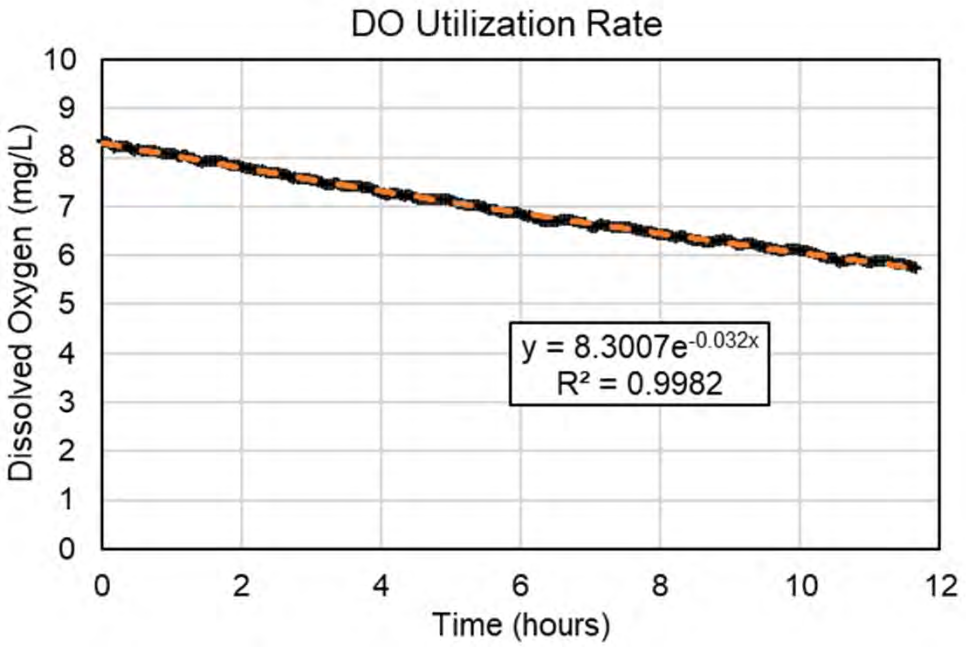


Figure 16. Dissolved oxygen utilization rate evaluation in groundwater at MW-4 after Step 3.

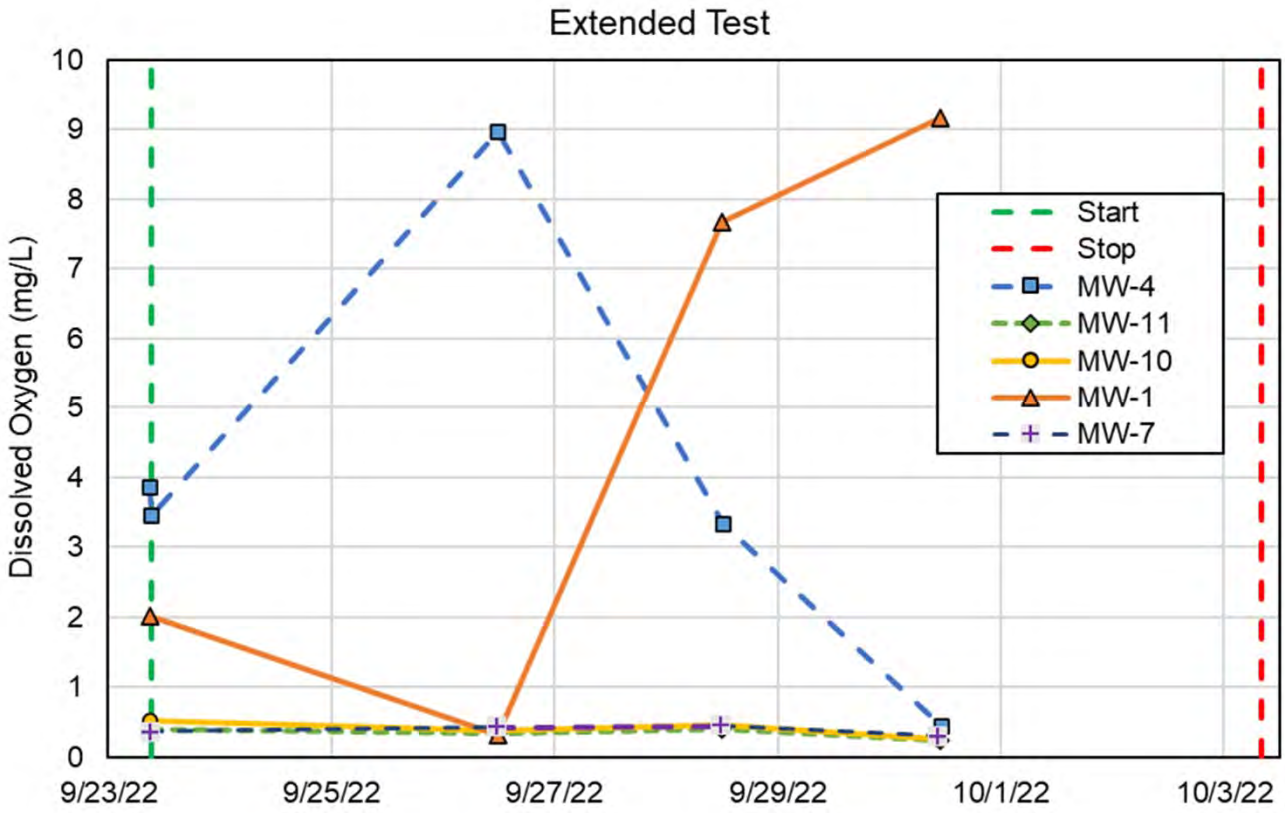


Figure 17. Dissolved oxygen concentrations in groundwater during the extended test (6.3 scfm).

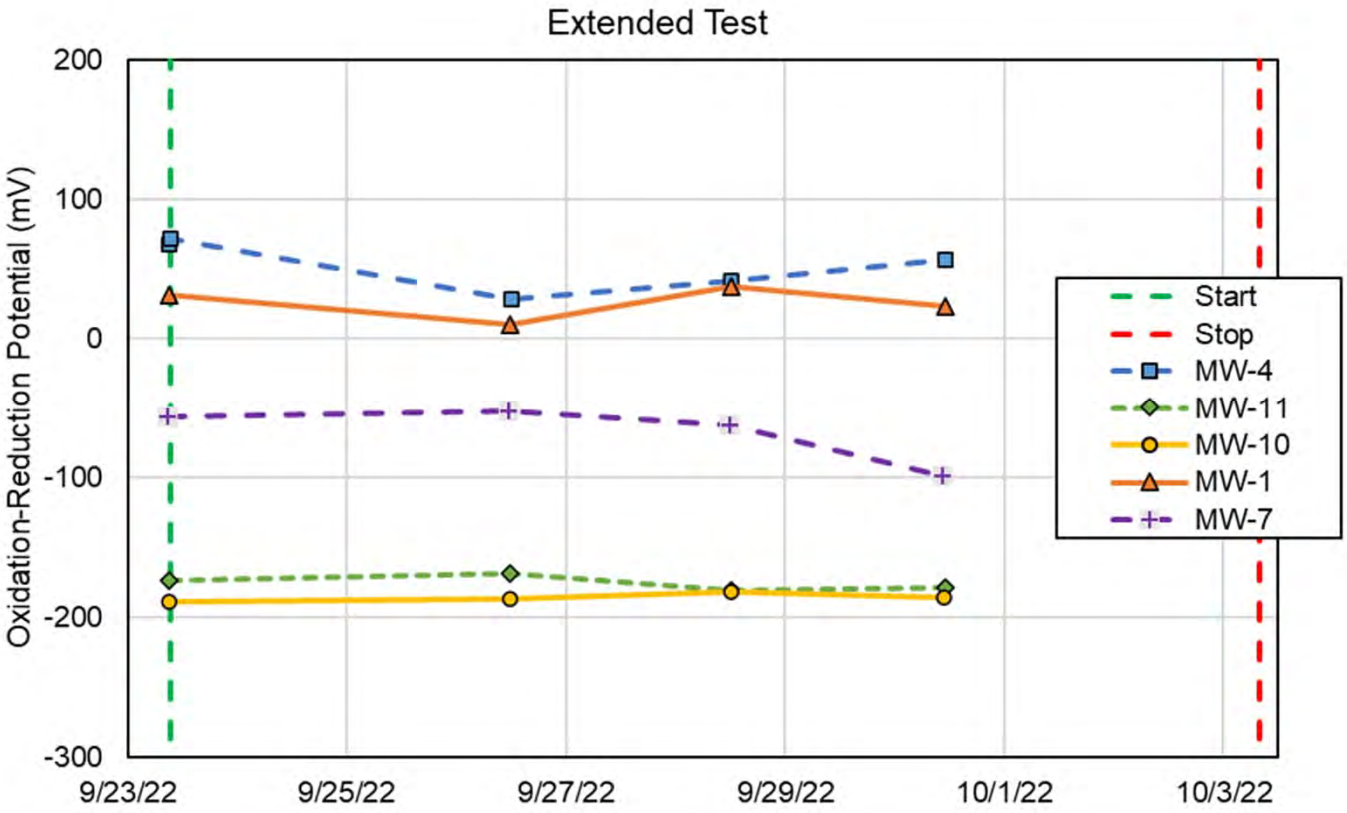


Figure 18. Oxidation-reduction potential in groundwater during the extended test (6.3 scfm).

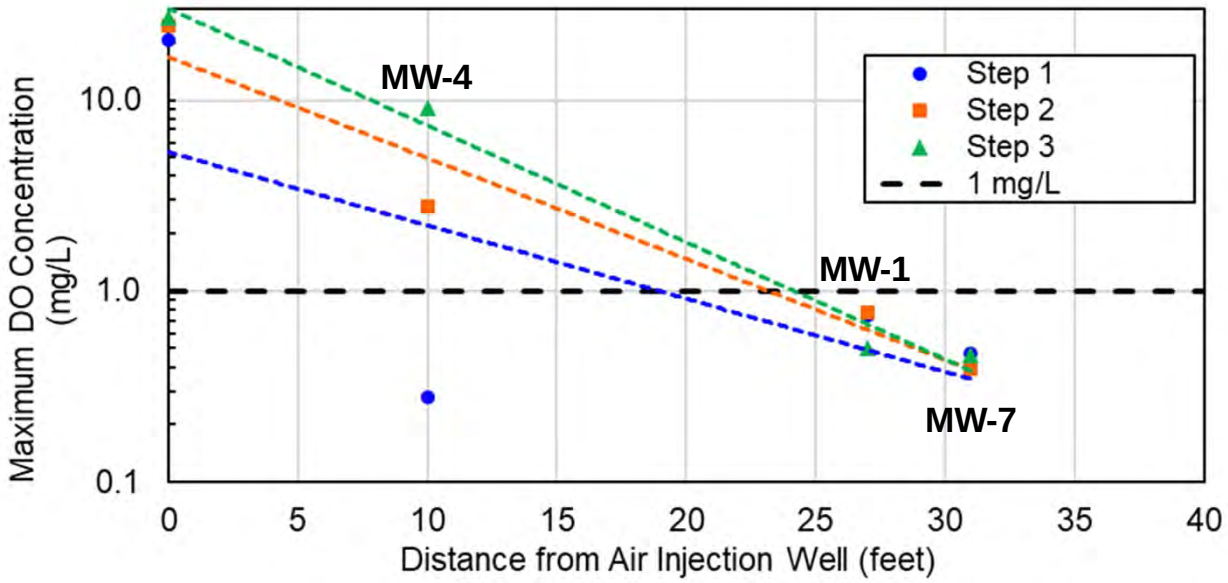


Figure 19. Estimated Radii of Influence (ROI) during Step Tests.

Attachment 1

Boring Logs

AECOM

TEST BORING LOG

BORING NO. : MW-09

PROJECT/PROJECT LOCATION: NYSEG Auburn Site

SHEET: 1 **OF** 1

CLIENT: NYSEG

JOB NO. : 60652550

BORING CONTRACTOR: Matrix

NORTHING: 1068693.533 **EASTING:** 823558.675

GROUNDWATER: 18.51 ft bgs

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macrocore		
DIA.		2"		
WT.				
FALL				

GROUND ELEVATION: 666.85

DATE STARTED: 09/28/2021

DATE FINISHED: 09/28/2021

DRILLER: Steve Marchetti

GEOLOGIST: S. Connelly

REVIEWED BY: J. Kaczor

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		40	Dark Brown and Gray		FILL: Silt with medium Gravel and Brick fragments.		0.0	Dry, No Odor, No Staining
					Brn&Rd		CLAY	CL		
-5		2		10	Gray		Fine SILT, trace Sand and Gravel	ML	0.0	Moist
-10		3		94					0.0	
					Rd Brn		Clayey SILT		4.9	
					Gray		Fine to coarse GRAVEL and SAND	SW/GW		Dry and Slight Odor @ 13.4' Moist @ 13.7'
-15		4		50				SM		
							Fine SAND	SW/GW	0.0	
							Fine to coarse GRAVEL and SAND			
					Reddish Brown		Clayey SILT	ML		
-20							Refusal @ 19' bgs			
-25										

COMMENTS:

Boring advanced by Geoprobe® Model 6620DT

AECOM

TEST BORING LOG

BORING NO. : MW-10

PROJECT/PROJECT LOCATION: NYSEG Auburn Site

SHEET: 1 **OF** 1

CLIENT: NYSEG

JOB NO. : 60652550

BORING CONTRACTOR: Matrix

NORTHING: 1068683.478 **EASTING:** 823583.105

GROUNDWATER: 6.5 ft bgs

GROUND ELEVATION: 666.93

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
						Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 8/30/2021

DATE FINISHED: 8/30/2021

DRILLER: Pat Bliek

GEOLOGIST: K. McGovern

REVIEWED BY: J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		20	Gray Red and Dark Gray		GRAVEL SUBBASE FILL: Gravel and Brick fragments, some to little coarse-fine Sand and Silt		0.0	Dry, No Odor, No Staining
-5		2		20					0.0	Wet
-10		3		26					0.0	
-15		4		28			Trace coarse to fine Sand, no Silt		0.0	
-20		5		10					0.0	
-25							Refusal @ 21' bgs			

COMMENTS:

Boring advanced by Geoprobe® Model 6620DT

AECOM

TEST BORING LOG

BORING NO. : MW-11

PROJECT/PROJECT LOCATION: NYSEG Auburn Site

SHEET: 1 **OF** 1

CLIENT: NYSEG

JOB NO. : 60652550

BORING CONTRACTOR: Matrix

NORTHING: 1068677.587 **EASTING:** 823574.298

GROUNDWATER: 5 ft bgs

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macrocore		
			DIA.		2"		
			WT.				
			FALL				
			* POCKET PENETROMETER READING				

GROUND ELEVATION: 667.14

DATE STARTED: 8/3/2022

DATE FINISHED: 8/3/2022

DRILLER: Rich Reagan

GEOLOGIST: Emily Au

REVIEWED BY: J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0					Gray / Brown	Loose	GRAVEL SUBBASE		0.0	Dry, No Odor, No Staining
							FILL: Fine to medium Sand and fine to coarse Gravel with Brick Fragments and Slag		0.0	
					Tan to Lt. Brown				0.0	
									0.0	
-5		1		34					0.0	Wet
									0.0	
									0.0	
									0.0	
					Dark Gray				0.0	
-10		2		54		Medium Dense	Medium to coarse Gravel, little Brick Fragments and Slag		0.0	
									1.5	
									0.8	
									0.3	
									0.2	
-15		3		34					0.0	
									0.0	
									0.0	
-20							Refusal @ 20' bgs			
-25										

COMMENTS:

Boring advanced by Geoprobe® Model 6620DT

AECOM

TEST BORING LOG

BORING NO. : MW-12

PROJECT/PROJECT LOCATION: NYSEG Auburn Site

SHEET: 1 **OF** 1

CLIENT: NYSEG

JOB NO. : 60652550

BORING CONTRACTOR: Matrix

NORTHING: 1068735.580 **EASTING:** 823608.627

GROUNDWATER: 10 ft bgs

GROUND ELEVATION: 664.74

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
						Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 8/3/2022

DATE FINISHED: 8/3/2022

DRILLER: Rich Reagan

GEOLOGIST: Emily Au

REVIEWED BY: J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0					Brown	Medium Dense	FILL: Fine to medium Sandy Loam, some fine to coarse Gravel, trace to little Silt		0.0	Dry, No Odor, No Staining
									0.0	
									0.0	
									0.0	
									0.0	
-5		1		60			Trace Brick and Slag		0.0	
					Brown/ Tan/ Gray Mottled		SILT, little Clay, trace angular Gravel	ML	0.0	Dry to Moist
									0.0	
									0.0	
-10		2		48	Gray Brown		Fine to coarse angular GRAVEL, trace medium to coarse Sand	GW	0.0	Wet/ Saturated
									0.0	
									0.0	
									0.0	
-15		3		57	Red Brown	Very Stiff	SILT, trace Clay	ML	0.0	Wet
									0.0	
					Gray		Fine to coarse sub angular Sandy GRAVEL.	GW	0.0	
							Refusal @ 18' bgs			
-20										
-25										

COMMENTS:

Boring advanced by Geoprobe® Model 6620DT

Monitoring Well Construction Logs

DRILLING SUMMARY

Geologist:
Sean P. Connelly

Drilling Company:
Matrix

Driller:
Pat Bliek

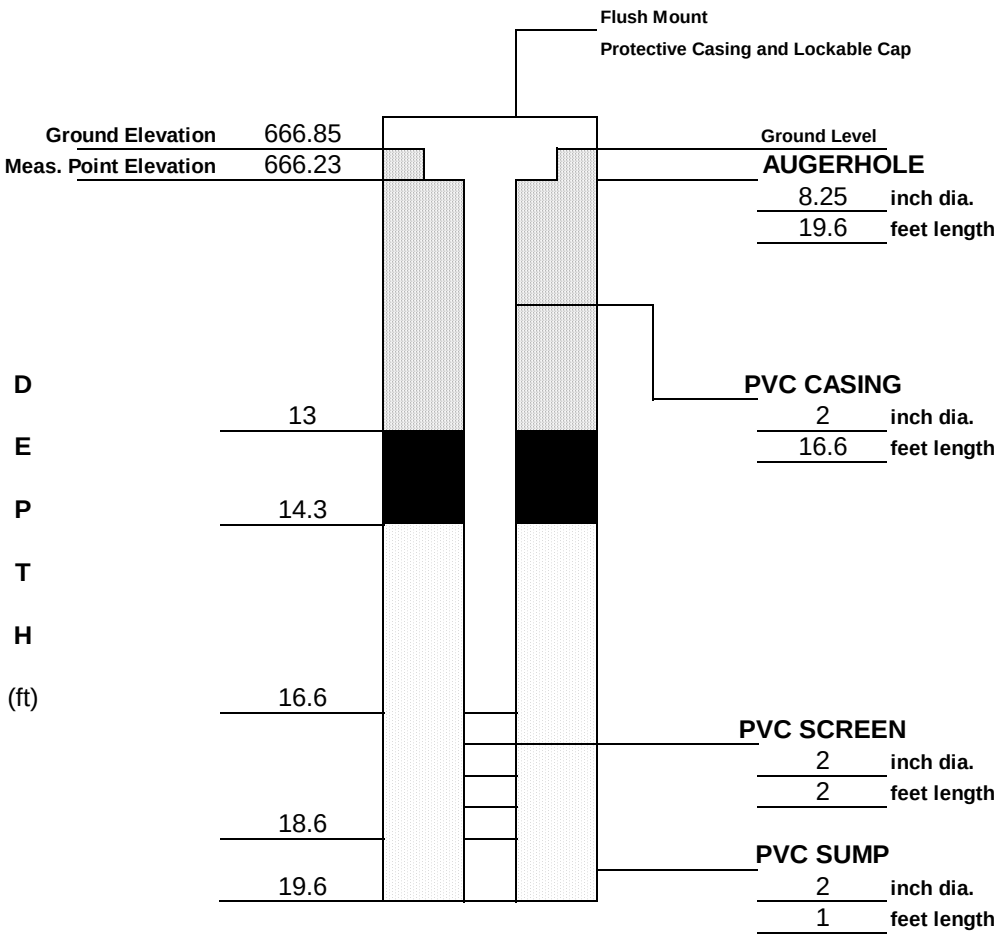
Rig Make/Model:
Geoprobe® 6620DT

Date:
9/28/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 14.3' - 19.6'
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	***SEAL MATERIAL*** **Type:** Bentonite chips **Setting:** 13' - 14.3

COMMENTS:

LEGEND

- Bagged Gravel (Quikrete #1151)
- Bentonite Seal
- Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-9**

DRILLING SUMMARY

Geologist:
Kevin J. McGovern

Drilling Company:
Matrix

Driller:
Pat Bliek

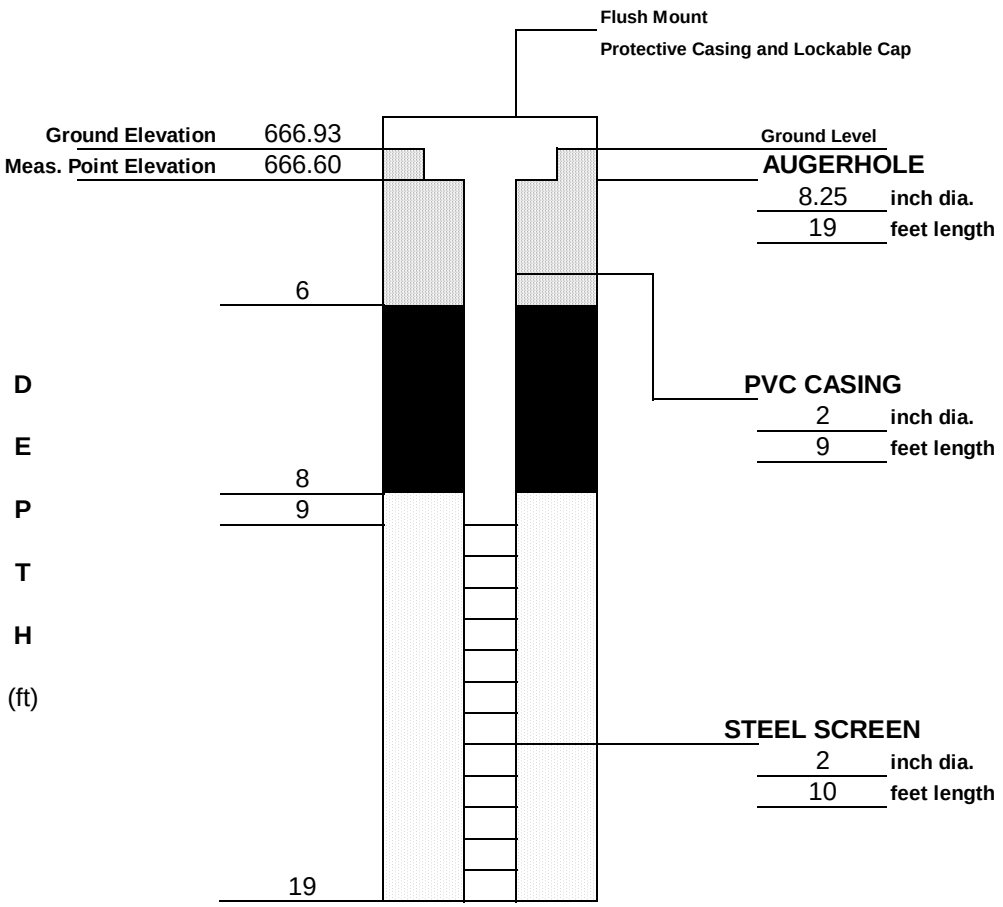
Rig Make/Model:
Geoprobe® 6620DT

Date:
8/30/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 8' - 19'
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	***SEAL MATERIAL*** **Type:** Bentonite chips **Setting:** 6' - 8'

COMMENTS:

LEGEND

- Bagged Gravel (Quikrete #1151)
- Bentonite Seal
- Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-10**

DRILLING SUMMARY

Geologist:
Emily Au

Drilling Company:
Matrix

Driller:
Rich Reagan

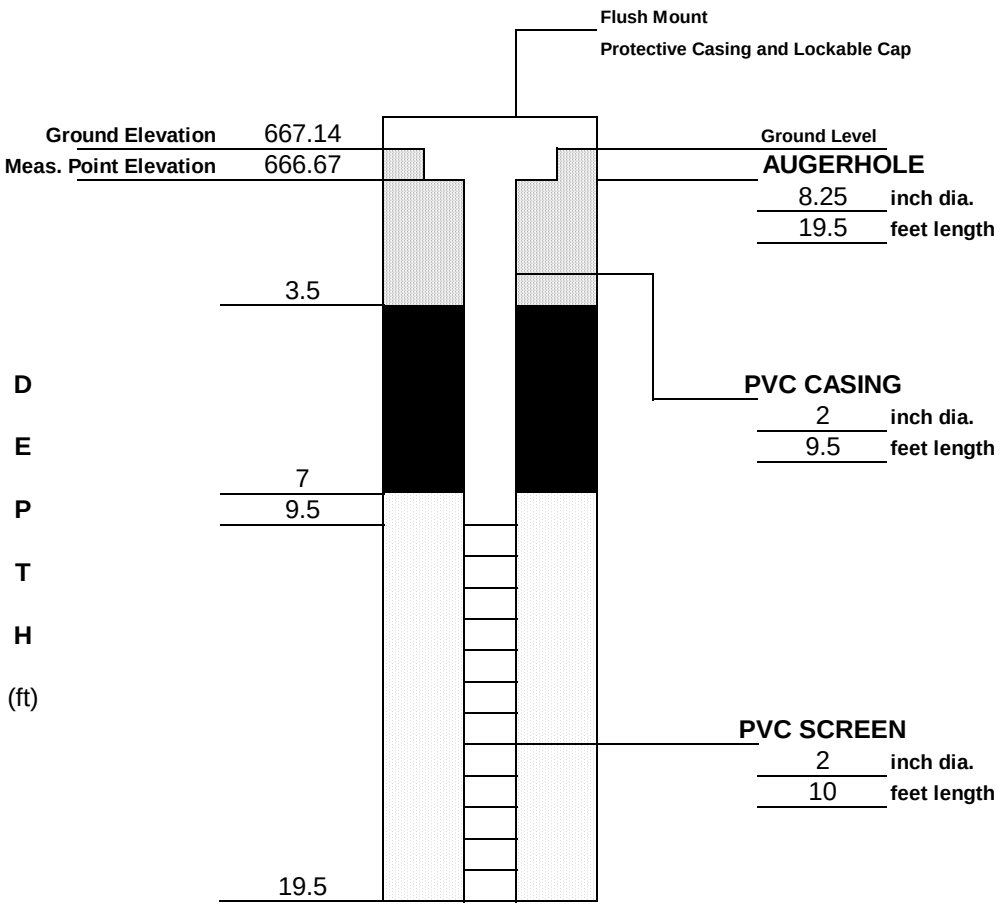
Rig Make/Model:
Geoprobe® 6620DT

Date:
8/3/2022

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 7.0'-19.5'
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	***SEAL MATERIAL***
		Type: Bentonite chips **Setting:** 3.5'-7.0'

COMMENTS:

Added 3 ft long 4-inch diameter PVC outer casing to the top 3 ft of the well to isolate the bagged gravel (washed)) from #2 stone provided by NYSEG that was used to fill in the void space in the top 3 ft created by collapsing holder material in the top of the drill hole.

Bedrock refusal at 20'. Screen pushed to 19.5, bottom of hole collapsed.

LEGEND

- Bagged Gravel (Quikrete #1151)
- Bentonite Seal
- Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-11**

DRILLING SUMMARY

Geologist:
Emily Au

Drilling Company:
Matrix

Driller:
Rich Reagan

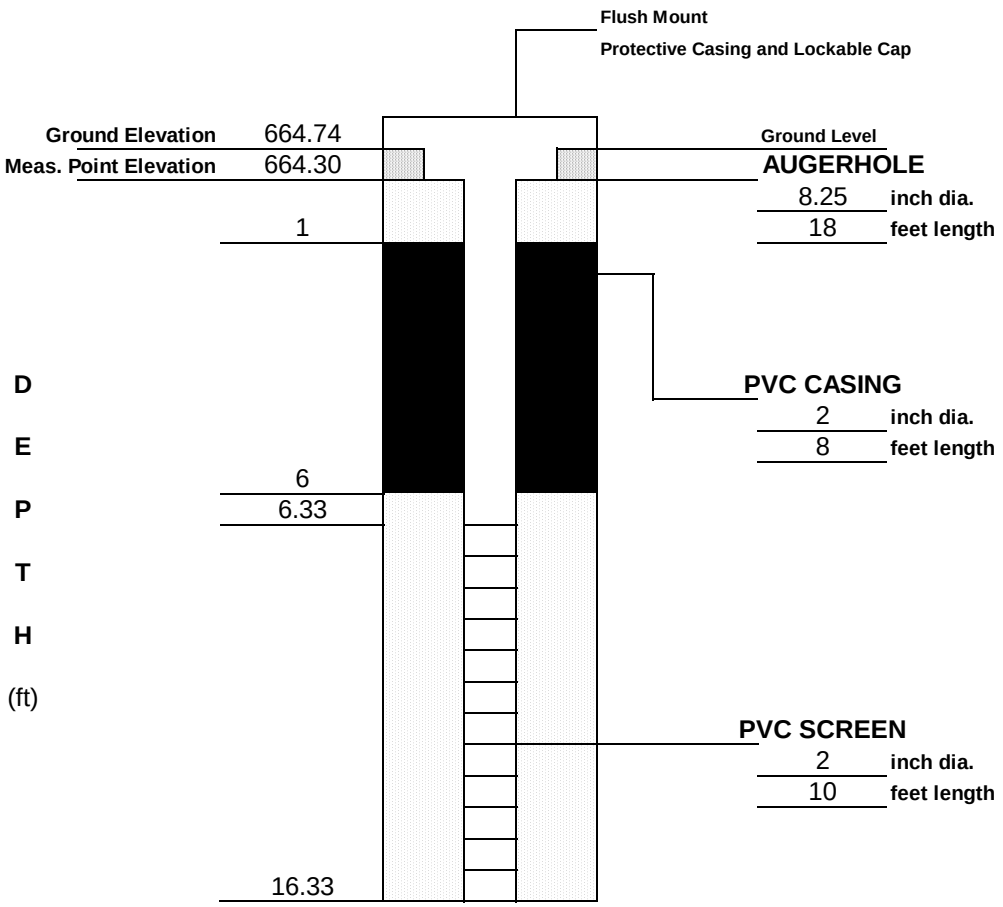
Rig Make/Model:
Geoprobe® 6620DT

Date:
8/3/2022

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 6.0'-16.33'
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	***SEAL MATERIAL***
		Type: Bentonite chips **Setting:** 1.0'-6.0'

COMMENTS:

A little sand was added in the top 1' for drainage of flushmount and to prevent the bentonite chips from swelling into the flushmount.

Bedrock refusal at 18'. Screen measured at 16.33 after installation complete. Hole collapsed and screen didn't push all the way to 18'. Short interval between bentonite and top of screen as a result.

LEGEND

Bentonite Seal

Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-12**

Well Development Logs

WELL DEVELOPMENT LOG

AECOM

PROJECT TITLE: NYSEG Auburn WELL NO.: MW-09

PROJECT NO.: 60652550

STAFF: S. Connelly

DATE(S): 9/29/21

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	~~7.99~~ 12.73	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	18.51	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	6.18	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.05	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	3.15	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1 Let recharge to 18' then 4 gallons	0.75"	0.02

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)											
	Initial	1	2	3	4	6	Initial	7.0	8.0			
PARAMETERS TIME	1134	1137	1141	1154	1212	1252	1324	1330	1340			
pH	7.50	7.41	7.50	7.39	7.41	7.47	7.52	7.52	7.50			
TEMPERATURE (°C)	22.8	19.5	19.9	15.8	16.1	15.8	17.7	15.6	15.7			
COND. (mS/cm)	2.053	2.116	2.118	2.088	2.095	2.072	2.132	2.104	2.135			
DO (mg/l)	4.17	3.21	6.96	3.34	4.18	8.51	6.90	7.87	9.44			
TURBIDITY (NTU)	375.78	3787.62	2392.24	2276.53	2371.93	4246.78	1730.18	1967.05	402.54			
ORP (mV)	-63.7	-76.9	-52.4	-20.1	-31.4	67.6	173.0	127.5	33.4			

COMMENTS: Began development @ 1133

Initial: silty water. Tubing/check valve @ ~2' off bottom. 1' sump, 2' screen. WL 16.09 after 2 gallons. Will let recharge and drop tubing ~6". MW-1: 6.49 WL ~~MW-10~~: MW-4: 7.95'. 16.0' @ 1147/15.05' @ 1150. Will drop tubing/check valve down into sump ~6" off bottom after ~ 3 gallons. WL @ 17.2 @ 1204. Lowered tubing to try and clear out sump. WL @ 17.98 @ 1210. Lowest tubing can go to function properly. Will let Recharge ~~from~~ to above screen (~ 15.0') then purge more. 15.0' WL @ 1238. Resumed development Dry @ 1255. Turned off ~~tubing~~ WL @ 17.78. Will let Recharge to 15.40' then purge by again. WL @ 15:40 @ 13:23. Will Resume development Initial water slightly turbid/Semi clear. Water becoming more clear @ 8.0 gallons. MW-1 WL: 6.53 MW-4 WL: 8.0'

* MW-9 Dry after 8 gallons.

Initial: MW-1 6.49 MW-4: 7.99 WL

WELL DEVELOPMENT LOG

AECOM

PROJECT TITLE: NYSEG Auburn WELL NO.: MW-10

PROJECT NO.: 60652550

STAFF: E. Connelly

DATE(S): 9/22/21

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	18.51	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.49	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	12.32	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.09	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	6.28	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	~20.0	0.75"	0.02

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

20

	ACCUMULATED VOLUME PURGED (GALLONS)												
	Initial	1.0	2.0	3.0	4.0	6.0	6.0	8.0	10.0	12.0	14.0	16.0	18
PARAMETERS TIME	1000	1005	1008	1014	1018	1022	1053	1025	1028	1034	1039	1043	1048
pH	8.69	8.82	8.85	8.87	8.91	8.89	8.86	8.90	8.80	8.71	8.70	8.85	8.90
TEMPERATURE (°C)	14.6	14.8	14.9	14.7	14.8	14.8	14.8	14.7	15.5	15.8	15.8	15.2	15.0
COND. (mS/cm)	0.218	0.244	0.249	0.243	0.238	0.245	0.245	0.246	0.264	0.286	0.288	0.260	0.255
DO (mg/l)	3.56	2.43	3.47	3.41	2.90	2.42	3.18	2.37	4.39	3 83	3.19	2.17	2.13
TURBIDITY (NTU)	68.02	167.44	125 89	95.21	77.18	70.78	23.48	58.95	67.51	416.71	259.08	79.72	40.56
ORP (mV)	167.1	154.7	151.3	148.7	139.7	137.2	81.3	133.6	130.2	130.2	121.7	115.9	110.2

COMMENTS:

Initial = clear water . Tubing / check valve @ ~2-2' off bottom of well.
1 gall = ~~clear~~ murky " " " " " "
2 gall = ~~clear~~ murky . Tubing / check valve @ ~ 2-3' off of bottom of well
MW-4 WL: 8.02 after 2 gallons
3 gall = clear . Tubing / check valve @ ~2-3' off of bottom of well WL 5.19
4 gall = clear . Tubing / check valve @ ~ 4-5' off bottom of well
MW-7 WL = 8.01 WL: 5.19
5 gall = clear . Tubing / check valve @ ~ 7-5' off bottom of well
8 gall = clear . Tubing / check valve @ ~ 5.6' off bottom of well
10 gall = clear " " " @ ~ " " " " " " WL: 5.20
MW-9 WL: 8.02
12 gall = ~~clear~~ murky . Tubing / check valve @ ~ 7 8' off bottom of well
14 gall = murky " " " " " " " " WL: 5.19
16 gall Tubing / check valve @ ~ 5.6 " " " " "
18 gall Tubing / check valve @ ~ 3-4' " " " "

Slight odor
No sheen

DO - Samples 18

Stopped pumping and allowed water level to stabilize for 30 minutes before collecting samples

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

MW-11

Project: 60652550 Site: Auburn Green St. Well I.D.: (Inside Sub-Station)

Date: 8/8/22 Sampling Personnel: SCUT Company: AECOM

Purging/Sampling Device: Peristaltic Tubing Type: HDPE Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 4.95 Depth to Well Bottom: 19.10 ft Well Diameter: 2" Screen Length: 10 ft

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ Gallons): 2.31 Estimated Purge Volume (~~liters~~ Gallons): 25

Sample ID: Sample Time: QA/QC:

Sample Parameters: VOCs (8260C)-Site Specific List - BTEX, acetone, styrene;
Total PAHs/SVOCs (8270D) - Site Specific List
Sulfate (300.0_28D), Nitrate;
Cyanide, Total (9012B); Dissolved Iron (6010 C - Field Filtered);

PURGE PARAMETERS

TIME	pH	TEMP (°C)	Sp. COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1138	8.90	19.3	0.228	1.94	595.10	102.8	—	—
1145	8.47	16.2	0.249	1.56	332.10	108.8	—	—
1149	8.51	15.6	0.246	1.65	213.02	93.41	—	—
1153	8.53	15.8	0.249	1.50	162.67	81.9	—	—
1165	8.54	15.6	0.242	1.58	170.53	76.1	—	—
1158	8.56	15.1	0.247	1.52	160.34	66.2	—	—
1201	8.57	15.0	0.246	1.64	128.45	64.7	—	—
1204	8.57	15.4	0.248	1.76	143.68	72.3	—	—
1208	8.43	15.8	0.244	1.78	121.58	64.6	—	—
1213	8.46	16.1	0.247	1.76	62.08	55.4	—	5.62
1218	8.46	15.6	0.249	1.32	54.31	48.3	—	—
1226	8.48	16.1	0.252	1.78	45.67	52.7	—	—
1230	8.50	16.5	0.250	1.77	31.24	47.3	—	—
1234	8.49	16.5	0.252	1.78	28.32	42.1	—	—
								5.25
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Development

Started Development at 1138

Stopped at 1205

resumed at 1206

cece

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: Auburn Green St. Well I.D.: MW-12

Date: 8/18/22 Sampling Personnel: SC/CH Company: AECOM

Purging/Sampling Device: Peristaltic Tubing Type: LDPE Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.67 Depth to Well Bottom: 16.16ft Well Diameter: 2" Screen Length: ft

Casing Type: PVC Volume in 1 Well Casing (~~liters~~): gallons 1.22 Estimated Purge Volume (~~liters~~): gallons -

Sample ID: Sample Time: QA/QC:

Sample Parameters: VOCs (8260C)-Site Specific List - BTEX, acetone, styrene; Total PAHs/SVOCs (8270D) - Site Specific List Sulfate (300.0_28D), Nitrate; Cyanide, Total (9012B); Dissolved Iron (6010 C - Field Filtered);

PURGE PARAMETERS

TIME	pH	TEMP (°C)	Sp. COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cy} = \pi r^2 h$)

Remarks: Development

initial - very turbid water, Sheen observed @ 1314

10 gallons @ 1340. WL: 7.81

20 gallons @ 1353. WL: 7.96

Groundwater Purge Logs

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 6.54 Depth to Well Bottom: 18.75 Well Diameter: 2" Screen Length:

Casing Type: Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: 1547 QA/QC: ✓

Sample Parameters: Began purge @ 1520

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1522	8.03	16.4	0.701	3.74	134.20	58.4	350	6.89
1527	7.24	15.8	0.682	1.22	177.15	27.2	350	6.97
1532	6.95	16.1	0.669	0.87	55.60	36.7	350	7.26
1537	6.91	16.1	0.665	0.83	42.07	40.0	350	7.32
1542	6.87	16.1	0.665	0.81	34.18	43.4	350	7.43
1547	6.83	16.0	0.668	0.79	28.27	45.7	350	7.43
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-2

Date: 10/4/21 Sampling Personnel: EAV Company: AECOM

Purging/Sampling Device: Peristaltic Geopump Tubing Type: Dedicated. HDPE Pump/Tubing Inlet Location: ~3 ft from Bottom

Measuring Point: Top of Casing Initial Depth to Water: 6.50 Depth to Well Bottom: 18.3 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): 1.92 Estimated Purge Volume (liters): ~11 liters.

Sample ID: MW-2 Sample Time: 1000 QA/QC: —

Sample Parameters: VOCs, SVOCs, Cyanide, Dissolved Iron, Nitrate, Sulfate
site spec. sic. → BTEX, Styrene, acetone.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
915	7.12	15.6	1.312	2.55	81.66	276.8	200	6.67
920	6.75	15.6	1.060	1.47	22.10	287.1	200	6.68
925	6.68	15.7	1.012	1.57	25.11	290.0	275	6.73
930	6.70	16.0	0.982	1.65	9.20	291.6	275	6.73.
935	6.71	16.1	0.977	1.57	7.98	292.1	275	6.75
940	6.71	16.2	0.971	1.48	4.13	292.7	275	6.77
945	6.73	16.3	0.971	1.33	3.73	293.5	275	6.77.
950	6.76	16.3	0.976	1.26	3.51	293.9	250	6.75
955	6.77	16.3	0.973	1.21	3.01	294.3	250	6.75
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: used dedicated HDPE tubing in well - added end piece with silicon ~~tubing~~ of LDPE tubing. iron - field filtered.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-3

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.79 Depth to Well Bottom: 19.40 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): 1.89 Estimated Purge Volume (liters):

Sample ID: MW-3 Sample Time: 1211 QA/QC: MS/MSD

Sample Parameters: Began purge @ 1140

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1141	6.96	15.0	3.499	1.77	16.21	-95.7	350	-
1146	6.95	15.7	3.548	0.87	42.68	-107.5	350	8.51
1151	6.96	15.8	3.559	0.79	63.12	-111.3	350	8.60
1156	6.96	16.0	3.501	0.73	52.00	-114.0	350	8.85
1201	6.97	16.0	3.514	0.71	29.73	-115.9	350	8.90
1206	6.99	15.9	3.584	0.68	16.29	-122.3	350	8.93
1211	6.99	15.8	3.590	0.68	15.31	-122.6	350	8.96
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 8.07 Depth to Well Bottom: Well Diameter: 2" Screen Length:

Casing Type: Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-4 Sample Time: 1440 QA/QC: —

Sample Parameters: Target @ 1357

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1400	9.87	15.7	0.450	3.45	10.59	-2.7	300	8.42
1405	10.10	15.2	0.357	1.46	14.67	-45.7	300	8.87
1410	10.18	15.7	0.347	1.12	17.29	-85.6	300	9.69
1415	9.31	16.1	0.388	0.87	9.17	-64.3	300	10.49
1420	10.18	15.8	0.371	0.73	8.22	-126.9	300	10.87
1425	10.30	15.7	0.365	0.76	5.61	-154.1	300	11.51
1430	10.25	15.6	0.373	0.76	4.98	-155.0	300	11.71
1435	10.06	15.5	0.379	0.75	2.56	-153.2	300	12.27
1440	9.85	15.3	0.387	0.75	2.61	-150.8	300	12.91
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-5

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/ Sampling Device: _____ Tubing Type: _____ Pump/Tubing Inlet Location: _____

Measuring Point: Top of Casing Initial Depth to Water: 13.81 Depth to Well Bottom: 17.87 Well Diameter: _____ Screen Length: _____

Casing Type: _____ Volume in 1 Well Casing (liters): _____ Estimated Purge Volume (liters): _____

Sample ID: MW-5 Sample Time: 1651 QA/QC: —

Sample Parameters: Began purge @ 1625

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1630	7.00	15.8	1.129	3.17	327.59	164.7	250	-
1635	6.95	15.4	1.129	2.24	347.68	161.2	250	-
1647	6.96	15.7	1.135	2.26	378.74	150.0	250	-
1651	6.98	15.8	1.132	2.28	347.34	147.5	250	-
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Dry @ 16:38. Will let recharge then pump dry.

Dry @ 1648. " " " " "

Dry @ 1652 " " " " Sample

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-6

Date: ~~9/29~~ 9/30/2 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 6.21 Depth to Well Bottom: 19.13 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): 2.11 Estimated Purge Volume (liters): 3 gallons

Sample ID: MW-6 Sample Time: 1105 QA/QC: Duplicate

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1040	7.91	16.7	1.641	3.01	11.67	179.4	450	6.61
1045	7.12	17.7	1.525	1.30	15.40	-48.4	400	7.05
1050	7.08	17.9	1.482	1.18	18.09	-52.0	350	7.28
1055	7.06	18.0	1.483	0.98	20.13	-54.2	350	7.49
1100	7.06	18.0	1.505	0.88	15.10	-58.0	350	7.61
1105	7.06	18.1	1.529	0.80	12.96	-64.8	350	7.78
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Duplicate collected

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-7

Date: 10/4/21 Sampling Personnel: E.Au Company: AECOM

Purging/Sampling Device: Peristaltic Geopump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft Above Bottom

Measuring Point: Top of Casing Initial Depth to Water: 7.12 Depth to Well Bottom: 17.75 Well Diameter: 2" Screen Length: —

Casing Type: PVC Volume in 1 Well Casing (liters): 1.73 Estimated Purge Volume (liters): ~11 liters.

Sample ID: MW-7 Sample Time: 1115 QA/QC: —

Sample Parameters: VOCs (site specific)
SVOCs (site specific)
Cyanide
Dissolved Iron, Nitrate, Sulfate.

PURGE PARAMETERS

Start purge ~1020

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1025	6.95	15.6	1.142	2.68	135.22	-84.9	200	7.35
1030	6.92	15.6	1.134	1.00	99.79	-93.9	200	7.35
1035	6.95	15.3	1.125	0.75	138.50	-107.7	200	7.40
1040	6.96	15.3	1.116	0.72	108.77	-106.5	200	7.46
1045	7.00	15.3	1.118	0.69	31.21	-113.2	200	7.40
1050	7.07	15.4	1.123	0.68	19.89	-117.7	200	7.37
1100	7.04	15.4	1.128	0.66	14.75	-121.1	200	7.41
1105	7.04	15.4	1.126	0.66	12.90	-121.5	200	7.42
1110	7.04	15.4	1.134	0.65	13.06	-122.6	200	7.42
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Iron Bac. @ Start of purge - let run a few min to clear tubing - Then hooked up to flow Thru cell.

- used dedicated HDPE Tubing That was already in well - added extra end piece of LDPE for sampling.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-8

Date: 10/4/21 Sampling Personnel: E. Au Company: AECOM

Purging/Sampling Device: Peristaltic pump Tubing Type: HDPE (in well) Pump/Tubing Inlet Location: ~2 ft off Bottom

Measuring Point: Top of Casing Initial Depth to Water: 4.64 Depth to Well Bottom: 17.50 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): 2.09 Estimated Purge Volume (liters): ~22

Sample ID: MW-8 Sample Time: 1300 QA/QC: -

Sample Parameters: VOCs + SVOCs - (site specific)
Cyanide
Dissolved Iron (field filtered)
Nitrate, Sulfate

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)	
1150	6.80	16.5	5.271	2.54	11.13	-84.5	300	4.95	
1155	6.88	16.3	6.066	0.95	9.66	-123.3	325	5.02	
1200	7.11	16.9	2.913	0.76	8.99	-142.6	325	5.02	
1205	7.11	17.2	2.095	0.71	38.25	-136.6	325	5.20	
1210	7.09	17.4	2.096	0.74	45.11	-134.4	325	5.22	
1215	7.08	17.4	2.203	0.73	36.69	-134.9	325	5.23	
1220	7.07	17.5	2.300	0.72	27.46	-135.9	325	5.26	
1225	7.07	17.5	2.357	0.70	18.95	-137.0	325	5.26	
1230	7.06	17.6	2.481	0.70	11.25	-138.0	325	5.26	
1235	7.06	17.5	2.528	0.70	8.62	-138.1	325	5.26	~4 gal.
1240	7.05	17.6	2.539	0.70	6.48	-138.0	325	5.26	
1245	7.05	17.6	2.606	0.69	4.02	-137.7	325	5.26	
1250	7.05	17.6	2.642	0.69	3.42	-137.6	325	5.26	
1255	7.05	17.6	2.669	0.68	4.14	-137.6	325	5.26	~5.5 gal.
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Slight sheen on bucket water
USED DEDICATED HDPE Tubing already in well.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-9

Date: 10/4/21 Sampling Personnel: E. Au Company: AECOM

Purging/Sampling Device: Peristaltic Tubing Type: LDPE Pump/Tubing Inlet Location: ~2ft off Bottom.

Measuring Point: Top of Casing Initial Depth to Water: 5.83 Depth to Well Bottom: 18.55 Well Diameter: 2" Screen Length: 2'

Casing Type: PVC Volume in 1 Well Casing (liters): 2.07 Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 1655 QA/QC: Rinse Blank.

Sample Parameters: VOCs + SVOCs
Cyanide
Dissolved Iron (field filtered)
Nitrate, Sulfate.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1515	7.60	15.8	1.988	2.85	42.65	171.8	125	7.00
1520	7.33	16.9	2.022	2.03	13.14	81.0	125	7.45
1525	7.30	17.2	2.047	2.04	9.67	21.3	125	8.03
1530	7.29	17.2	2.062	1.92	8.36	-1.1	125	8.65
1535	7.28	17.3	2.065	1.93	9.92	-10.1	200	9.00
1540	7.28	16.0	2.034	1.87	16.79	-18.9	200	10.15
1545	7.27	16.2	2.052	1.89	10.27	-20.6	200	10.95
1550	7.27	16.1	2.052	1.85	27.47	-25.9	200	11.30
1555	7.29	16.5	1.958	2.40	49.95	-27.1	200	12.40
1600	7.30	16.2	1.961	2.29	20.60	-22.3	200	12.45
1605	7.28	15.9	1.991	1.69	25.85	-25.8	200	12.60
1610	7.23	15.7	2.033	1.21	375.58	-27.8	200	12.70
1615	7.27	15.5	1.957	0.98	535.24	-41.8	200	12.85
1620	7.28	15.5	1.950	0.92	359.13	-53.3	200	13.00
1625	7.27	15.5	1.960	0.79	239.95	-61.5	200	13.10
1630	7.28	15.3	1.944	0.76	168.15	-66.3	200	13.17
1635	7.28	15.3	1.739	0.77	129.46	-69.8	200	13.25
1640	7.28	15.3	1.945	0.78	70.19	-72.7	200	13.37
1645	7.28	15.3	1.952	0.78	81.34	-72.1	200	13.45
1650	7.29	15.2	1.900	0.75	85.30	-77.3	200	13.53
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: collected sample @ 1655 turbidity
LDPE Tubing put down new well - pulled and disposed of tubing afth sampling.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-10

Date: 10/4/21 Sampling Personnel: E. Au Company: AECOM

Purging/Sampling Device: Peristaltic pump Tubing Type: LDPE Pump/Tubing Inlet Location: ~3ft off Bottom.

Measuring Point: Top of Casing Initial Depth to Water: 4.81 Depth to Well Bottom: 18.80 Well Diameter: 2" Screen Length: 10'

Casing Type: PVC Volume in 1 Well Casing (liters): 2.28 Estimated Purge Volume (liters): 16

Sample ID: MW-10 Sample Time: 1440 QA/QC: —

Sample Parameters: VOCs + SVOCs (site specific)
Cyanide
Sulfate, Nitrate
Diss. Iron (field filtered)

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1355	9.13	15.0	0.218	1.74	127.29	+12.9	300	4.83
1400	9.24	15.0	0.206	1.03	14.83	-6.6	300	4.83
1405	9.28	15.0	0.204	0.87	14.18	-19.9	300	4.83
1410	9.29	15.1	0.206	0.80	18.93	-28.3	300	4.83
1415	9.27	15.1	0.214	0.77	17.34	-34.4	300	4.83
1420	9.27	15.0	0.220	0.75	16.69	-37.5	300	4.83
1425	9.26	15.0	0.222	0.75	13.97	-40.0	300	4.85
1430	9.24	15.0	0.225	0.74	12.90	-41.8	300	4.85
1435	9.23	14.9	0.224	0.73	11.09	-44.0	300	4.85
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: New well - used LDPE Tubing Then Removed tubing.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 8/16/22 Sampling Personnel: LCM Company: AECOM

Purging/Sampling Device: PSM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.24 Depth to Well Bottom: 18.74 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: 08:50 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
08:20	6.92	16.1	1.548	3.35	160	-53.1	200	7.42
08:25	6.79	14.9	1.556	1.41	68	-52.9	"	7.60
08:30	6.81	14.9	1.513	1.32	74.0	-53.7	"	7.75
08:35	6.83	15.0	1.360	1.29	26.0	-55.8	"	7.82
08:40	6.83	15.1	1.337	1.27	15.9	-57.1	"	7.89
08:45	6.82	14.8	1.382	1.26	13.5	-58.8	"	7.95
08:50	6.83	15.0	1.352	1.26	11.0	-60.6	"	7.97
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cy} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-2

Date: 8/16/22 Sampling Personnel: KM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.95 Depth to Well Bottom: 18.30' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-2 Sample Time: 10:00 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
09:25	7.25	16.0	1.069	4.77	390.0	-52.2	200	8.05
09:30	6.90	14.5	0.946	2.40	698	-52.2	"	8.09
09:35	6.50	14.6	0.854	3.77	412.7	-22.8	"	8.12
09:40	6.76	14.9	0.834	4.22	35.0	-2.6	"	8.12
09:45	6.75	15.1	0.832	4.29	17.8	5.9	"	"
09:50	6.74	15.2	0.832	4.31	7.37	13.2	"	"
09:55	6.74	~~15.~~ 15.3	0.834	4.36	4.33	16.7	"	"
10:00	6.75	15.4	0.839	2.05	2.41	18.4	"	"
~~10:05~~				4.26				
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-3

Date: 8/15/12 Sampling Personnel: KSA / CN Company: AECOM

Purging/Sampling Device: Pump Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.71 Depth to Well Bottom: 19.41 Well Diameter: Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-3 Sample Time: 12:15 QA/QC: MS/MSD

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:40	7.16	15.2	3.862	2.36	597	-218.8	200	—
11:45	7.03	14.5	3.861	2.18	121	-214.4	"	8.40
11:50	7.06	14.6	3.847	2.13	52.1	-215.8	"	8.48
11:55	7.06	14.8	3.820	2.13	24.1	-216.7	"	8.58
12:00	7.06	14.8	3.785	1.88	21.1	-217.5	"	8.71
12:05	7.07	15.0	3.791	1.87	18.1	-216.6	"	8.79
12:10	7.07	15.0	3.787	1.85	19.2	-212.8		8.85
12:15	7.00	15.2	3.782	1.81	18.2	-215.5	"	8.98
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

107.9

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 8/15 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Peri-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: 2ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 8.51 Depth to Well Bottom: 19.32 Well Diameter: 2in Screen Length: ____

Casing Type: PVC Volume in 1 Well Casing (~~liters~~) Gallons: 1.76 Estimated Purge Volume (~~liters~~) Gallons: 2

Sample ID: MW-4 Sample Time: 1515 QA/QC: —

Sample Parameters: ____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1445								
1450	10.12	16.7	0.320	2.40	48.22	-34.9	250	8.84
1455	10.14	16.1	0.316	0.66	21.35	-74.4	200	9.14
1500	10.17	16.5	0.316	0.57	14.72	-96.1	200	9.60
1505	9.99	16.6	0.322	0.54	9.09	-107.1	200	9.93
1510	9.99	16.5	0.320	0.52	1.03	-108.5	200	10.26
1515	9.97	16.7	0.324	0.51	9.49	-108.12	200	10.58
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Started purge at 1498

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-5

Date: 8/15/12 Sampling Personnel: ICSM/CH Company: AECOM

Purging/ Sampling Device: Pump Tubing Type: HDPE Pump/Tubing Inlet Location: MID SCRN

Measuring Point: Top of Casing Initial Depth to Water: 14.58 Depth to Well Bottom: 17.86 Well Diameter: 2" Screen Length: —

Casing Type: PVC Volume in 1 Well Casing (liters): — Estimated Purge Volume (liters): —

Sample ID: MW-5 Sample Time: 10:55 QA/QC: —

Sample Parameters:

Started @ 10:15

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:16	7.11	18.2	1.144	3.12	194	-22.7	250	✓
10:35	7.14	20.7	1.231	1.032	625	-92.3	"	✓
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Dry @ 10:17 Grab GW Readings & Purge Data

Dry @ 10:37 " " & Sample

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-6

Date: 8/15 Sampling Personnel: CF Company: AECOM

Purging/Sampling Device: Peri.-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: 2 ft off bottom

Measuring Point: Top of Casing Initial Depth to Water: 6.28 Depth to Well Bottom: 19.10 Well Diameter: 2in Screen Length: ____

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ Gallons): 2.10 Estimated Purge Volume (~~liters~~ Gallons): 2.5

Sample ID: MW-6 Sample Time: 1245 QA/QC: DUP

Sample Parameters: ____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1215	7.36	18.1	1.042	0.81	322.24	22.6	200	6.62
1220	7.21	17.1	1.032	0.65	63.08	-8.0	250	6.81
1225	7.16	17.3	1.023	0.60	229.08	-26.8	250	7.02
1230	7.15	17.6	1.020	0.58	54.76	-34.4	250	7.21
1235	7.13	17.7	1.008	0.56	35.63	-36.9	250	7.33
1240	7.09	17.7	0.996	0.66	49.12	-35.7	250	7.48
1245	7.08	17.7	0.997	0.56	53.22	-32.0	250	7.62
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Started Purge at 1210

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-7

Date: 8/16 Sampling Personnel: CH Company: AECOM

Purging/ Sampling Device: Peri - Pump Tubing Type: HDPE Pump/Tubing Inlet Location: 2ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 8.43 Depth to Well Bottom: 18.78 Well Diameter: 2.1 Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ Gallons): 1.69 Estimated Purge Volume (~~liters~~ Gallons): 2.5

Sample ID: MW-7 Sample Time: 0910 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
~~0625~~								
0630	6.86	14.4	1.359	1.28	40.58	-14.1	225	8.64
0635	6.95	14.4	1.367	0.85	30.02	-70.5	225	8.66
0640	6.99	14.4	1.381	0.78	57.84	-87.1	225	8.67
0645	6.99	14.4	1.382	0.72	102.14	-93.3	225	8.74
0650	7.00	14.4	1.389	0.70	144.04	-97.2	225	8.76
0655	7.00	14.5	1.400	0.68	144.78	-99.8	225	8.74
0900	7.00	14.4	1.403	0.65	143.02	-102.3	225	8.74
0905	7.00	14.4	1.398	0.65	143.71	-102.9	225	8.74
0910	7.00	14.4	1.400	0.65	144.66	-103.1	225	8.74
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Started Purge at 0816

Iron bacteria skipped flow through cartridge 0825

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-8

Date: 8/18 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Per: -Pump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft off bottom

Measuring Point: Top of Casing Initial Depth to Water: 5.62 Depth to Well Bottom: 17.54 Well Diameter: 2.0 Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ Gallons): 1.95 Estimated Purge Volume (~~liters~~ Gallons): 2.5

Sample ID: MW-8 Sample Time: 1130 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1025	7.01	16.8	5.940	2.48	251.47	-72.0	300	5.84
1630	6.95	16.1	5.942	0.90	6.47	-111.8	200	5.92
1035	6.97	16.7	5.909	0.69	4.20	-135.8	200	6.01
1040	6.99	17.0	5.742	0.62	9.98	-146.3	200	6.10
1045	7.08	17.2	4.444	0.58	14.32	-155.8	200	6.18
1050	7.13	17.2	3.297	0.58	66.27	-154.7	200	6.27
1055	7.13	17.3	2.798	0.58	118.35	-154.3	200	6.31
1100	7.13	17.3	2.719	0.58	149.55	-157.9	200	6.38
1105	7.11	17.5	2.812	0.57	132.93	-156.5	200	6.40
1110	7.10	17.5	2.893	0.57	106.98	-156.3	200	6.46
1115	7.10	17.4	3.017	0.56	81.42	-156.8	200	6.52
1120	7.09	17.4	3.139	0.55	63.03	-157.4	200	6.56
1125	7.08	17.5	3.149	0.54	62.99	-158.3	200	6.60
1130	7.08	17.5	3.110	0.53	62.76	-159.0	200	6.66
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cy} = \pi r^2 h$)

Remarks:
Started Purge at 1023

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-9

Date: 8/15/22 Sampling Personnel: ICM/HC Company: AECOM

Purging/ Sampling Device: PERI Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: ~~8.42~~ 7.30 Depth to Well Bottom: 18.54' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 15:52 QA/QC: —

Sample Parameters:

SEAWARD PUMP ON @ 14:45

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:47	7.27	16.6	2.497	2.07	757	-132.3	200	8.05
14:52	7.26	15.2	2.640	1.37	485	-158.3	"	9.05
14:57	7.19	15.2	2.290	1.32	192.2	-142.7	"	9.82
15:02	7.08	15.1	2.090	1.28	86.7	-131	"	10.60
15:07	7.09	14.9	2.150	1.28	78.0	-133.7	"	11.10
15:12	7.15	14.9	2.241	1.26	133.0	-142.6	"	11.60
15:17	7.18	14.9	2.512	1.26	172.0	-147.0	"	11.75
15:22	7.23	15.0	2.378	1.24	70.2	-155.4		11.95
15:27	7.23	15.1	2.343	1.25	109.1	-156.0	"	11.95
15:32	7.27	14.8	2.455	1.25	129.4	-162.0	"	"
15:37	7.30	15.0	2.505	1.24	137.0	-167.4	"	"
15:42	7.33	15.6	2.518	1.21	135.0	-172.3	"	"
15:47	7.34	15.7	2.505	1.22	140	-175.7	"	"
15:52	7.37	15.4	2.610	1.20	136	-180.3	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

320
179

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-10

Date: 8/15/12 Sampling Personnel: JLM/HC Company: AECOM

Purging/ Sampling Device: PGm Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 5.20 Depth to Well Bottom: 18.80' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-10 Sample Time: 14:00 QA/QC: —

Sample Parameters:

~~Purge~~ Pump B 1710

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:30	8.95	15.3	0.326	2.36	95.0	-154	250	5.25
13:35	8.89	14.4	0.318	1.42	75.2	-148.2	"	"
13:40	8.94	14.5	0.315	1.76	39.6	-156.1	"	"
13:45	8.95	14.3	0.314	1.35	22.2	-162.4	"	"
13:50	8.94	14.3	0.315	1.33	14.5	-165.8	"	"
13:55	8.92	14.3	0.316	1.31	9.28	-168.3	"	"
14:00	8.89	14.4	0.319	1.29	5.61	-167.0	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{CM} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-11

Date: 8/15 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Peri-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 5.32 Depth to Well Bottom: 17.08 Well Diameter: 2in Screen Length: _____

Casing Type: PVC Volume in 1 Well Casing (liters): 2.25 Gallons Estimated Purge Volume (liters): 2.5 Gallons

Sample ID: MW-11 Sample Time: 1410 QA/QC: —

Sample Parameters: _____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1340	9.04	14.4	0.224	0.97	38.56	36.5	250	5.35
1345	9.06	14.4	0.216	0.72	25.18	15.1	250	5.38
1350	9.06	14.7	0.215	0.66	26.44	-2.5	250	5.36
1355	9.06	14.6	0.214	0.63	21.00	-18.1	250	5.36
1400	9.04	14.7	0.213	0.61	18.15	-28.6	250	5.36
1405	8.99	14.5	0.213	0.60	20.31	-36.5	250	5.36
1410	8.96	14.6	0.213	0.59	18.57	-35.2	250	5.36
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Started purge at 1335

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-12

Date: 8/16 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Peri-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft off bottom

Measuring Point: Top of Casing Initial Depth to Water: 8.08 Depth to Well Bottom: 16.18 Well Diameter: 2in Screen Length: ____

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ Gallons): 1.33 Estimated Purge Volume (~~liters~~ Gallons): 2.5

Sample ID: MW-12 Sample Time: 1010 QA/QC: —

Sample Parameters: ____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0945	6.95	14.7	1.116	0.80	763.45	-52.2	225	8.10
0950	6.95	14.9	1.182	0.69	122.72	-71.8	225	8.11
0955	6.94	15.0	1.163	0.64	112.38	-79.3	225	8.12
1000	6.94	15.0	1.197	0.62	95.39	-83.1	225	8.12
1005	6.94	15.1	1.208	0.62	~~93.91~~	-85.2	225	8.12
1010	6.94	15.2	1.204	0.60	95.96	-87.0	225	8.12
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Started Purge at 0942

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 10/3/12 Sampling Personnel: CGM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 6.90 Depth to Well Bottom: 18.74' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: ~~13:40~~ 13:40 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:00	7.02	16.1	1.242	2.85	190	104.4	250	7.00
13 05	6.86	16.4	1.018	2.37	152	104.4	"	7.10
13 10	6.85	16.3	1.063	1.93	110	106.7	"	7.10
13 15	6.87	16.2	1.205	1.41	91	107.8	"	"
13 20	6.88	16.2	1.174	1.24	98	108.2	"	"
13 25	6.88	16.2	1.197	1.12	94	108.5	"	"
13 30	6.89	16.1	1.248	0.94	74.0	109.3	"	"
13 35	6.90	16.1	1.252	0.89	45.0	109.0	"	"
13 40	6.90	16.2	1.260	0.89	40.0	108.5	"	"
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-2

Date: 10/3/22 Sampling Personnel: _____ Company: AECOM

Purging/ Sampling Device: PBLX PBM Tubing Type: HDPE Pump/Tubing Inlet Location: _____

Measuring Point: Top of Casing Initial Depth to Water: 7.45 Depth to Well Bottom: 18.30 Well Diameter: 2" Screen Length: _____

Casing Type: PVC Volume in 1 Well Casing (liters): _____ Estimated Purge Volume (liters): _____

Sample ID: MW-2 Sample Time: 15:39 QA/QC: —

Sample Parameters: _____

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:09	7.18	15.9	0.877	2.30	188.0	78.4	250	7.59
15:14	6.95	16.1	0.843	2.20	40.74	85.9	"	7.59
15:19	6.93	16.3	0.841	2.30	10.19	89.7	"	"
15:24	6.92	16.3	0.840	2.33	6.78	92.3	"	"
15:29	6.92	16.5	0.844	2.12	4.15	94.4	"	"
15:34	6.92	16.4	0.845	1.99	3.15	96.5	"	"
15:39	6.92	16.3	0.840	1.93	2.77	98.0	"	"
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-3

Date: 11/3/12 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: Peristaltic Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.75 Depth to Well Bottom: 19.40 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-3 Sample Time: 09:34 QA/QC: MS/MSD

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
08:54	6.46	13.9	3.477	2.30	56.0	312	200	7.85
0859	6.80	14.5	3.663	0.87	28.25	299.2	"	8.15
0904	6.97	14.9	3.648	0.73	29.45	251.0	"	8.40
0909	6.99	15.0	3.636	0.70	31.30	217.0	"	8.50
0914	7.03	15.2	3.607	0.60	32.66	160.6	"	8.66
0919	7.03	15.3	3.548	0.64	19.60	126.5	"	8.20
0924	7.06	15.4	3.517	0.62	13.7	96.2	"	8.70
0929	7.08	15.4	3.500	0.61	8.6	93.0	"	08:70
09:34	7.10	15.5	3.490	0.60	6.6	89.1	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 10/4/22 Sampling Personnel: JGM Company: AECOM

Purging/Sampling Device: Pump Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 9.32 Depth to Well Bottom: 19.31 Well Diameter: 2 in Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW 4 Sample Time: 09:55 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
09:28	2.90	13.8	1.366	5.49	103.0	109.1	225	9.62
09:30	2.89	14.2	1.382	3.38	95.4	111.3	"	9.91
09:35	2.89	14.4	1.382	3.17	88.0	111.4	"	10.25
09:40	2.88	14.4	1.397	2.96	74.1	112.2	"	10.13 ~
09:45	2.86	14.6	1.418	2.22	62.0	112.3	"	10.6 ~
09:50	2.86	14.7	1.418	2.13	66.0	112.0	"	10.7 ~
09:55	2.86	14.8	1.397	2.08	61.0	110.4	"	10.89
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-7

Date: 10/2/12 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: Peri Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.73 Depth to Well Bottom: 18.77 Well Diameter: 2 in Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-7 Sample Time: 08:23 QA/QC:

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
07:43	7.04	13.8	1.30	2.34	88.72	234.2	250	7.90
07:48	6.92	14.5	1.32 4	1.80	43.22	231.9	"	7.92
07:53	6.96	14.7	1.307	0.83	28.37	208.8	"	"
07:58	6.99	14.8	1.283	0.77	19.50	184.2	"	"
08:03	7.00	14.8	1.356	0.73	12.06	168.3	"	"
08:08	7.01	14.8	1.361	0.79	8.60	151.0	"	"
08:13	7.02	14.7	1.370	0.68	23.0	137	"	"
08:18	7.02	14.8	1.380	0.66	24.0	92.3	"	"
08:23	7.03	14.7	1.390	0.65	21.00	82.0	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

12.5 10/11/12 08:50

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: mw-9

Date: 10/4/12 Sampling Personnel: KJW Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 9.31 Depth to Well Bottom: 18.54 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 10:48 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:18	6.89	14.5	1.509	6.78	460	118.9	250	9.75
10 23	7.61	14.4	1.369	2.22	285	120.4	"	10.15
10 28	7.63	14.4	2.065	2.90	208.6	118.6	"	10.40
10 33	7.64	14.4	2.063	2.85	30.00	117.6	"	~~10.50~~ 10.50
10 38	7.64	14.3	2.122	2.97	25.00	117.6	"	10.60
10 43	7.63	14.3	2.139	2.81	21.00	116.0	"	10.70
10 48	7.63	14.3	2.137	2.80	24.2	116.9	"	10.80
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-10

Date: 10/3/12 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 5.12 Depth to Well Bottom: 18.80' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: ~~MW-10~~ MW-10 Sample Time: 11:02 QA/QC: DUP

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:32	8.64	14.4	0.377	2.67	22.81	25.8	250	5.12
10:37	8.61	14.6	0.276	0.90	14.15	41.0	"	"
10:42	8.57	14.7	0.271	0.73	8.85	47.3	"	"
10:47	8.56	14.8	0.270	0.71	8.37	48.5	"	"
10:52	8.56	14.9	0.270	0.68	8.56	49.1	"	"
10:57	8.56	14.8	0.270	0.66	8.30	49.6	"	"
11:02	8.56	14.9	0.270	0.66	7.79	49.7	"	"
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

4.9 cut

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-11

Date: 10/3/22 Sampling Personnel: JGM Company: AECOM

Purging/Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 5.22 Depth to Well Bottom: 19.08' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW11 Sample Time: 12:10 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:40	8.67	15.1	0.237	3.16	19.03	65.8	250	5.22
11:45	8.84	14.4	0.227	0.83	8.60	62.1	"	"
11:50	8.88	14.5	0.221	0.72	6.10	58.4	"	"
11:55	8.89	14.5	0.217	0.67	5.03	54.8	"	"
12:00	8.90	14.5	0.217	0.64	5.16	49.7	"	"
12:05	8.89	14.5	0.218	0.61	4.90	42.4	"	"
12:10	8.89	14.5	0.218	0.61	4.67	40.5	"	"
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-12

Date: 10/3/22 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.39 Depth to Well Bottom: 16.18' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-12 Sample Time: 14:50 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:20	7.01	15.1	1.243	1.61	209	136.3	250	7.45
14 25	6.95	15.1	1.245	0.81	179	121.4	"	"
14 30	6.96	15.2	1.289	0.69	57.0	97.6	"	"
14 35	6.97	15.3	1.334	0.64	22.00	71.8	"	"
14 40	6.97	15.2	1.360	0.62	13.72	41.6	"	"
14 45	6.97	15.2	1.371	0.61	14.5	35.0	"	"
14:50	6.98	15.2	1.394	0.59	13.24	33.2	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Attachment 2

AECOM

DCS

Calculation Cover Page Template

Q2[DCS]-351-FM5

Project	Job No.
Auburn Green Street PDI	60652550
Client	**Department/Discipline**
NYSEG	Environment
Software Name	
AQTESOLV for Windows Version 4.50	

Calculation Rev. No.	Originator Self Check (name and signature)	Reviewer/Checker (name and signature)	Independent Peer Reviewer (if used/required) (name & signature)	Approver (name & signature)
Initial	Robert Murphy	Kevin Connare		Jim Kaczor
	Robert J Murphy			James L. Kaczor

Add rows as required

Calculation Objective:
Determine the hydraulic conductivity of five wells using data obtained from slug tests.

Calculation Methodology:
Data was normalized and entered into the AQTESOLV Version 4.50 program.

References / Inputs/ Field Data:
Attached

Assumptions: (Include comments on need to revise calculations after more data is collected/confirmed and/or after assumptions have been verified.)

Conclusions including confirmations to be obtained:

This calculation is complete and ready for Discipline Review:

Robert J. Murphy, PG	Robert J Murphy	10/7/22
Originator Name	**Signature**	**Date**

SECTION 1:

SUMMARY OF RESULTS, AQTESOLV INPUT DATA, AND FIELD DATA

Summary of Results
Auburn Green Street Site
Slug Tests

Well ID	Hydraulic Conductivity [cm/sec]							
	FH1	RH1	FH2	RH2	FH3	RH3	N(**)	Mean (***)
MW-01	6.38E-04	1.05E-02	5.68E-04	5.42E-03	-	-	4	2.13E-03
MW-02	2.95E-03	8.78E-03	2.67E-03	8.03E-03	-	-	4	4.85E-03
MW-04	1.58E-05	7.01E-04	-	-	-	-	2	1.05E-04
MW-07	1.42E-03	9.26E-03	2.13E-03	3.42E-03	-	-	4	3.13E-03
MW-10	3.95E-01	1.36E-01	1.79E-01	1.38E-01	1.53E-01	1.28E-01	6	1.72E-01

(**) - number of valid tests
(***) - geometric mean

FH - Falling Head test
RH - Rising Head test

Note:
-For all graphs, normalized head is defined as H(t)/Ho, where H(t) is the displacement measured at time t and Ho is the initial displacement at time t=0.

-While the geometric mean for both the falling and rising head tests are given, it is understood that the rising head tests more accurately describe the overall hydraulic characteristics of the aquifer.
(See attached reference, *The Bouwer and Rice Slug Test - An Update*)

Auburn Green Street Site - Slug Tests
Well Construction Details

Well ID	Formation	Screen Length		Radii			Aquifer Thickness	Depth from Aquifer Top	
		Total	Submerged	Screen (*)	Casing			to Top of Screen	to Bottom of Screen
					Actual	Equivalent			
		L_e	$L_{e\text{-}sub}$	r_w	r_c	$r_{c\text{-}eq}$ (**)	H	d	L_w
		[ft]	[ft]	[in]	[in]	[in]	[ft]	[ft]	[ft]
MW-01	Overburden	15.0	12.65	4.13	1.00	2.41	13.75	-2.35	12.65
MW-02	Overburden	10.0	9.05	4.13	1.00	2.41	11.55	-0.95	9.05
MW-04	Overburden	15.0	10.63	4.13	1.00	2.41	11.63	-4.37	10.63
MW-07	Overburden	10.0	8.39	4.13	1.00	2.41	10.39	-1.61	8.39
MW-10	Overburden	10.0	10.00	4.13	1.00	1.00	15.86	3.86	13.86

Notes:
(*) - sand pack (overburden wells)
(**) - $r_{c\text{-}eq} = [(1 - n)\, r_c^2 + n\, r_w^2]^{1/2}$ if $L_{e\text{-}sub} < L_e$
$r_{c\text{-}eq} = r_c$ if $L_{e\text{-}sub} = L_e$
NM - not measured
N/A - not applicable

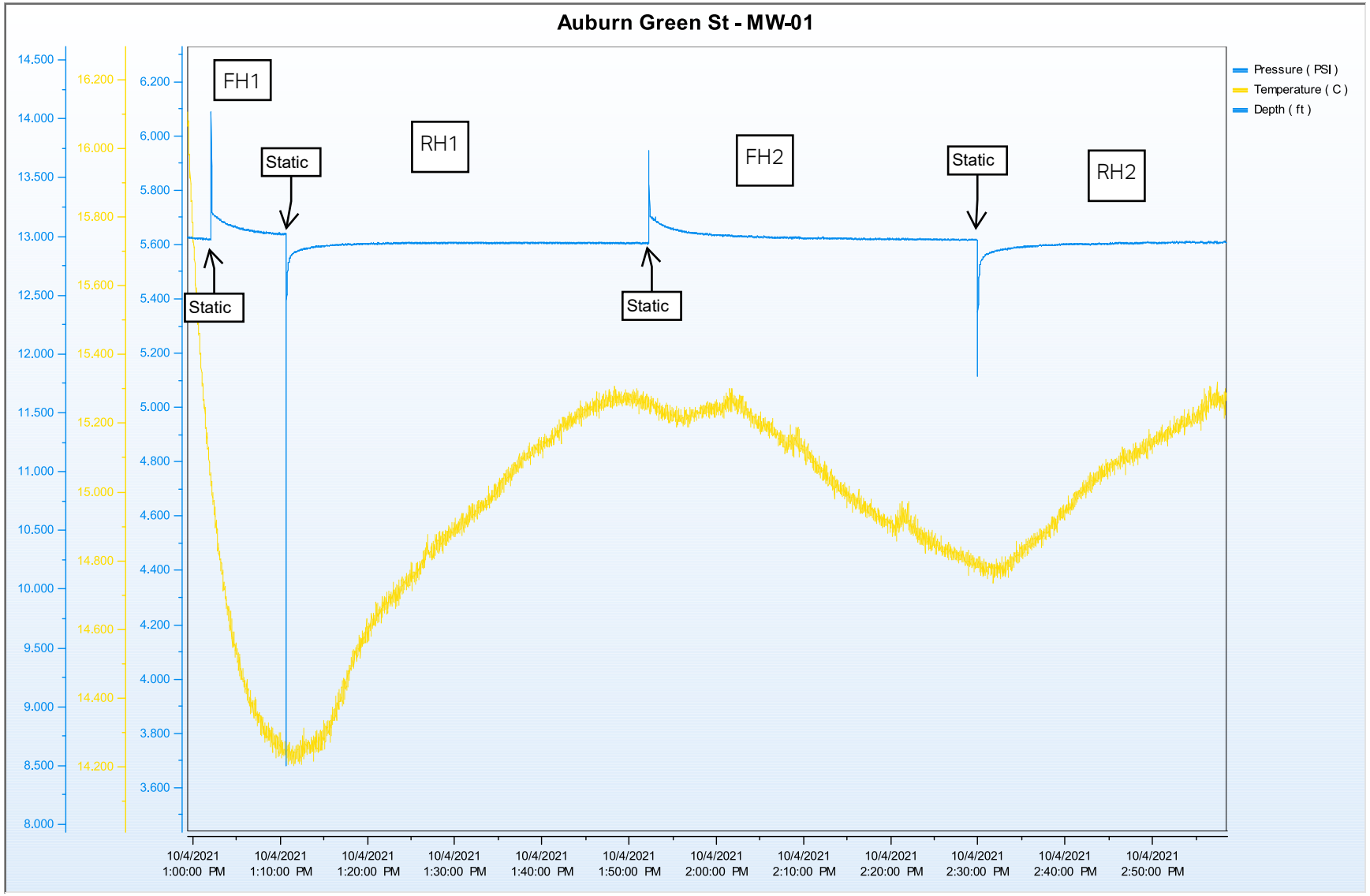
Assumptions:
(1) AQTESOLV ver. 4.50 was used for slug test analyses.
(2) Sandpack porosity of 0.32 was used for wells that were not fully submerged during testing.
(3) Bouwer and Rice (1976) solution was used for unconfined aquifers.
(4) Formulas and parameters used for this slug test analysis can be found in:
Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Ground Water, vol. 27, no. 3, pp. 304-309.
(5) Used depth to water to determine aquifer thickness.

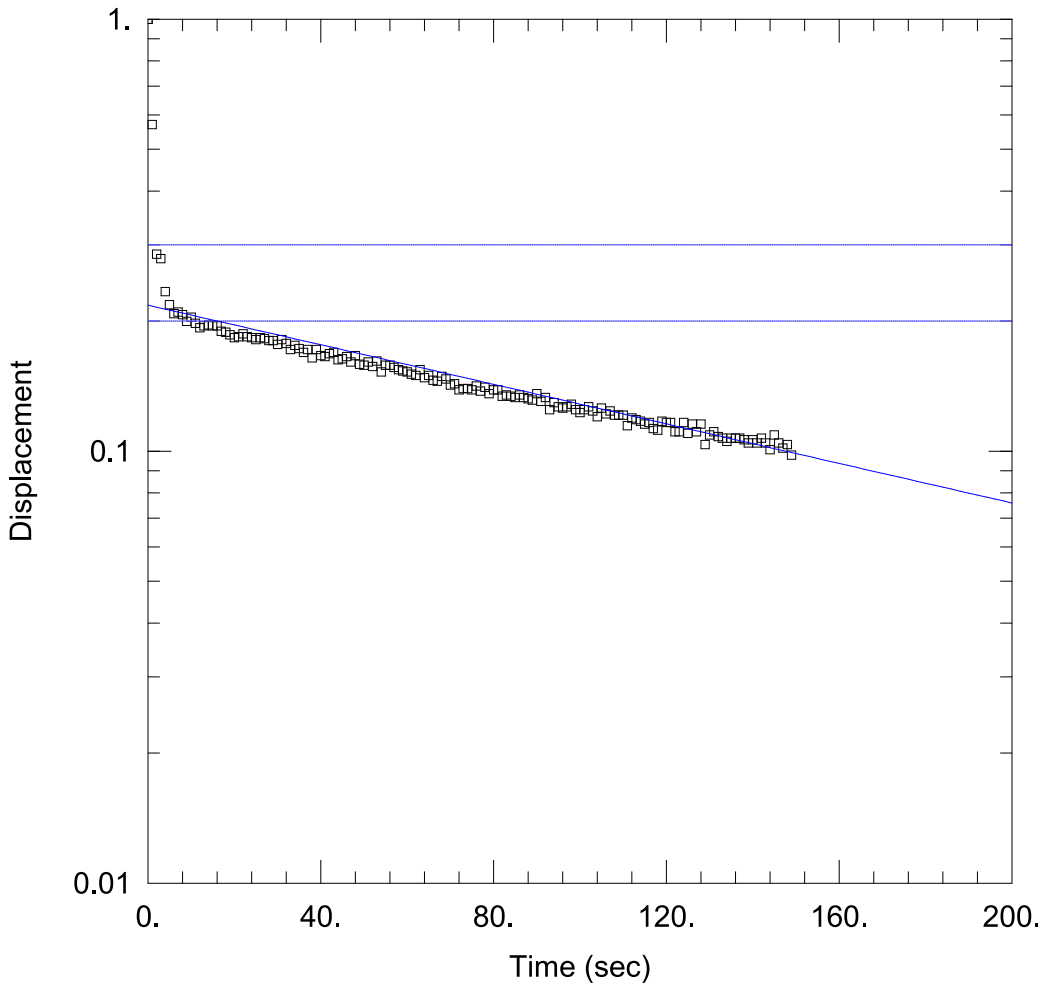
Auburn Green Street Site - Slug Tests
Useability of Data

Well ID	Remarks					
	FH1	RH1	FH2	RH2	FH3	RH3
MW-01	OK	OK	OK	OK	-	-
MW-02	OK	OK	OK	OK	-	-
MW-04	OK	OK	-	-	-	-
MW-07	OK	OK	OK	OK	-	-
MW-10	OK	OK	OK	OK	OK	OK

SECTION 2:

SLUG TEST DATA AND AQTESOLV CALCULATION REPORTS


Auburn Green St - MW-01
FH1
Static
RH1
FH2
Static
RH2
Static
Static
Pressure (PSI)
Temperature (C)
Depth (ft)
14.500
14.000
13.500
13.000
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
8.500
8.000
16.200
16.000
15.800
15.600
15.400
15.200
15.000
14.800
14.600
14.400
14.200
6.200
6.000
5.800
5.600
5.400
5.200
5.000
4.800
4.600
4.400
4.200
4.000
3.800
3.600
10/4/2021 1:00:00 PM
10/4/2021 1:10:00 PM
10/4/2021 1:20:00 PM
10/4/2021 1:30:00 PM
10/4/2021 1:40:00 PM
10/4/2021 1:50:00 PM
10/4/2021 2:00:00 PM
10/4/2021 2:10:00 PM
10/4/2021 2:20:00 PM
10/4/2021 2:30:00 PM
10/4/2021 2:40:00 PM
10/4/2021 2:50:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-01FH1.aqt
Date: 09/07/22 Time: 11:21:51

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

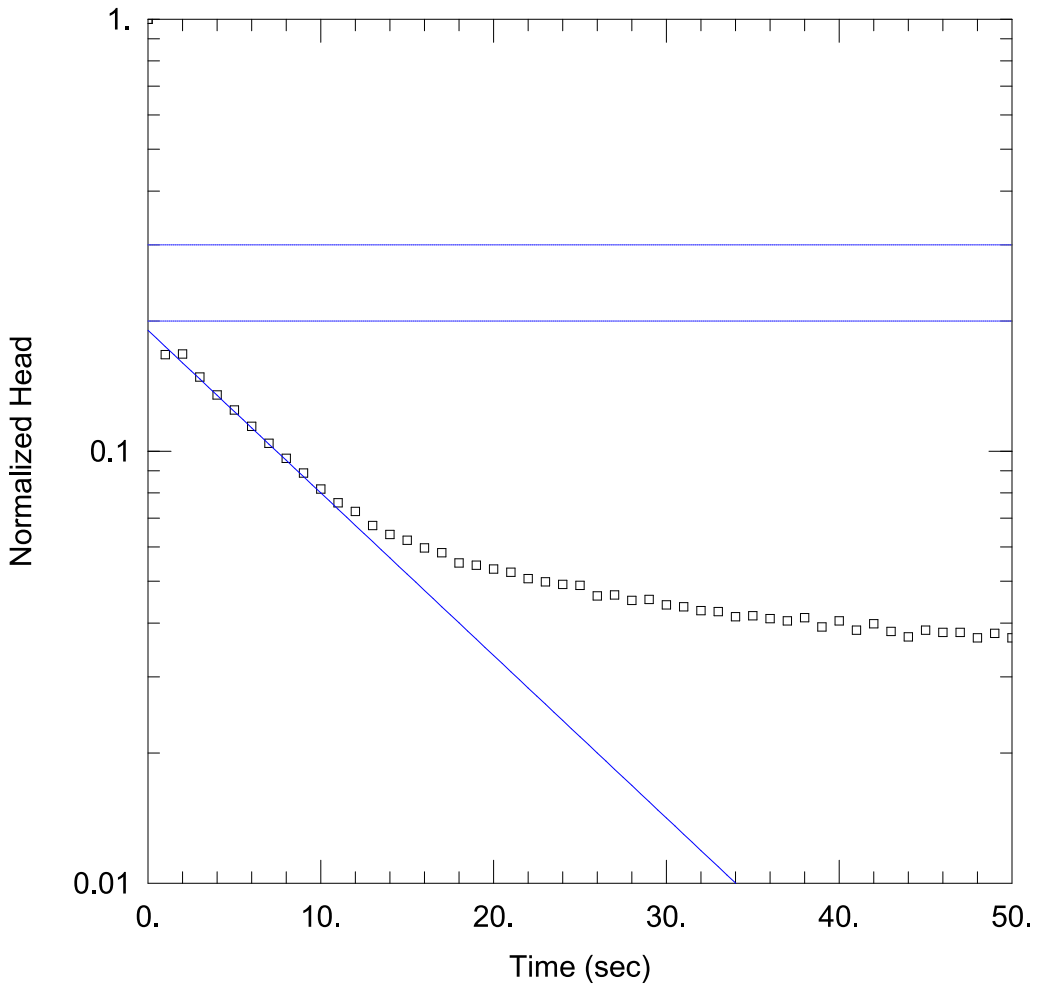
WELL DATA (MW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0006383 cm/sec y0 = 0.2177 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01RH1.aqt
Date: 09/07/22 Time: 11:42:54

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

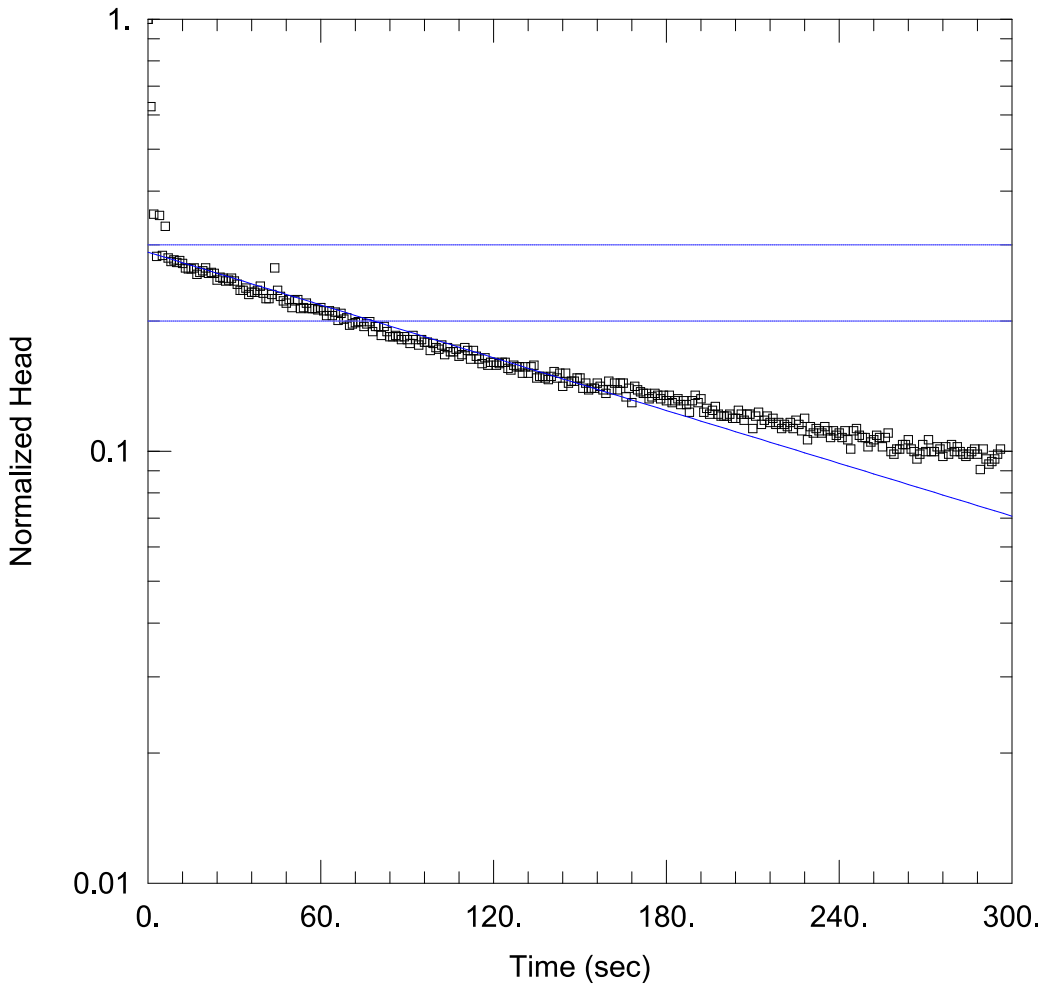
WELL DATA (MW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01049 cm/sec y0 = 0.1904 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01FH2.aqt
Date: 09/07/22 Time: 11:51:46

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

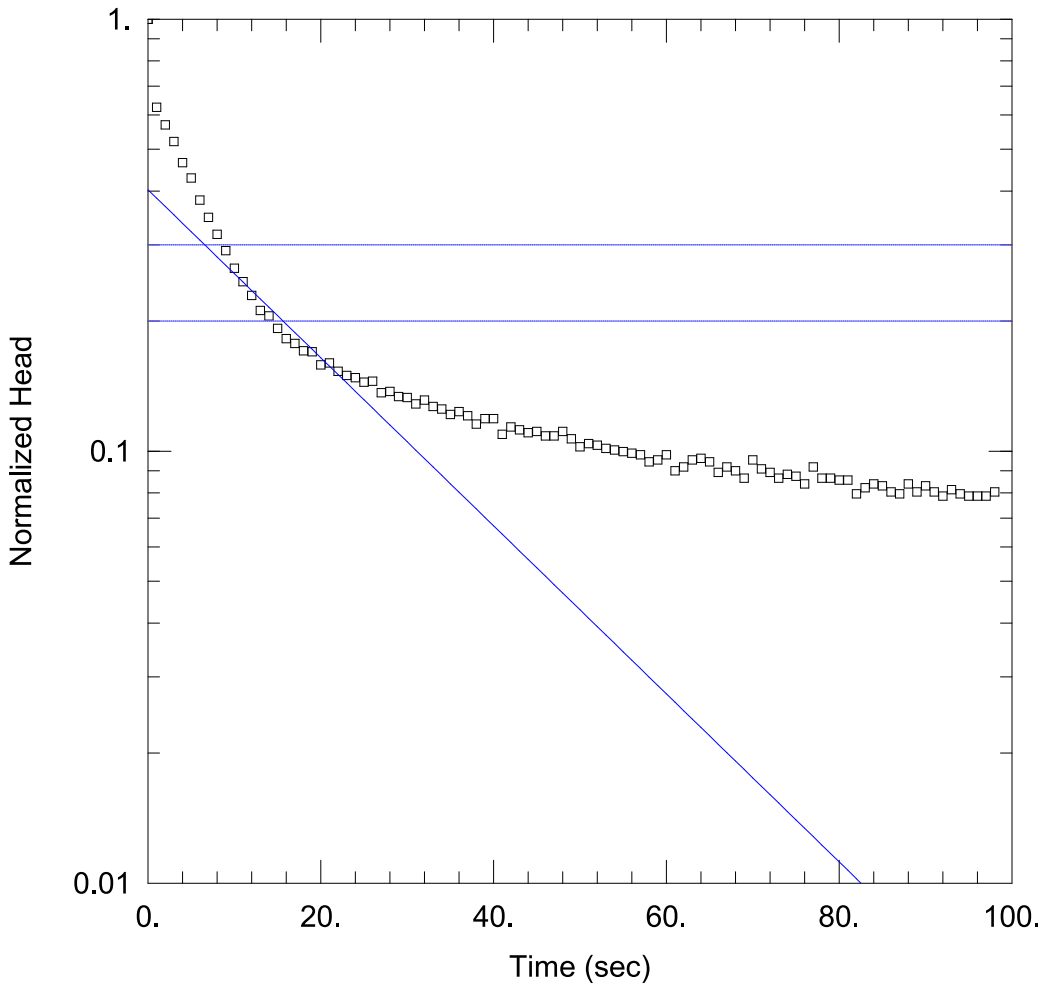
WELL DATA (MW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005679 cm/sec y0 = 0.2888 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01RH2.aqt
Date: 09/07/22 Time: 12:09:12

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

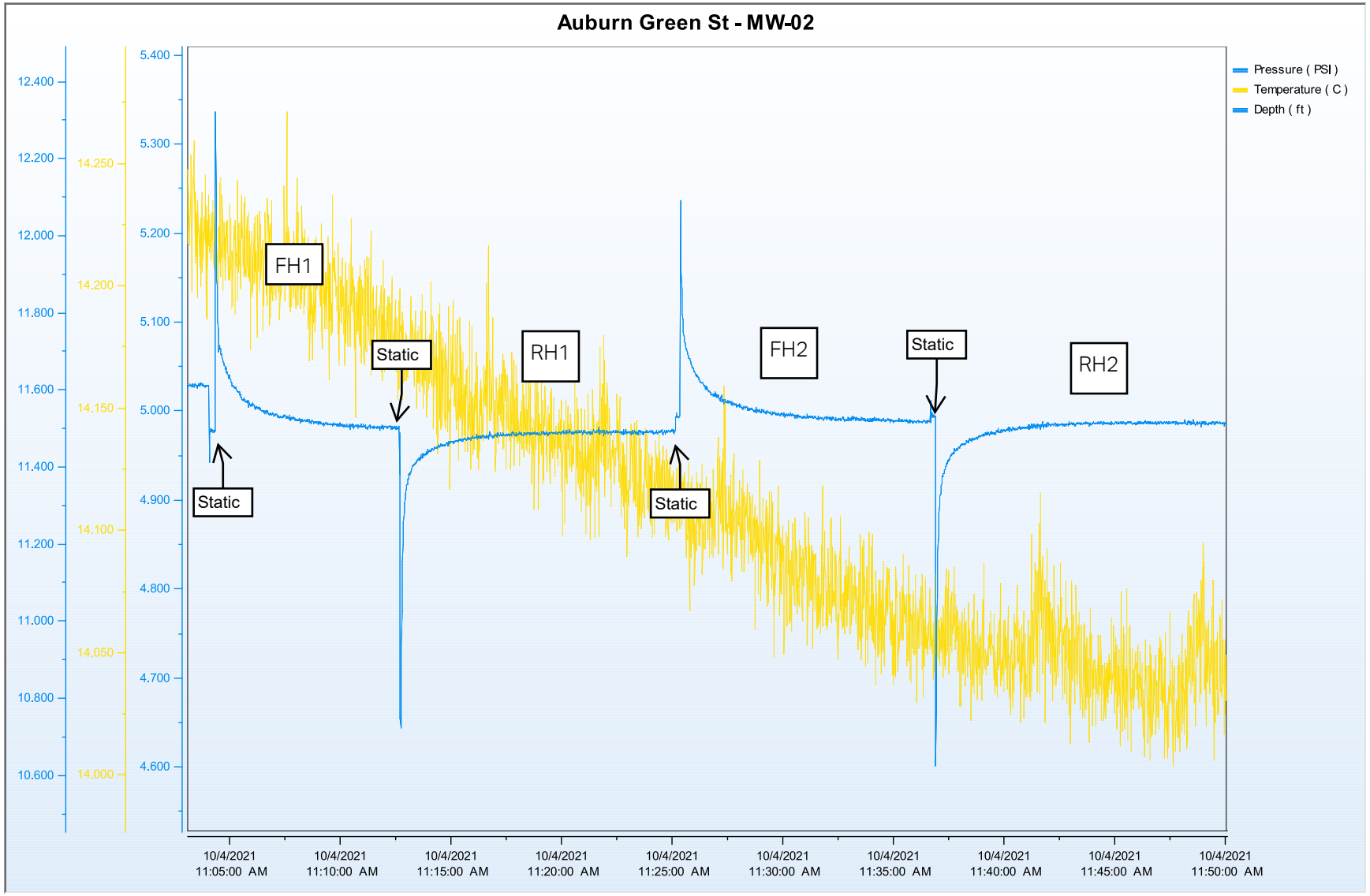
WELL DATA (MW-01)

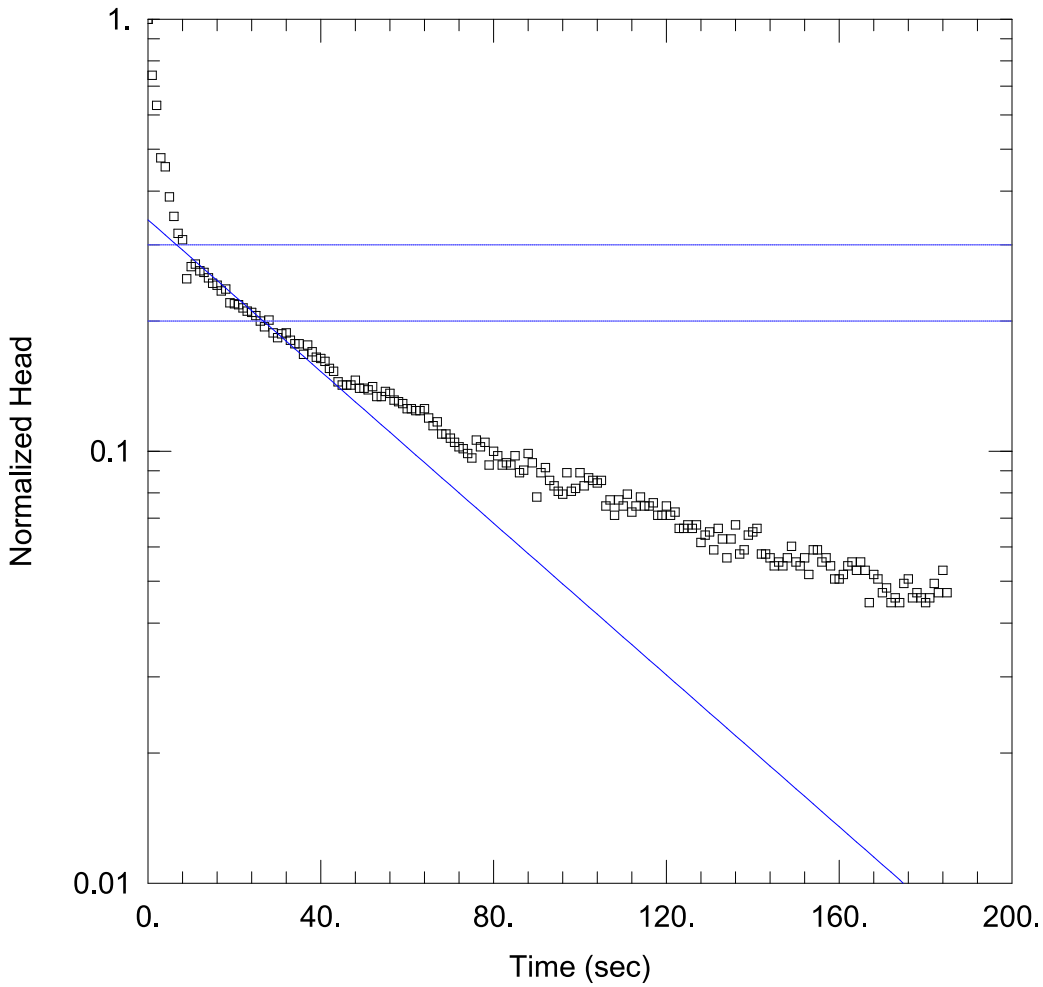
Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005423 cm/sec y0 = 0.4029 ft


Auburn Green St - MW-02
Pressure (PSI)
Temperature (C)
Depth (ft)
FH1
Static
RH1
Static
FH2
Static
RH2
12.400
12.200
12.000
11.800
11.600
11.400
11.200
11.000
10.800
10.600
14.250
14.200
14.150
14.100
14.050
14.000
5.400
5.300
5.200
5.100
5.000
4.900
4.800
4.700
4.600
10/4/2021 11:05:00 AM
10/4/2021 11:10:00 AM
10/4/2021 11:15:00 AM
10/4/2021 11:20:00 AM
10/4/2021 11:25:00 AM
10/4/2021 11:30:00 AM
10/4/2021 11:35:00 AM
10/4/2021 11:40:00 AM
10/4/2021 11:45:00 AM
10/4/2021 11:50:00 AM



WELL TEST ANALYSIS

Data Set: L:\...\MW-02FH1.aqt
Date: 09/07/22 Time: 14:16:48

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

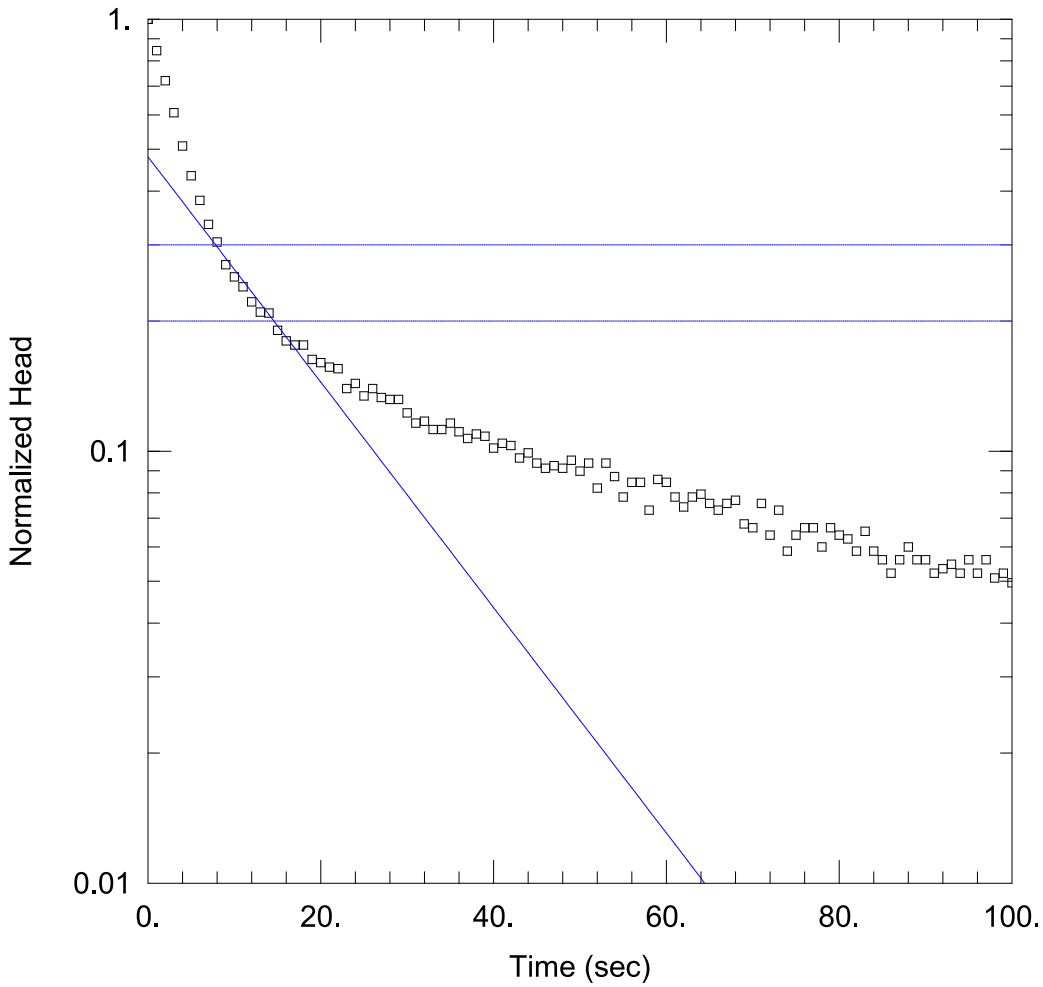
WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002953 cm/sec y0 = 0.3432 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02RH1.aqt
Date: 09/07/22 Time: 17:16:56

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

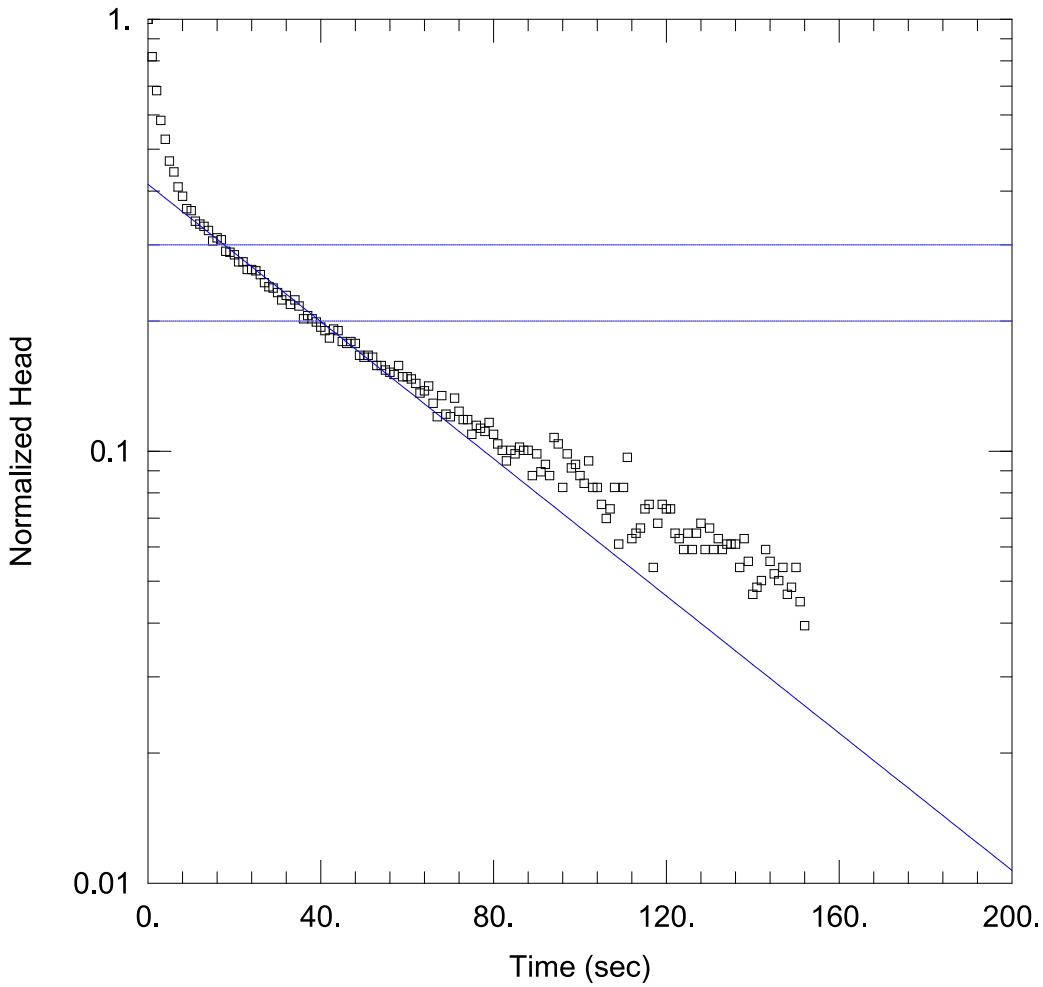
WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.008775 cm/sec y0 = 0.4802 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02FH2.aqt
Date: 09/07/22 Time: 17:23:18

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

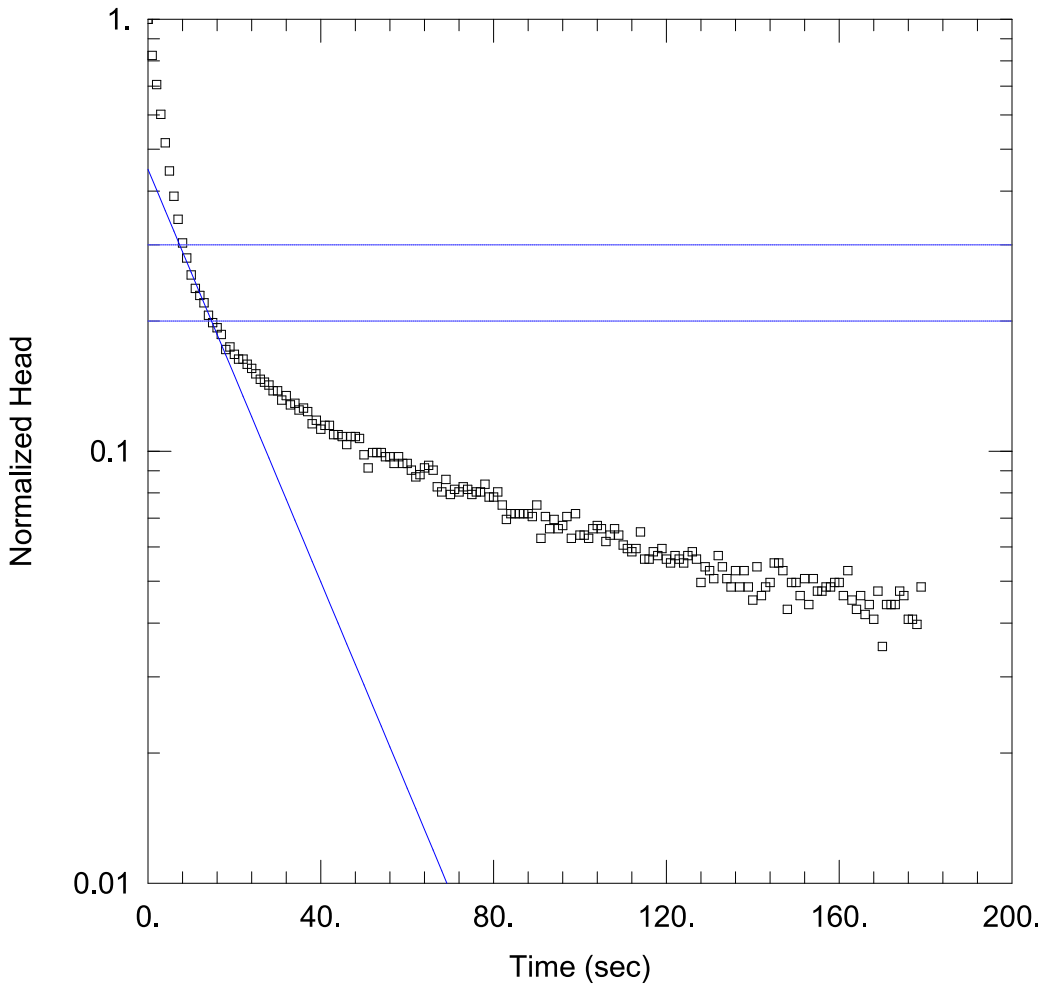
WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00267 cm/sec y0 = 0.4145 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02RH2.aqt
Date: 09/07/22 Time: 17:29:02

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

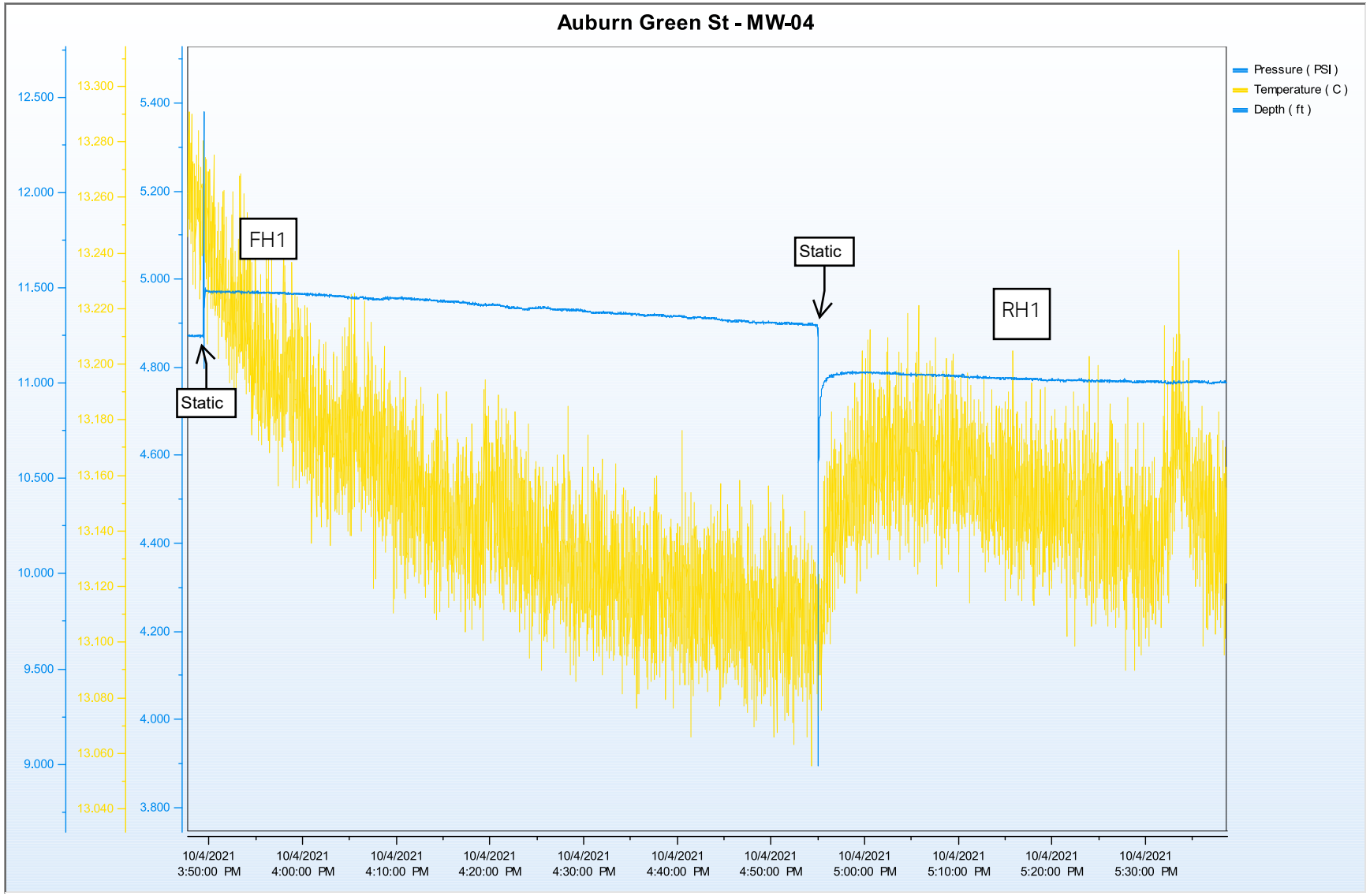
WELL DATA (MW-02)

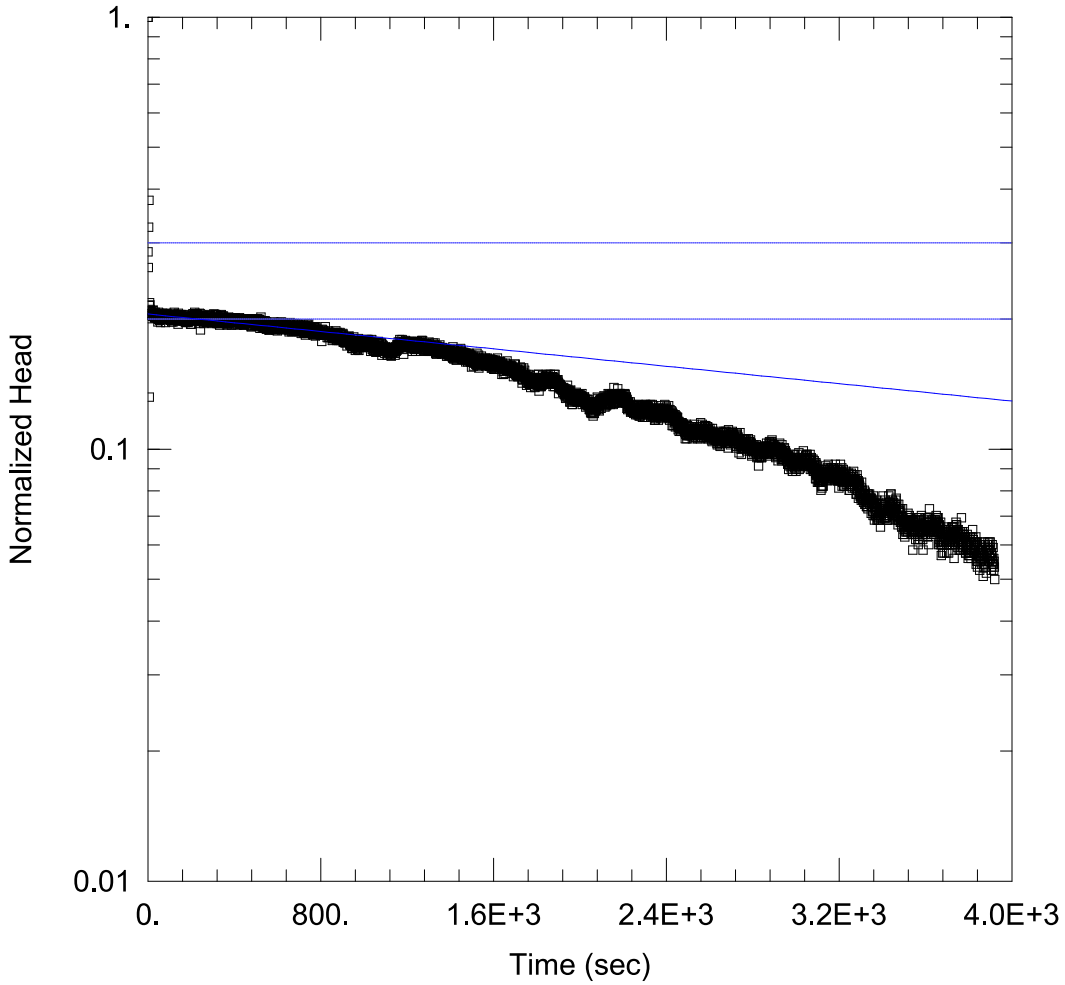
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.008029 cm/sec y0 = 0.4491 ft


Auburn Green St - MW-04
Pressure (PSI)
Temperature (C)
Depth (ft)
FH1
Static
Static
RH1
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
13.300
13.280
13.260
13.240
13.220
13.200
13.180
13.160
13.140
13.120
13.100
13.080
13.060
13.040
5.400
5.200
5.000
4.800
4.600
4.400
4.200
4.000
3.800
10/4/2021 3:50:00 PM
10/4/2021 4:00:00 PM
10/4/2021 4:10:00 PM
10/4/2021 4:20:00 PM
10/4/2021 4:30:00 PM
10/4/2021 4:40:00 PM
10/4/2021 4:50:00 PM
10/4/2021 5:00:00 PM
10/4/2021 5:10:00 PM
10/4/2021 5:20:00 PM
10/4/2021 5:30:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-04FH1.aqt
Date: 09/07/22 Time: 17:50:10

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.63 ft Anisotropy Ratio (Kz/Kr): 1.

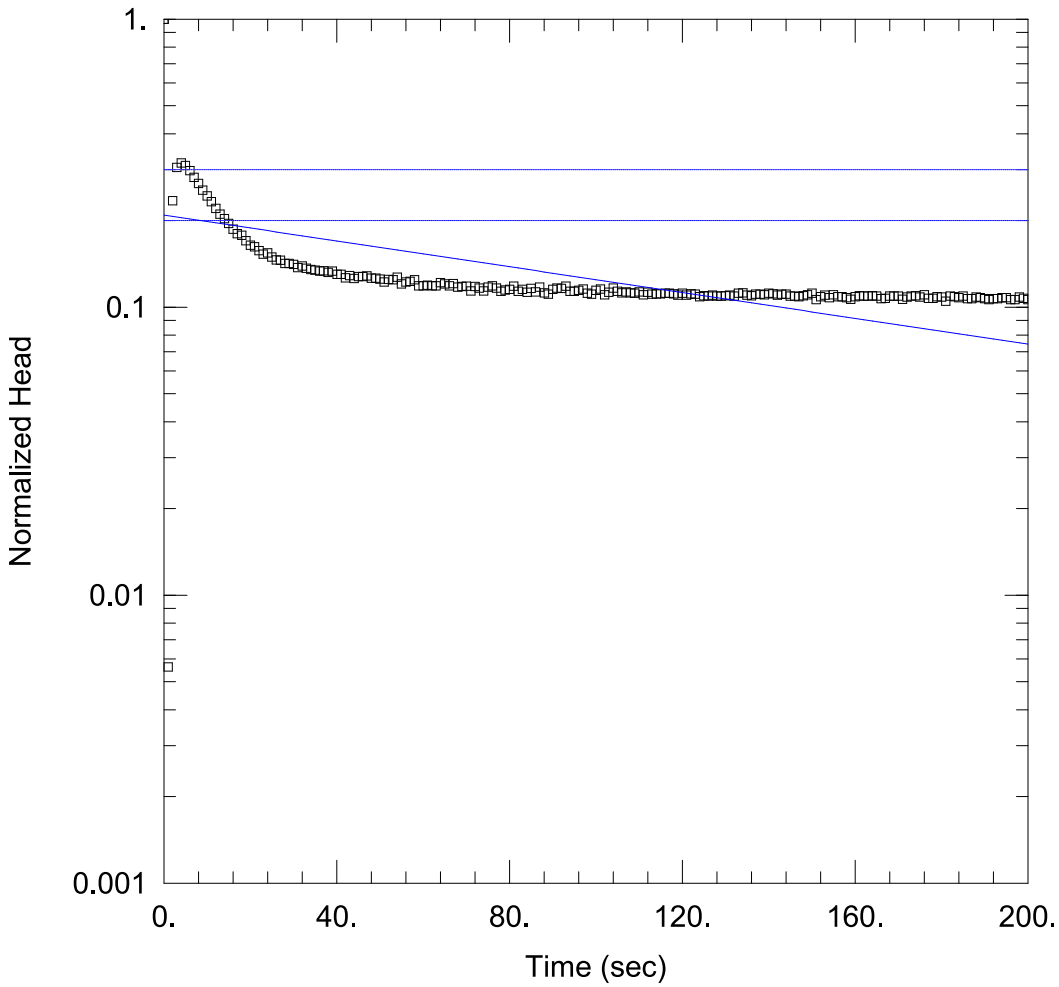
WELL DATA (MW-04)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.63 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.63 ft
Screen Length: 10.63 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.577E-5 cm/sec y0 = 0.2054 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-04RH1.aqt
Date: 09/07/22 Time: 18:08:00

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.63 ft Anisotropy Ratio (Kz/Kr): 1.

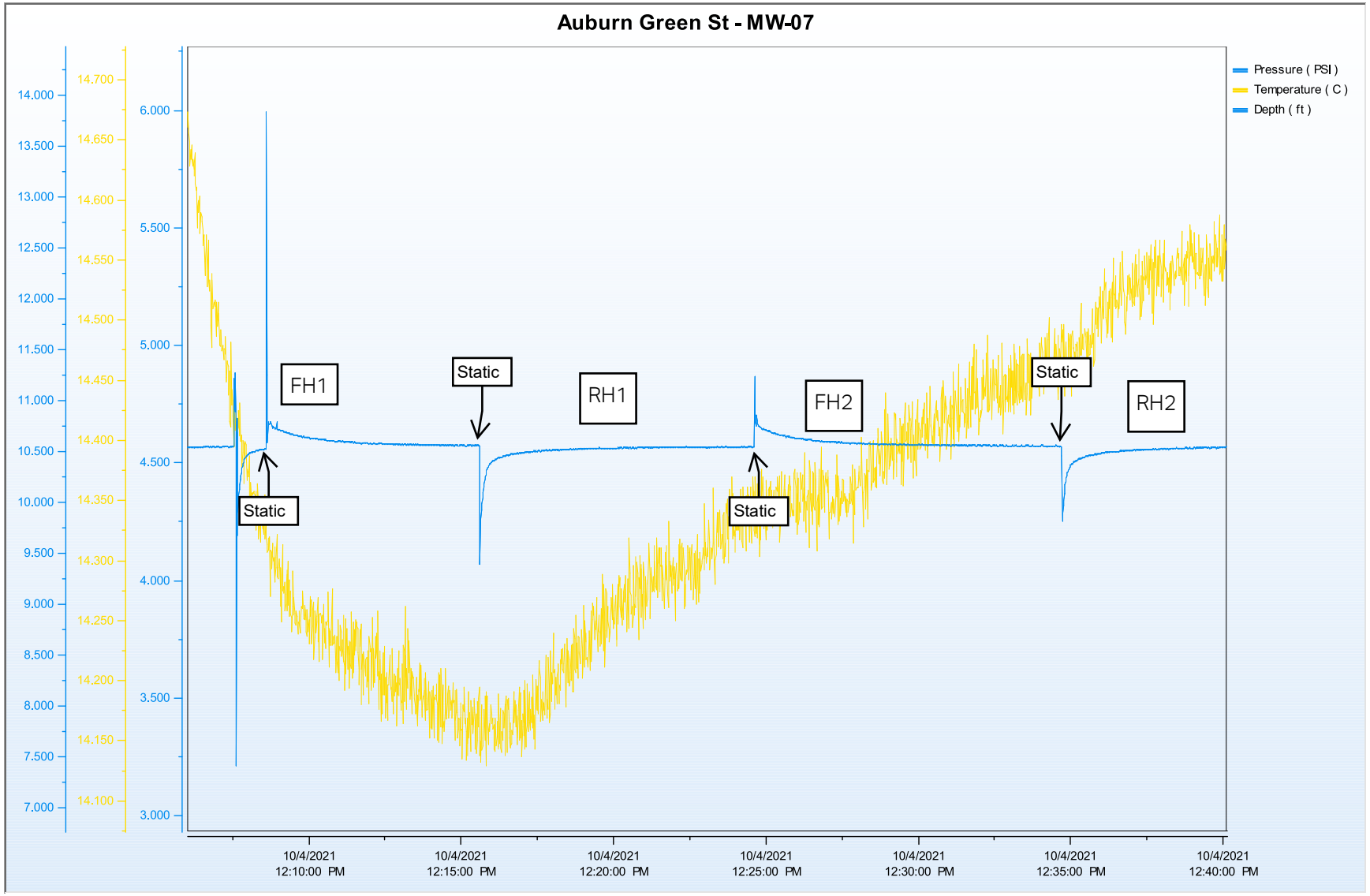
WELL DATA (MW-04)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.63 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.63 ft
Screen Length: 10.63 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007014 cm/sec y0 = 0.2086 ft


Auburn Green St - MW-07
Pressure (PSI)
Temperature (C)
Depth (ft)
FH1
Static
RH1
Static
FH2
Static
RH2
Static
14.000
13.500
13.000
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
8.500
8.000
7.500
7.000
14.700
14.650
14.600
14.550
14.500
14.450
14.400
14.350
14.300
14.250
14.200
14.150
14.100
6.000
5.500
5.000
4.500
4.000
3.500
3.000
10/4/2021 12:10:00 PM
10/4/2021 12:15:00 PM
10/4/2021 12:20:00 PM
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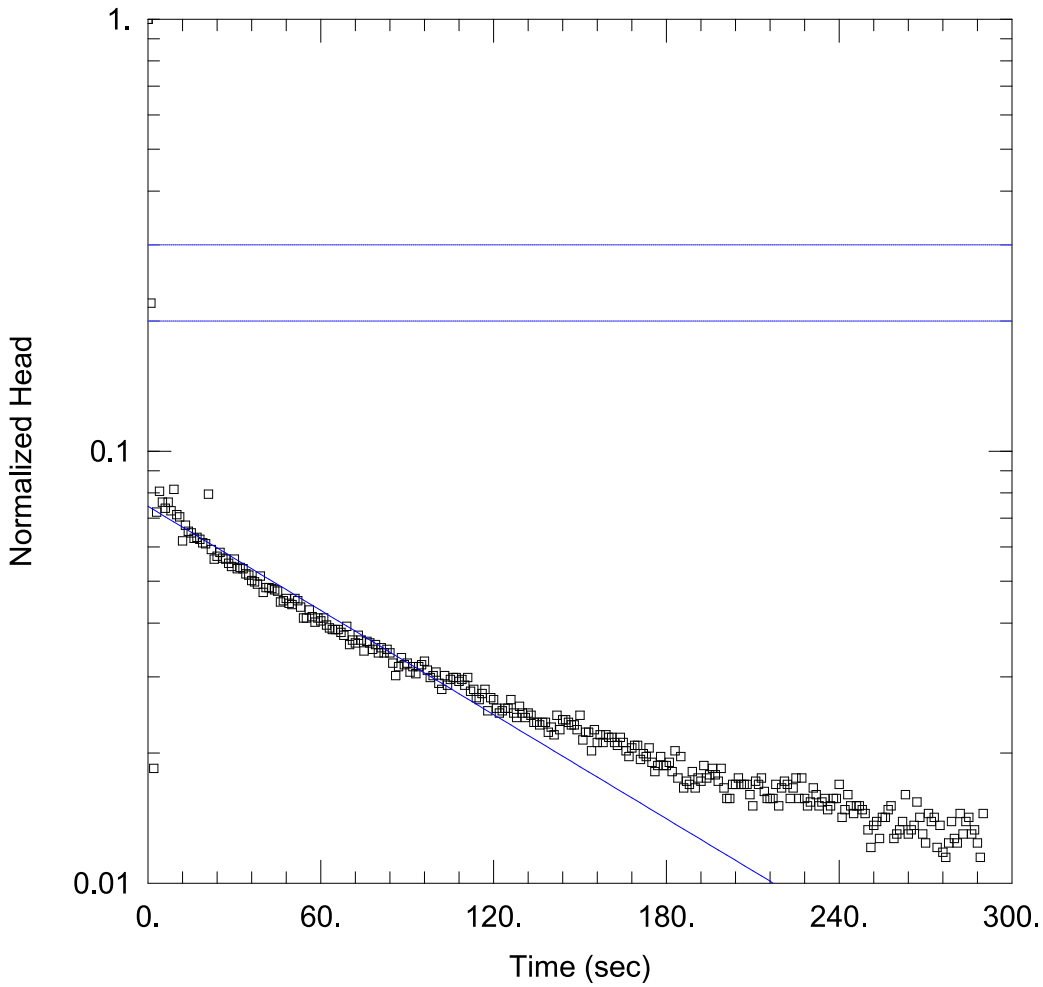
10/4/2021 12:35:00 PM
10/4/2021 12:40:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-07FH1.aqt
Date: 09/07/22 Time: 18:43:32

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

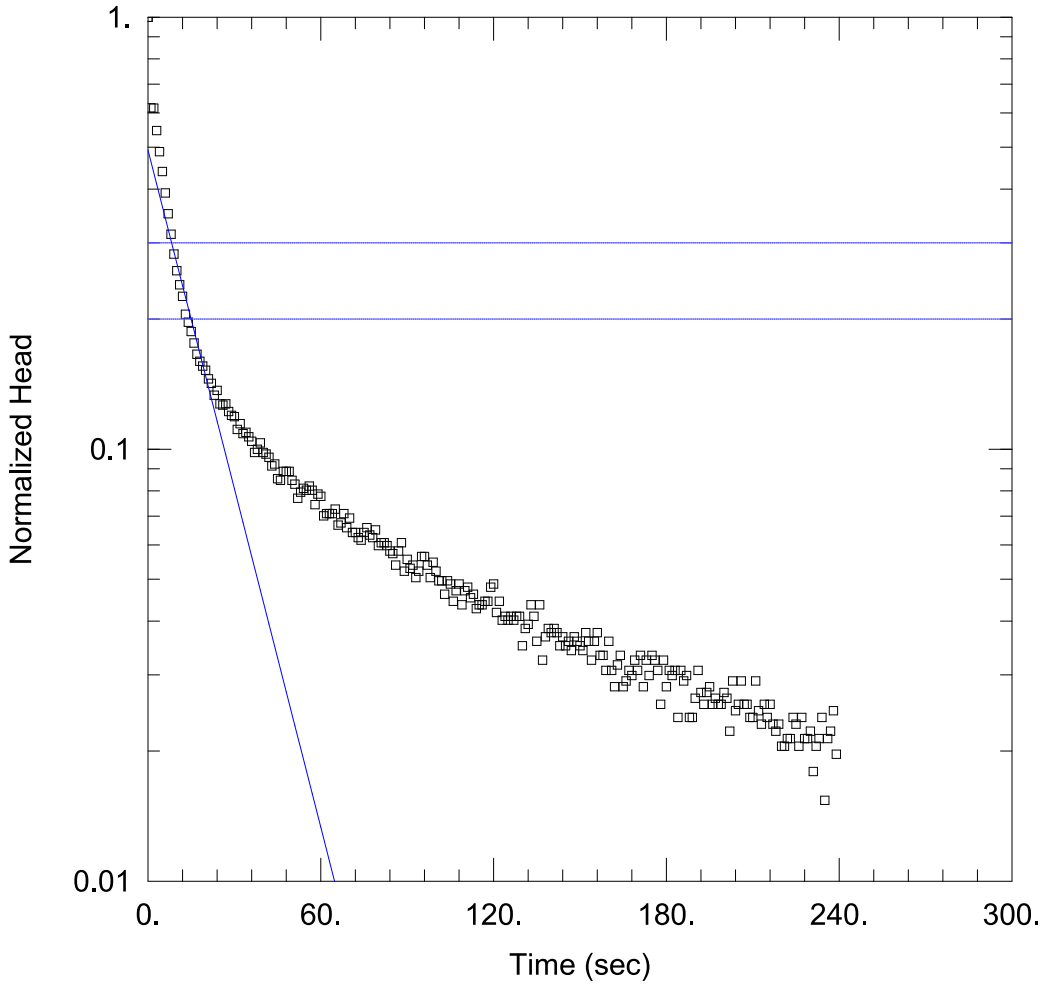
WELL DATA (MW-07)

Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft
Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001424 cm/sec y0 = 0.07451 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07RH1.aqt
Date: 09/07/22 Time: 18:42:59

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

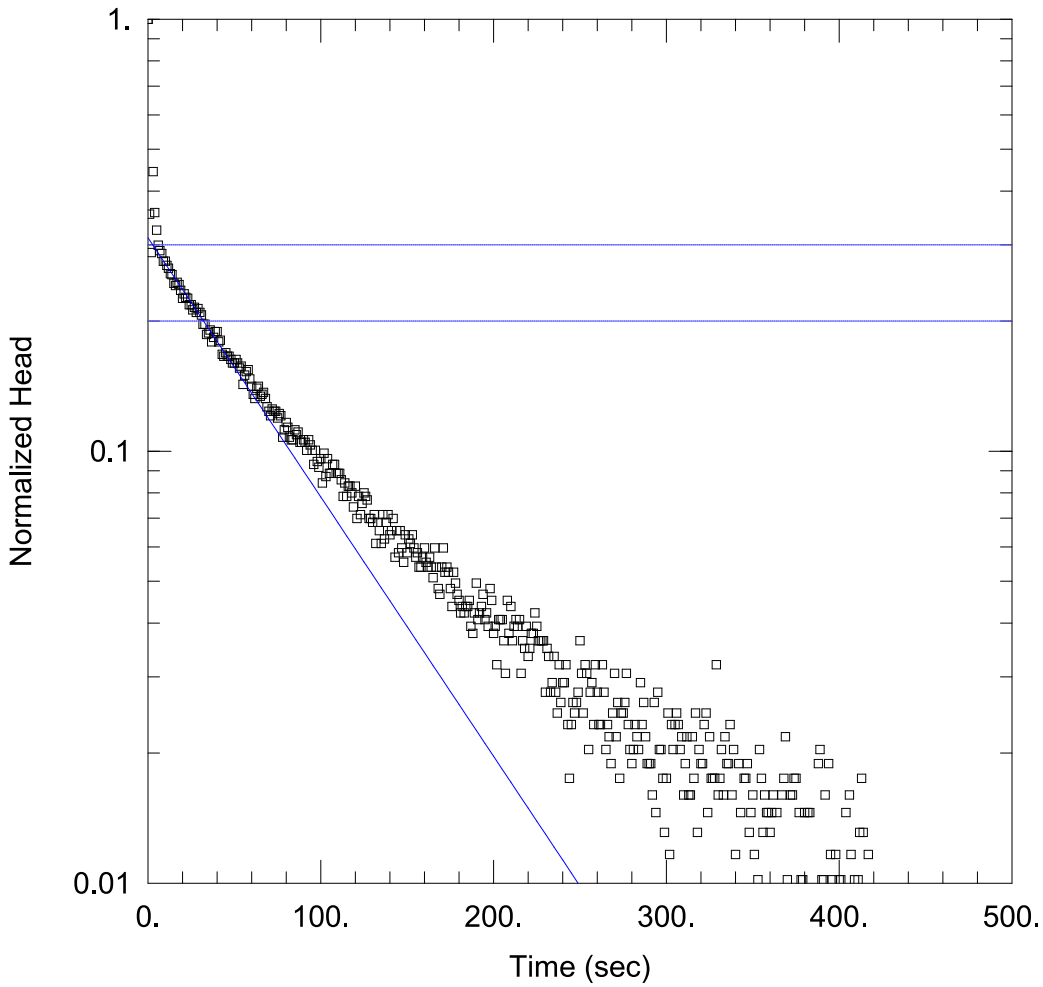
WELL DATA (MW-07)

Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft
Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.009259 cm/sec y0 = 0.4919 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07FH2.aqt
Date: 09/07/22 Time: 18:45:17

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

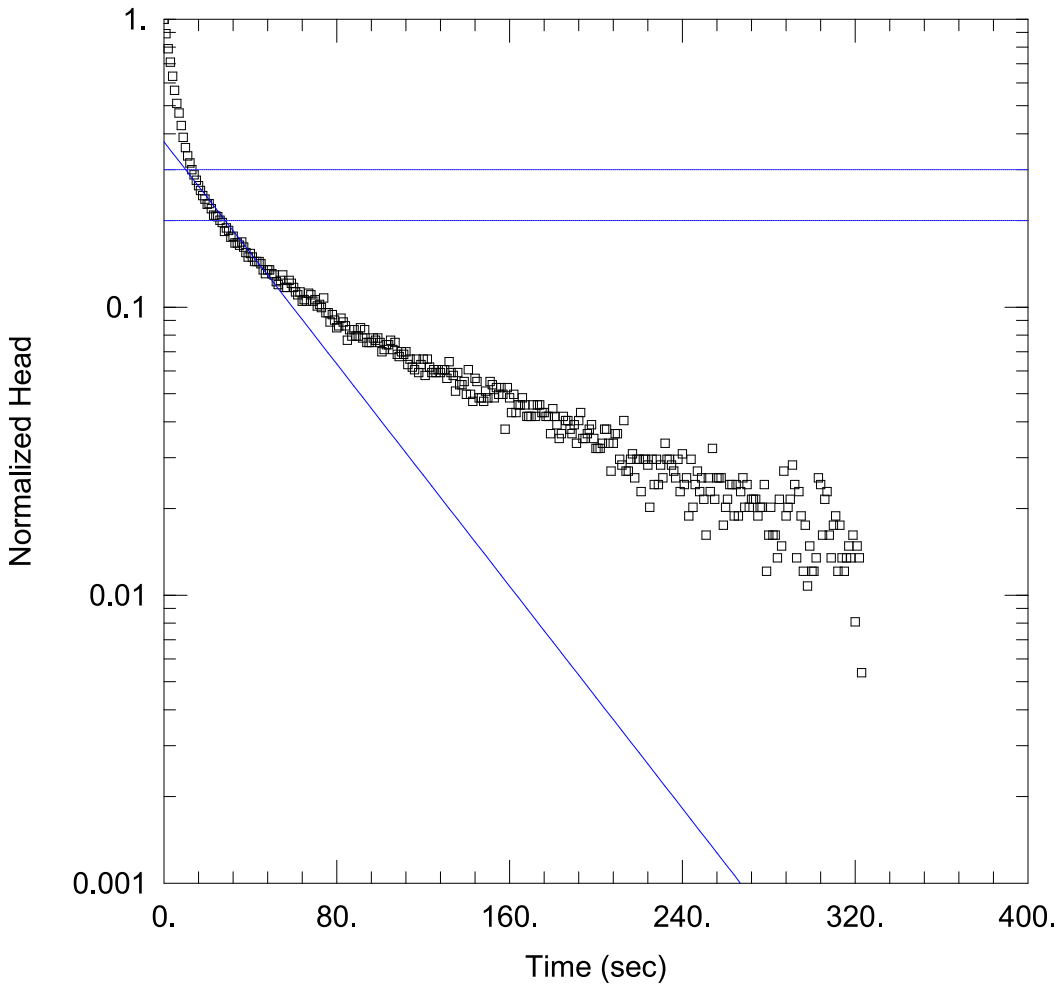
WELL DATA (MW-07)

Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft
Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002128 cm/sec y0 = 0.3118 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07RH2.aqt
Date: 09/07/22 Time: 18:47:21

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

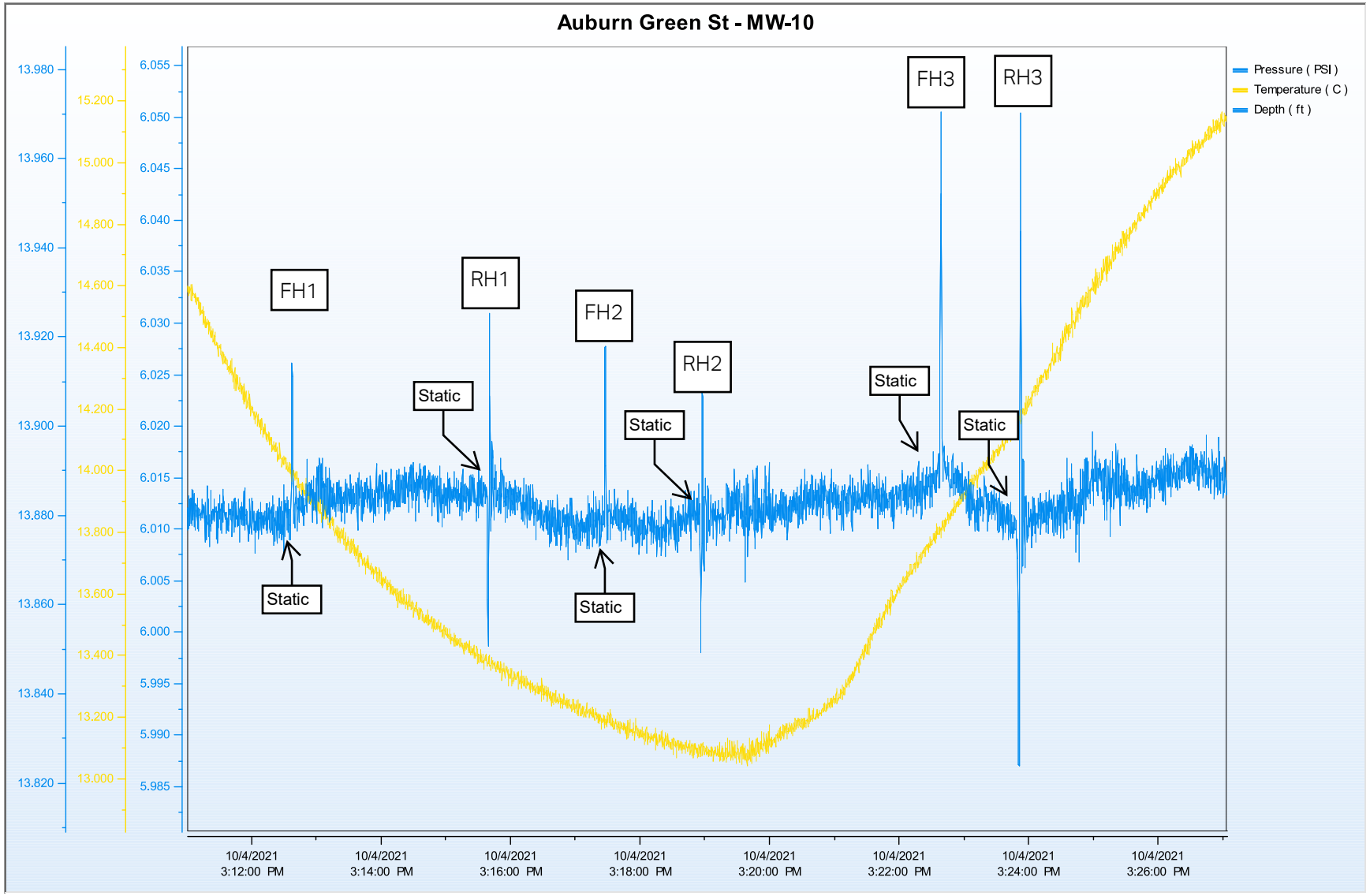
WELL DATA (MW-07)

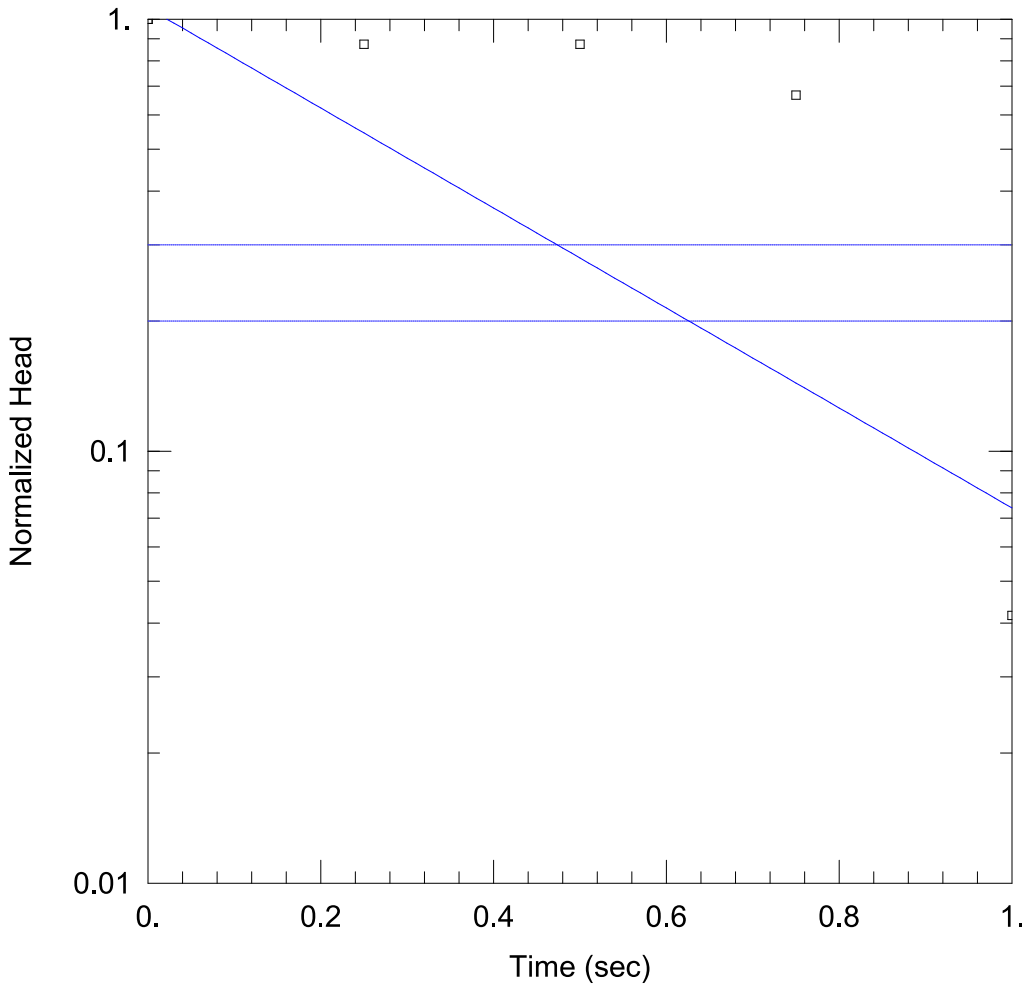
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft
Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003419 cm/sec y0 = 0.375 ft


Auburn Green St - MW-10
Pressure (PSI)
Temperature (C)
Depth (ft)
FH1
RH1
FH2
RH2
FH3
RH3
Static
Static
Static
Static
Static
Static
13.980
13.960
13.940
13.920
13.900
13.880
13.860
13.840
13.820
15.200
15.000
14.800
14.600
14.400
14.200
14.000
13.800
13.600
13.400
13.200
13.000
6.055
6.050
6.045
6.040
6.035
6.030
6.025
6.020
6.015
6.010
6.005
6.000
5.995
5.990
5.985
10/4/2021 3:12:00 PM
10/4/2021 3:14:00 PM
10/4/2021 3:16:00 PM
10/4/2021 3:18:00 PM
10/4/2021 3:20:00 PM
10/4/2021 3:22:00 PM
10/4/2021 3:24:00 PM
10/4/2021 3:26:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH1.aqt
Date: 09/07/22 Time: 23:41:57

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

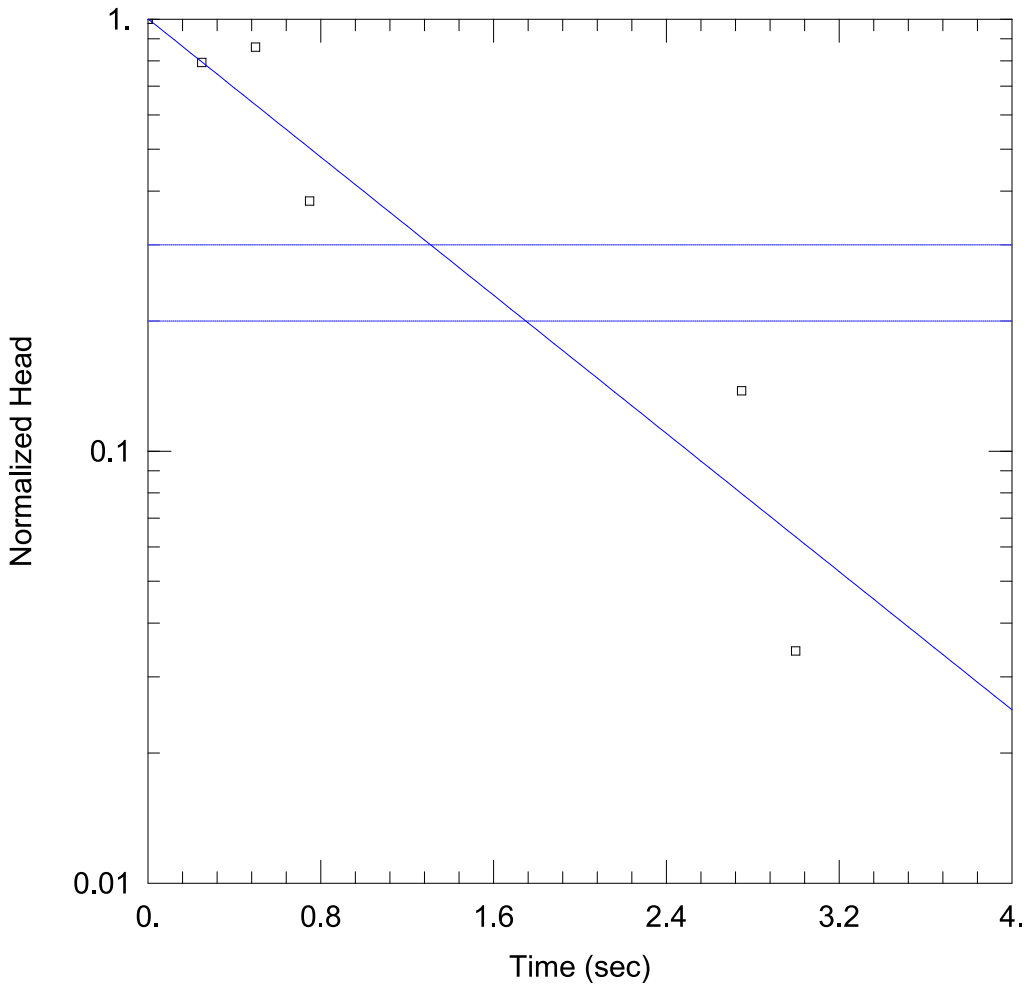
WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3947 cm/sec y0 = 1.061 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH1.aqt
Date: 09/07/22 Time: 23:47:26

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

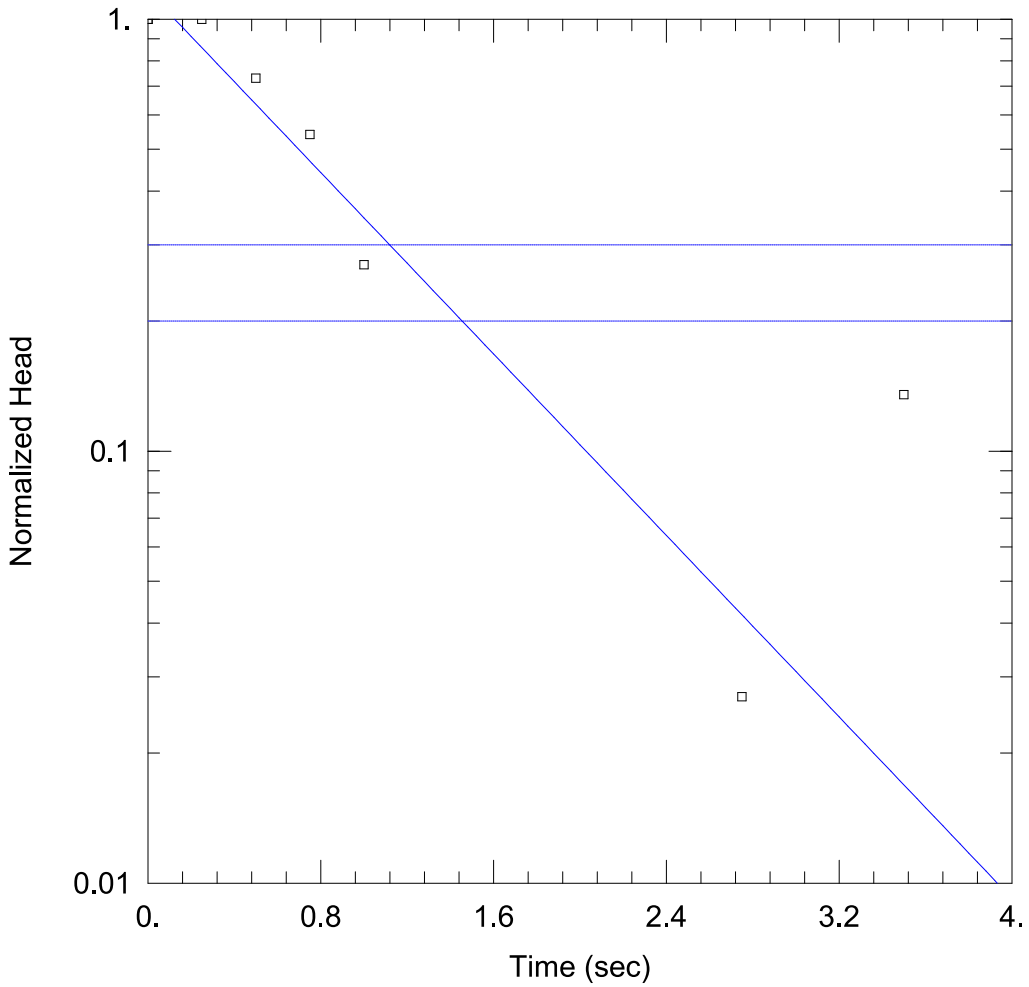
WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1364 cm/sec y0 = 1.001 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH2.aqt
Date: 09/07/22 Time: 23:51:55

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

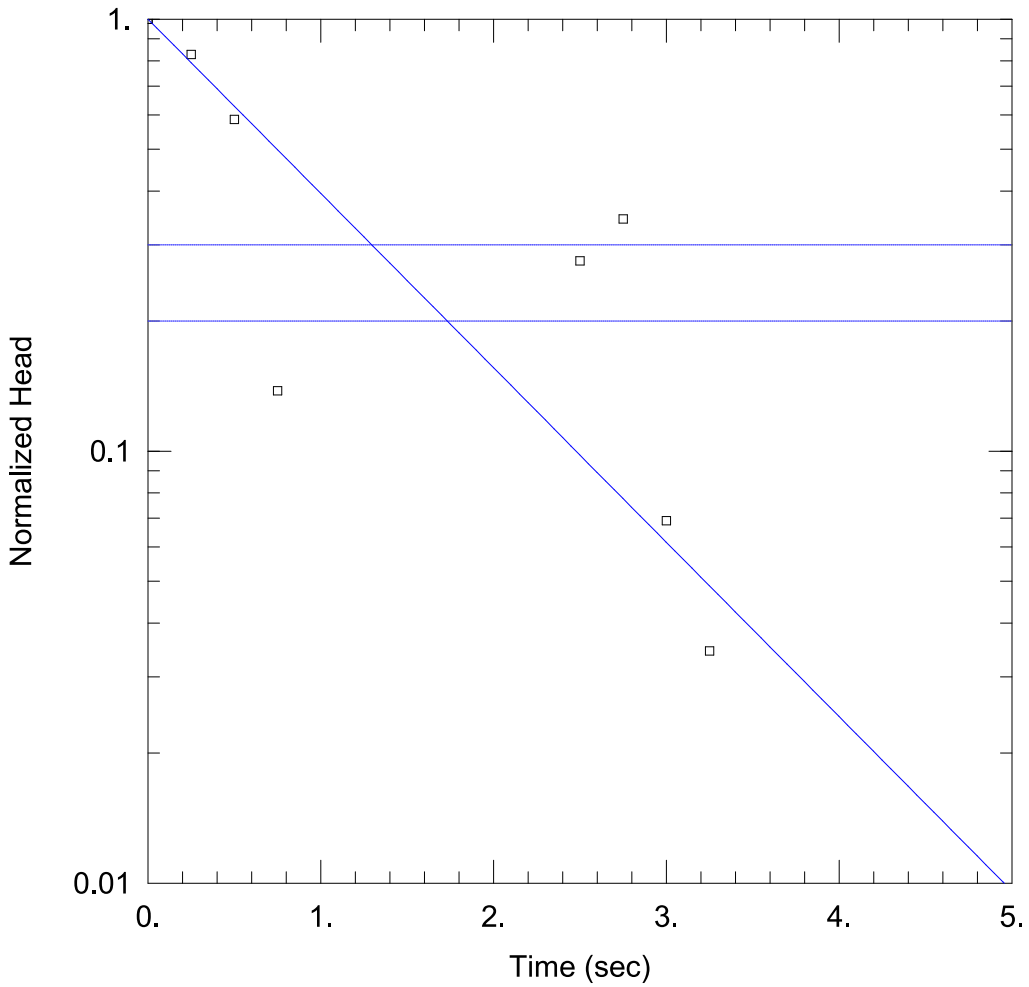
WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1791 cm/sec y0 = 1.161 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH2.aqt
Date: 09/07/22 Time: 23:58:22

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

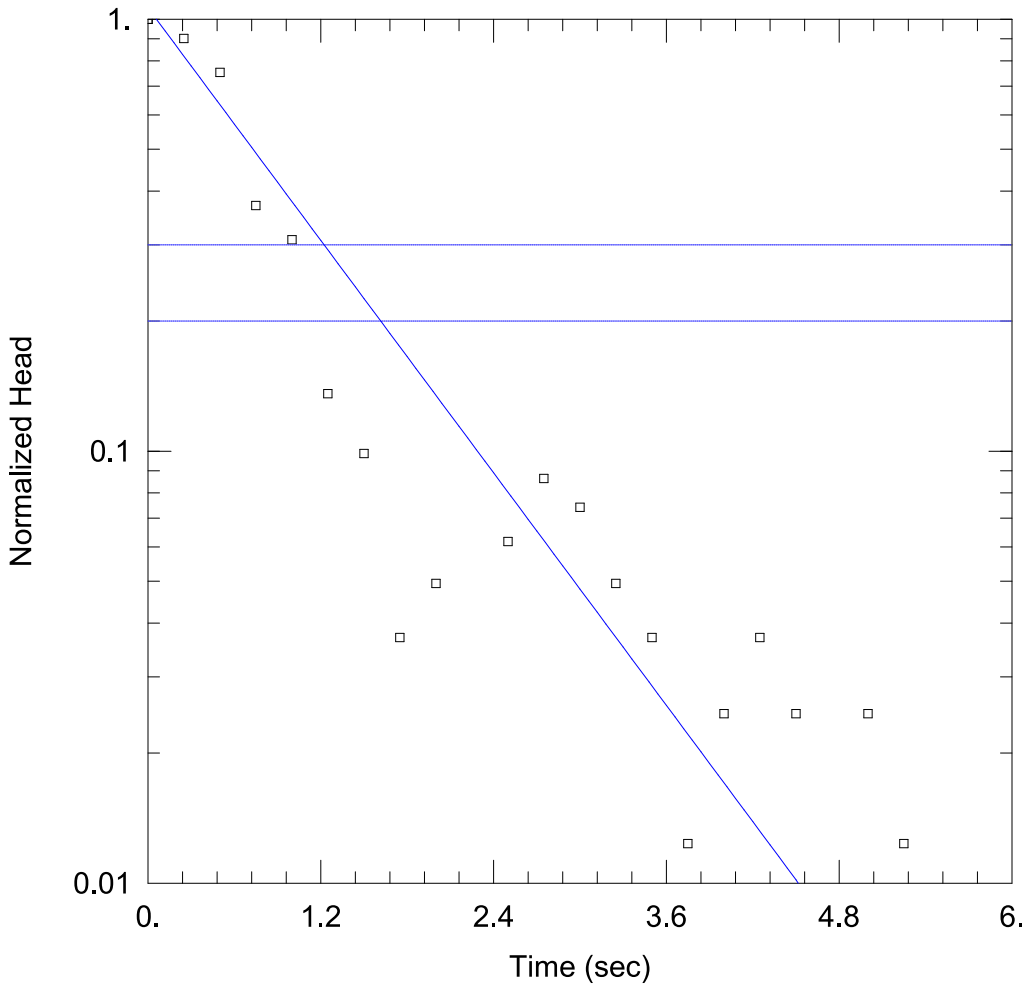
WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1376 cm/sec y0 = 1. ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH3.aqt
Date: 09/08/22 Time: 00:02:10

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

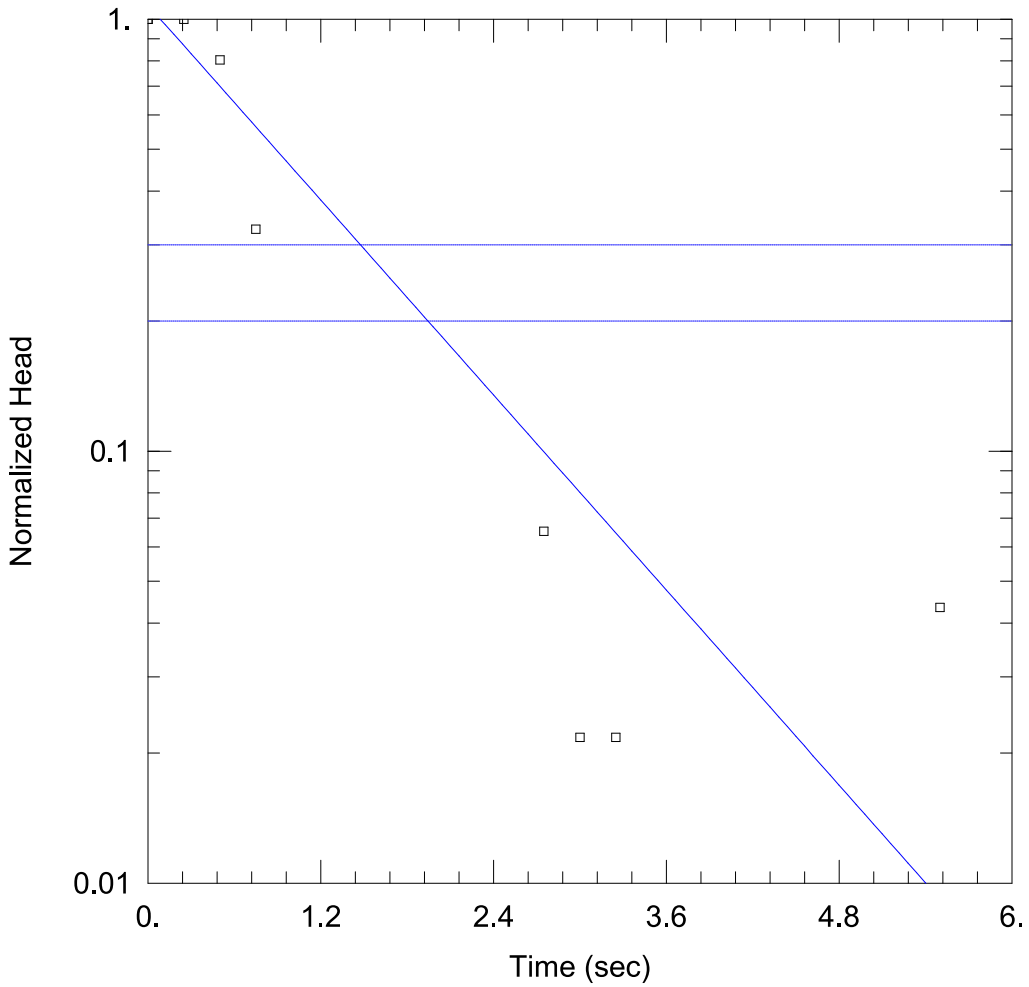
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.153 cm/sec y0 = 1.062 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH3.aqt
Date: 09/08/22 Time: 00:06:20

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1283 cm/sec y0 = 1.078 ft

SECTION 3:

MONITORING WELL DETAILS
AND
FIELD NOTES

AECOM

BORING LOG

Boring No.: SB01/MW- 1

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784			LOCATION: North of high voltage area			DATE: 5/1/13	
SURFACE ELEVATION: 666.5 ft			DATUM: NAVD88	DRILLER: EPSVT/Nothnagle		AECOM REP.: HAJ	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)	CASING		SAMPLER	CORE	TUBE
5/1/2013		5	TYPE		macrocore		
5/8/2013		6.45	I.D.		2 inch		
8/6/2013		5.99	WT./Fall	--	N/A		

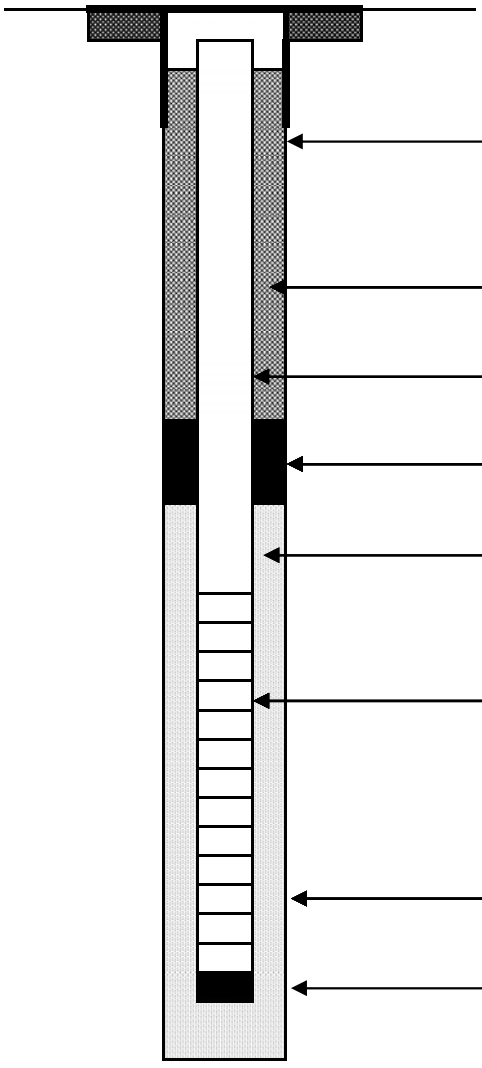
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1-5					Precleared to 5 ft bgs - FILL: GRAVEL layer at surface followed by brown fine to medium SAND, some fine to coarse gravel, few brick fragments, loose, dry to moist.
5-9	SB01 (5-7) @ 1210	NA	2.5	1.1	Brown fine to medium silty SAND, some fine to medium angular gravel, loose, wet. Brown sandy (fine) SILT, some fine to medium angular gravel, medium-firm, wet.
9-13		NA	2.5	1.7	Brown sandy (fine) SILT, some fine to medium angular gravel, medium-firm, moist. Dark brown SILT, trace clay and fine gravel, firm, moist.
13-17		NA	3	2.1	Dark brown SILT, trace clay and fine gravel, medium-firm, wet. Brown fine to coarse angular GRAVEL, little fine to medium sand, and silt, loose, wet. Red-brown silty CLAY, very stiff, dry.
17-19		NA	2.5	3.3	Red-brown clayey SILT, some fine to medium rounded-subrounded gravel, very stiff, dry. Lens of rock at 19.4 ft bgs. Refusal on rock at 19.6 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-1

Project: NYSEG Auburn Green Street	Location: North of high voltage area	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 666.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	5/8/13		6.45
Casing Elevation: 666.1 Ft	AECOM Rep.: HAJ	8/6/13		5.99
Datum: NAVD 1988	Date of Completion: 5/1/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 3.5 ft

Bentonite seal from 1.0 ft to 2.0 ft

Filter pack from 2.0 ft to 19.5 ft

Sand Size 0

Well screen from 3.5 ft to 18.5 ft

Diameter 2 inches
Slot size 0.01 inches
Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 18.5 ft to 19.5 ft

Bottom of Borehole at 19.6 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

BORING LOG

Boring No.: SB11/MW-2

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784			LOCATION: Northeast of substation			DATE: 4/30/13	
SURFACE ELEVATION: 664.9 ft			DATUM: NAVD88	DRILLER: EPSVT/Nothnagle		AECOM REP.: HAJ	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)	CASING		SAMPLER	CORE	TUBE
4/30/2013		9	TYPE		macrocore		
5/8/2013		7.86	I.D.		2 inch		
8/6/2013		7.52	WT./Fall	--	N/A		

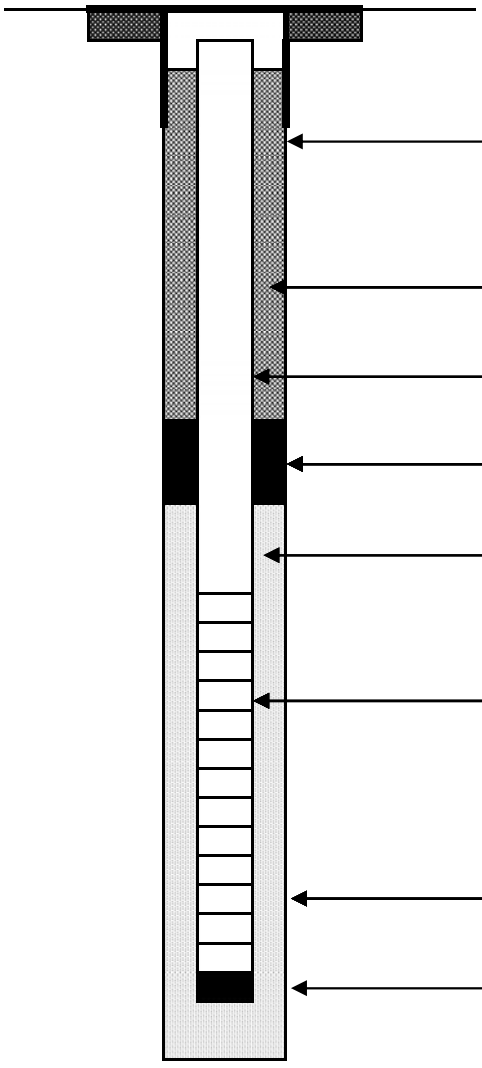
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1					Precleared to 5 ft bgs - FILL: Brown fine to medium SAND, some coal fragments, little fine to coarse subangular gravel, trace silt, loose, moist.
2					
3					
4					
5					
6					Brown fine to medium SAND, trace fine to medium angular gravel, trace silt, loose, moist. Brown SILT, some fine gravel, little clay, compact, moist.
7		NA	2	0.6	Dark brown fine to medium SAND, trace fine gravel, little brick fragments, loose, moist.
8					Brown SILT, little fine to medium subrounded gravel and clay, trace fine to medium sand, compact, moist.
9					
10	SB11 (9.1-13) @ 1210				Dark brown silty fine to medium SAND, some fine gravel, little coal fragments, loose, wet.
11		NA	2	0.3	
12					
13					Dark red-brown silty CLAY, compact, dry.
14					Red-brown silty CLAY, very stiff, dry, wet on outside of core.
15		NA	1	0.3	
16					
17					
18		NA	3	0.2	Red-brown sandy SILT and fine to coarse subangular GRAVEL, some shale fragments, very hard, wet. Refusal on rock at 18.5 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-2

Project: NYSEG Auburn Green Street	Location: Northeast of substation	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 664.9 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	5/8/13		7.86
Casing Elevation: 664.5 Ft	AECOM Rep.: HAJ	8/6/13		7.52
Datum: NAVD 1988	Date of Completion: 4/30/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 6.0 ft

Bentonite seal from 2.0 ft to 4.0 ft

Filter pack from 4.0 ft to 18.0 ft

Sand Size 0

Well screen from 6.0 ft to 16.0 ft

Diameter 2 inches
Slot size 0.01 inches
Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 16.0 ft to 18.0 ft

Bottom of Borehole at 18.5 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

BORING LOG

Boring No.: SB04/MW- 4

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784			LOCATION: North of high voltage area			DATE: 5/2/13	
SURFACE ELEVATION: 666.5 ft			DATUM: NAVD88	DRILLER: EPSVT/Nothnagle		AECOM REP.: HAJ	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)	CASING		SAMPLER	CORE	TUBE
5/2/2013		9.2	TYPE		macrocore		
5/8/2013		9.7	I.D.		2 inch		
8/6/2013		9.76	WT./Fall	--	N/A		

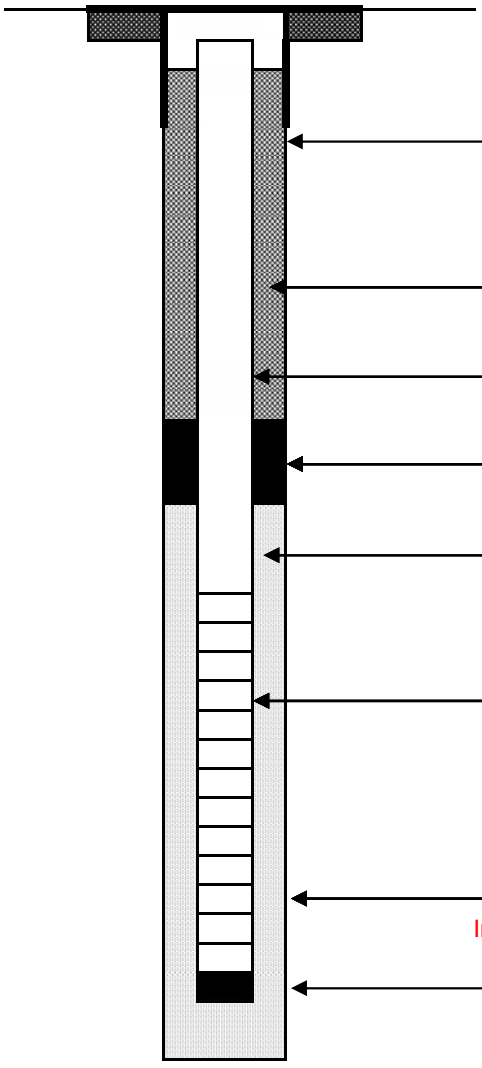
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1-5					Precleared to 5 ft bgs - FILL: GRAVEL layer at surface followed by brown fine to medium SAND, some fine to coarse gravel, few brick fragments, loose, dry to moist.
6-9		NA	2.5	2.2	Brown silty fine to medium SAND, some fine angular gravel, moist. Brick fragments 6-6.2 ft bgs. Brown SILT, little fine gravel and fine sand, moist.
10-13	SB04 (9-11) @ 1015	NA	2.5	7.7	Brown SILT, little fine gravel and fine sand, moist. Brown silty fine to medium SAND, some fine to medium angular gravel, loose, wet. Brown sandy (fine to medium) SILT, some fine to medium angular gravel, medium-firm, wet.
14				7.8	Brown sandy (fine to medium) SILT, some fine to medium angular gravel, medium-firm, wet.
15-17		NA	2.5	3.7	Red-brown clayey SILT, very stiff, moist to dry.
18-20	SB04 (18-20) @ 1025	NA	3.5	3.2	Red-brown clayey SILT, very stiff, moist to dry. Some fine to medium subangular gravel 19-20 ft bgs. Refusal on rock at 20 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-4

Project: NYSEG Auburn Green Street	Location: North of high voltage area	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 666.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	5/8/13		9.70
Casing Elevation: 666.2 Ft	AECOM Rep.: HAJ	8/6/13		9.76
Datum: NAVD 1988	Date of Completion: 5/2/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 4.0 ft

Bentonite seal from 1.0 ft to 2.0 ft

Filter pack from 2.0 ft to 20.0 ft

Sand Size 0

Well screen from 4.0 ft to 19.0 ft

Diameter 2 inches
Slot size 0.01 inches
Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 19.0 ft to 20.0 ft

Bottom of Borehole at 20.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

BORING LOG

Boring No.: MW-7

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784			LOCATION: North of Substation			DATE: 4/15/14	
SURFACE ELEVATION: 665.5 ft			DATUM: NAVD88 DRILLER: EPSVT/Nothnagle			AECOM REP.: ELL	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)	CASING		SAMPLER	CORE	TUBE
4/15/2014		11	TYPE		macrocore		
4/16/2014		7.2	I.D.		2 inch		
5/12/2014		7.62	WT./Fall	--	N/A		

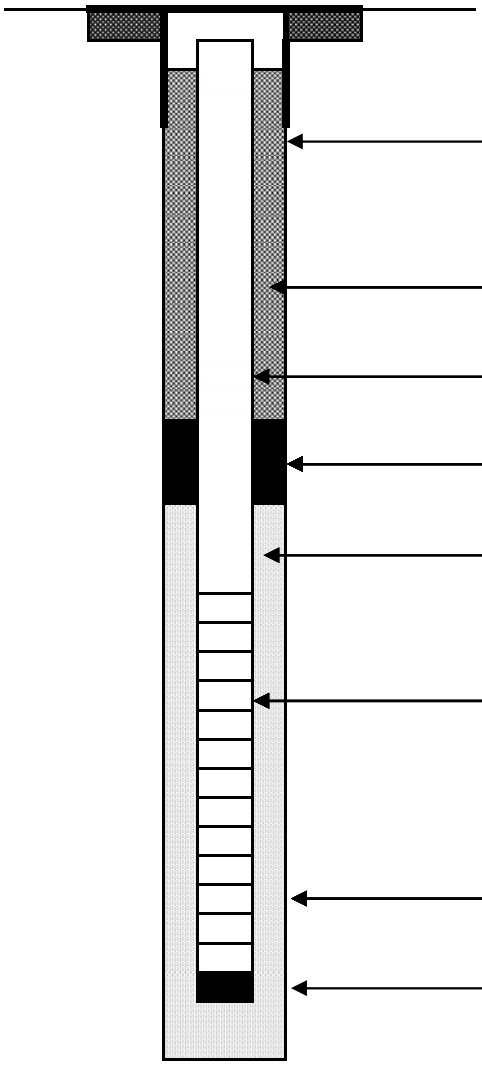
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1				0.0	Precleared to 5 ft bgs - FILL:
2				0.0	0-1 ft: Brown SILT, little fine to medium sand, little fine to coarse gravel, no plasticity, loose, dry;
3				0.0	1-2 ft: Brown SIILT, some fine to coarse gravel, little fine to medium sand, no plasticity, loose, dry
4				0.0	2-5 ft: Same As Above Brick fragments
5				0.0	trace brick/slag
6				0.0	(0-11 in. of recovery): FILL -Brown SILT, some fine to coarse sand, little fine to coarse gravel, brick fragments, little plasticity, loose, moist.
7		NA	1.9		
8				0.0	(11-23 in. of recovery): Brown SILTy, some fine to medium sand, little fine to medium gravel, moist compact, little plasticity.
9					
10	MW-7 (9-11) @ 1340			0.0	(0-13 in. of recovery): Same As Above, little plasticity, dry, compact
11		NA	2.2		
12				0.2	(13-26 in of recovery): Medium to coarse GRAVEL, some silt, little fine to coarse sand, loose, wet. Estimate water table at 11 ft bsg.
13					
14				0.2	(0-6 in. of recovery): Same As Above, loose, wet.
15		NA	1.9		(6-23 in. of recovery): NATIVE Red-Brown SILT, little clay, little, plasticity, compact, dry.
16				1.7	
17					
18	MW-7 (17-18) @ 1415	NA	1.1	40.1	NATIVE Red-Brown SILT, little fine to medium gravel, no plasticity compact, dry.
					Bottom of Boring at 18' bsg.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-7

Project: NYSEG Auburn Green Street	Location: Northof substation	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 665.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	4/16/14		7.20
Casing Elevation: 665.0 Ft	AECOM Rep.: ELL	5/12/14		7.62
Datum: NAVD 1988	Date of Completion: 4/15/14			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 6.0 ft

Bentonite seal from 2.0 ft to 4.0 ft

Filter pack from 4.0 ft to 18.0 ft

Sand Size 0

Well screen from 6.0 ft to 16.0 ft

Diameter 2 inches
Slot size 0.02 inches
Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 16.0 ft to 18.0 ft

Bottom of Borehole at 18.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

TEST BORING LOG

BORING NO. : MW-10

PROJECT/PROJECT LOCATION: NYSEG Auburn Site

SHEET: 1 **OF** 1

CLIENT: NYSEG

JOB NO. : 60652550

BORING CONTRACTOR: Matrix

NORTHING: XXXX **EASTING:** XXXX

GROUNDWATER: 6.5 ft bgs

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macrocore		
DIA.		2"		
WT.				
FALL				

* POCKET PENETROMETER READING

GROUND ELEVATION: XXXX

DATE STARTED: 8/30/2021

DATE FINISHED: 8/30/2021

DRILLER: Pat Bliek

GEOLOGIST: K. McGovern

REVIEWED BY: J. Kaczor

DATE	TIME	LEVEL	TYPE

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		20	Gray Red and Dark Gray		GRAVEL SUBBASE FILL: Gravel and Brick fragments, some to little coarse-fine Sand and Silt		0.0	Dry, No Odor, No Staining
-5		2		20					0.0	Wet
-10		3		26					0.0	
-15		4		28			Trace coarse to fine Sand, no Silt		0.0	
-20		5		10					0.0	
-25							Refusal @ 21' bgs			

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

DRILLING SUMMARY

Geologist:
Kevin J. McGovern

Drilling Company:
Matrix

Driller:
Pat Bliek

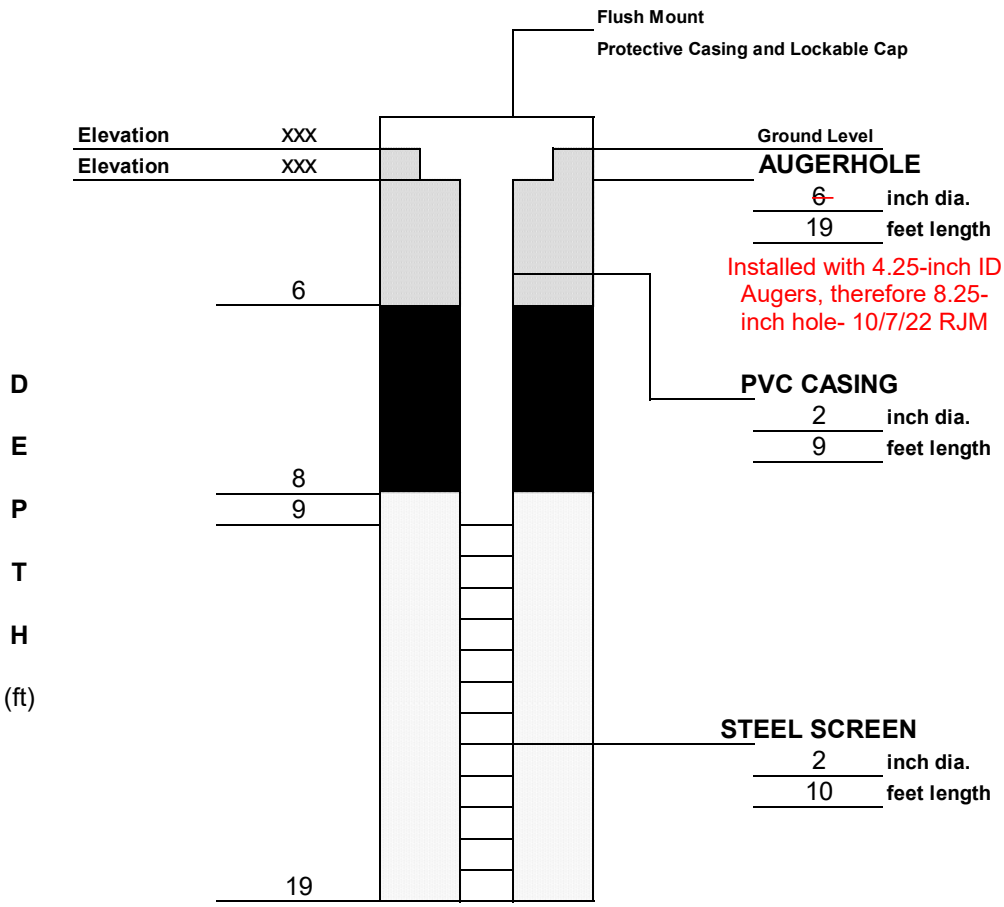
Rig Make/Model:
Geoprobe® 6620DT

Date:
8/30/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN



CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 8' - 19'
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	***SEAL MATERIAL*** **Type:** Bentoinie Chips **Setting:** 6' - 8'

COMMENTS:

LEGEND

- Bagged Gravel (Quikrete #1151)
- Bentonite Seal
- Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-10**

Location AUBURN - GREEN STREET Date 10/4/2021

Project / Client AUBURN GREEN STREET - SLUG TESTS
NYSEG

0930 - R. MURPHY ARRIVES ONSITE. EMILY AU ALSO ONSITE FOR GROUNDWATER SAMPLING.
WEATHER: 62°F, Light Rain
SETUP FOR SLUG TESTS.
1040 @ MW-02, DTW - 6.55, DTB - 18.30
WILL USE 2' Log x 1.5" PVC slug.
1103 - START TEST - Slug IN
1114 - Static, pull slug @ 6.58
1126 - Slug IN
1139 - Slug out. static @ 6.55
1153 - stop test @ DTW @ 6.58
1202 - MW-07, DTW - 7.11, DTB 17.75
1208 - Slug (2' x 1.5") IN
- Ignore noise, slug hit Datalogger cable on way in, switch to 2' x 1.25" PVC slug.
1217, DTW - 7.10, pull slug
1227, DTW - 7.11, slug in.
1236 DTW - 7.11, slug out.
1242 - DTW - 7.11, stop test, move to MW-01
1255 - MW-01, DTW - 5.45, DTB - 18.74
1304 - Slug in (2' x 1.25")
13.12 - DTW - 5.45, Pull slug out
1354 STATIC @ 5.53. Slug IN
1432 DTW - 5.53 - Slug out

Location AUBURN - GREEN STREET Date 10/4/2021

Project / Client AUBURN GREEN STREET - SLUG TESTS
NYSEG

1456 - DTW - 5.55 STOP TEST.
1508 - MOBE TO MW-10
DTW - 4.84, DTB - 18.80'
Set log to 0.25 second intervals
Use slug (2' x 1.25")
1515 - SLUG IN
1518 - Slug out
1519 - Slug IN
1521 - Slug out
1525 - Slug IN (4' x 1")
1526 - Slug out.
1532 MOBE TO MW-04
DTW - 8.07, DTB - 19.49
1539 - LEVEL @ 8.02 after inserting datalogger
1548 - DTW @ 8.03, START TEST
1551 - SLUG IN (2' x 1.25")
1602 - DTW - 7.80'
1622 DTW - 7.85'
1634 DTW 7.89
1643 DTW 7.92
1655 DTW 7.96, Consider Done, Pull slug.
1714 DTW - 8.22, 1730 DTW = 8.23
1739 - DTW = 8.26 - STOP TEST
1815 - CLEAN UP - DEPART SITE.

SECTION 4:

REFERENCES

The Bouwer and Rice Slug Test — An Update[a]

by Herman Bouwer[b]

ABSTRACT

The Bouwer and Rice slug test was developed to measure aquifer hydraulic conductivity around boreholes (production, monitoring, or test wells). The wells can be partially penetrating and partially screened, perforated, or otherwise open. The slug test can be based on quickly withdrawing a volume of water from the well and measuring the subsequent rate of rise of the water level in the well, or by adding a slug of water and measuring the subsequent rate of fall of the water level in the well. While originally developed for unconfined aquifers, the method can also be used for confined or stratified aquifers if the top of the screen or perforated section is some distance below the upper confining layer. Anomalies ("double straight line effect") sometimes observed in the measured rate of rise of the water level in the well are attributed to drainage of a gravel pack or developed zone around the well following lowering of the water level. The effect of this drainage can be eliminated by ignoring the early data points and using the second straight line portion in the data plot for calculation of hydraulic conductivity. The method is applicable to any diameter and depth of the borehole, provided that the dimensions of the system are covered by the ranges for which the geometry factor R_e has been worked out. The smaller the diameter of the hole, however, the more vulnerable the results will be to aquifer heterogeneities and to inaccuracies in estimating effective well diameters. Computer programs for rapid processing of the field data have been developed.

INTRODUCTION

The slug test developed by Bouwer and Rice (1976) permits the measurement of saturated hydraulic conductivity (K) of aquifer materials with a single well. The method consists of quickly lowering or raising the water level in a well or borehole from equilibrium and measuring its subsequent rate of rise or fall, respectively. The method was designed to measure K of the aquifer around the screen or otherwise open portion of the well for fully or partially penetrating wells in unconfined aquifers. Because of its simplicity, the Bouwer and Rice slug test has become a frequently used tool in ground-water investigations. This paper addresses some of the experiences obtained with the method, including the validity of falling level tests, use of the method in confined aquifers, effect of draining gravel packs on the rise of the water level, effect of hole diameter, and computer processing of field data.

METHODOLOGY

Geometry and symbols of a slug-tested well are shown in Figure 1. The rate of flow of ground water into the well when the water level in the well is a distance y lower than the static ground-water table around the well is calculated with the Thiem equation as

$$Q = 2\pi K L_e \frac{y}{\ln(R_e/r_w)} \qquad (1)$$

where Q = volume rate of flow into well;
K = hydraulic conductivity of aquifer around well;
L_e = length of screened, perforated, or otherwise open section of well; y = vertical difference between water level inside well and static water table outside

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[a]Contribution of the U.S. Department of Agriculture, Agricultural Research Service.

[b]Laboratory Director, U.S. Water Conservation Laboratory, Phoenix, Arizona 85040.

Received December 1986, revised August 1988, accepted September 1988.

Discussion open until November 1, 1989.

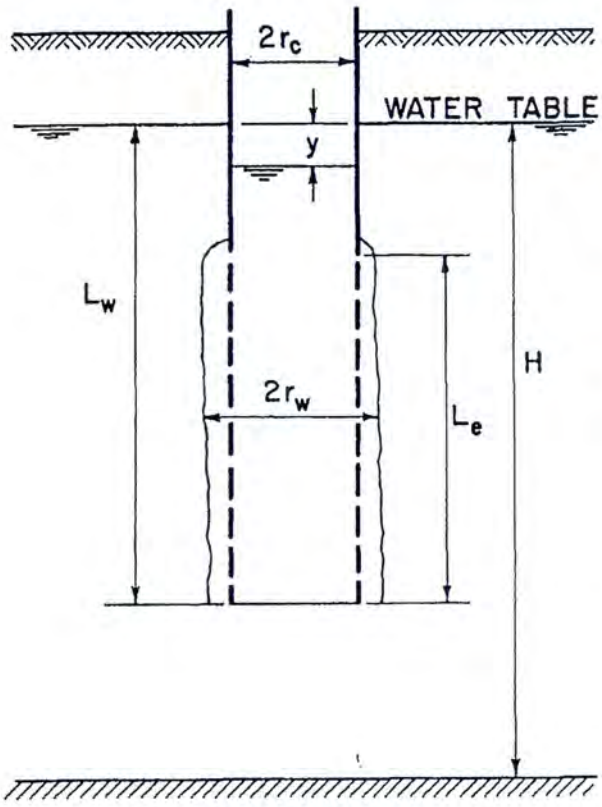

Fig. 1. Geometry and symbols for slug test on partially penetrating, partially screened well in unconfined aquifer with gravel pack and/or developed zone around screen.

well; R_e = effective radial distance over which y is dissipated; and r_w = radial distance of undisturbed portion of aquifer from centerline.

Values of R_e were determined with an electrical resistance network analog for different values of r_w, L_e, L_w, and H (see Figure 1 for meaning of geometry symbols). The value of r_w is the radius of the screened or open section of the well plus the thickness of a sand or gravel pack and/or of the developed zone around the well. Thus, r_w is the radial distance from the center of the well to normal K of the aquifer. Because the thickness of the developed zone is almost never known, the tendency is to ignore it and take only gravel or sand packs into account.

The rate of rise dy/dt of the water level in the well after the water level has been quickly lowered some distance is

$$\frac{dy}{dt} = -\frac{Q}{\pi r_c^2} \qquad (2)$$

where r_c is the radius of the casing or other section of the well where the rise of the water level is measured. If the water level rises in the screened or open section of the well with a gravel pack around it, the thickness and porosity of the gravel envelope should be taken into account when calculating the equivalent value of r_c for the rising water level. This calculation is based on the total free-water surface area in the well and sand or gravel pack, calculated as $\pi r_c^2 + \pi (r_w^2 - r_c^2)n$, where n is the porosity, and $r_w - r_c$ is the thickness of the envelope. The equivalent radius of a circle giving this total area is then calculated as $[(1 - n)r_c^2 + nr_w^2]^{1/2}$. For example, if the radius of the screen or perforated casing is 20 cm and there is 8 cm gravel pack with a porosity of 30 percent, r_c should be taken as 25.9 cm, while r_w is 28 cm.

Solving equation (2) for Q, equating the resulting expression to equation (1), integrating, and solving for K yields

$$K = \frac{r_c^2 \ln(R_e/r_w)}{2L_e} \frac{1}{t} \ln \frac{y_0}{y_t} \qquad (3)$$

where y_0 = y at time zero; and y_t = y at time t.

The results of the analog analyses to evaluate R_e for various system geometries were expressed in terms of the dimensionless ratio $\ln(R_e/r_w)$. The data could be fitted into two equations, one for the case where $L_w < H$, and one where $L_w = H$. The resulting equations were, respectively,

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{A + B\ln[(H - L_w)/r_w]}{L_e/r_w} \right]^{-1} \qquad (4)$$

and

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{C}{L_e/r_w} \right]^{-1} \qquad (5)$$

where A, B, and C are dimensionless numbers plotted in Figure 2 as a function of L_e/r_w.

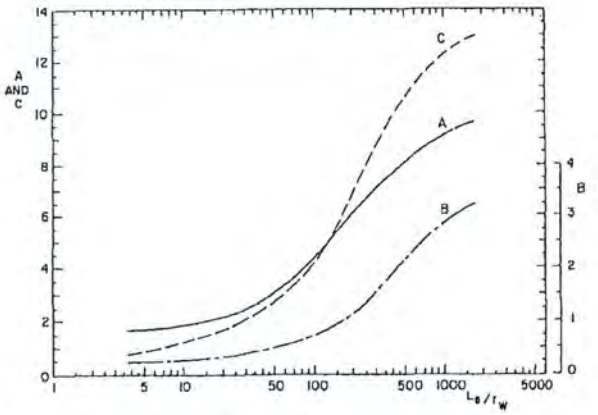

Fig. 2. Dimensionless parameters A, B, and C as a function of L_e/r_w for calculation of $\ln(R_e/r_w)$.

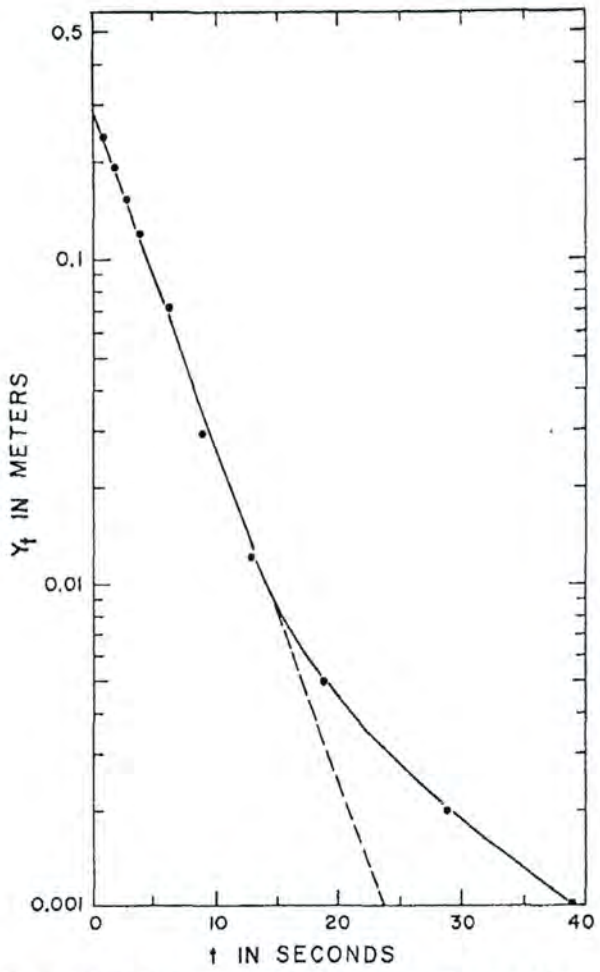

Fig. 3. Graph of log y_t versus t for slug test on well in Salt River Bed, 27th Avenue, Phoenix, Arizona.

Because y and t are the only variables in equation (3), a plot of ln y_t versus t must show a straight line. Thus, instead of calculating K on the basis of two measurements of y and t (y_0 at t = 0 and y_t at t), a number of y and t measurements can be taken and $[\ln(y_0/y_t)]/t$ determined as the slope of the best-fitting line through the y versus t points on semilogarithmic paper (Figure 3). The straight line through the data points can also be used to select two values of y, namely, y_0 and y_t, along with the time interval t between them for substitution into equation (3). Because drawdown of the ground-water table around the well becomes increasingly significant as the test progresses, the points as in Figure 3 begin to deviate from the straight line for large t and small y. Thus, only the straight line portion of the data points should be used to evaluate $[\ln(y_0/y_t)]/t$ for calculation of K with equation (3).

The slug test can be used on production wells, test wells, observation wells, and monitoring wells. Objectives for the measurements include characterization of aquifer hydraulic conductivity for modeling, ground-water recharge studies, and ground-water pollution studies. The method is particularly useful in ground-water contamination studies because the slug test can be carried out on the same wells used for ground-water quality monitoring. Also, combining the resulting values of hydraulic conductivity with the porosity of the aquifer and slopes of the ground-water table or piezometric surface permits the prediction of pore-water velocities and, hence, the rate of movement of pollution plumes and transport of contaminants. The slug test can also be useful in determining vertical distribution of hydraulic conductivities in an aquifer system and other spatial variability of hydraulic conductivity in studies of macrodispersion and movement of contaminants.

Over the years, a number of questions and comments about the slug test have been received. These questions and comments are addressed in the following sections.

DOUBLE STRAIGHT LINE EFFECT

Users of the slug test have observed that when plotting log y_t versus t as in Figure 3, they sometimes get a double straight line as shown schematically in Figure 4. The first part (AB) is straight and steep, whereas the next part (BC) is straight and less steep. Then, at point C, the points begin their expected deviation from the straight line as

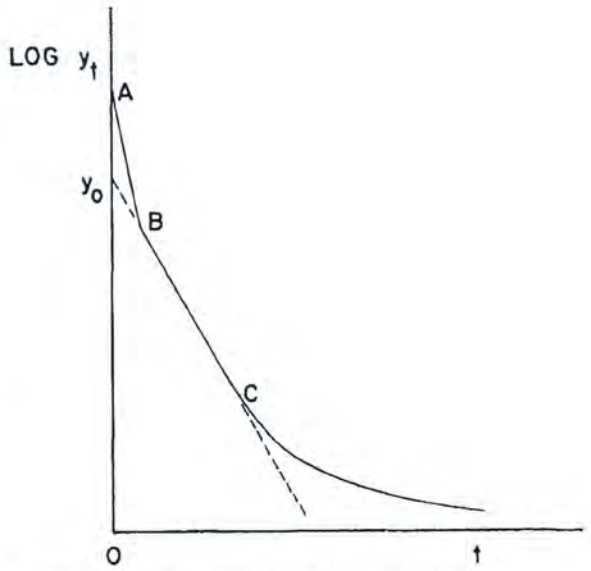

Fig. 4. Schematic of double straight line effect.

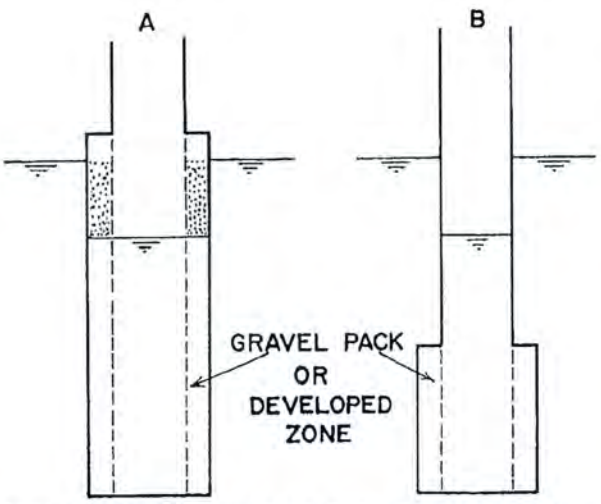

Fig. 5. Slug test for borehole with ground-water level below (A), and above (B) top of screen or perforated section.

the drawdown around the hole becomes significant relative to y_t. The first straight line portion in Figure 4 is probably due to a highly permeable zone around the well (gravel pack or developed zone), which quickly sends water into the well immediately after the water level in the well has been lowered (Figure 5A). Then, when the water level in the permeable zone around the well has drained to the water level in the well itself, the flow into the well slows down and the points begin to form a second, less steep, straight line (BC in Figure 4). This second straight line is more indicative of the flow from the undisturbed aquifer into the well. Hence, segment BC should be used in calculating K of the aquifer with equation (3). In the original 1976 article, gravel envelopes or developed zones were assumed to drain at the same rate as the water level in the borehole when it is lowered for the slug test, i.e., essentially instantaneously. However, some gravel packs or developed zones apparently are not permeable enough to give such instantaneous drainage.

If the ground-water table is above the screened or open section of the borehole, and the water level in the hole is not lowered so far that it drops below the top of the open section (Figure 5B), the gravel envelope or developed zone around the open section cannot drain. The inflow into the hole then is immediately controlled by the aquifer, and the double straight line effect should not occur. If it still occurs, it could indicate leakage around the casing or grouting above the gravel pack.

Where the double straight line is due to a gravel pack around the well, the effective well radius r_w should be taken as the radial distance from the center of the well to the outer surface of the gravel pack. Where the double straight line is due to a naturally developed zone around the well, r_w is harder to evaluate and an "intelligent" estimate must be made. It may also be possible to estimate r_w from the value of y at point B in Figure 4. Considering the volume of water in the well between y_A and y_B in Figure 4 to be due to the drainage of the gravel pack or developed zone, and knowing or estimating the drainable porosity of the gravel pack or developed zone, the radial extent of this zone can be calculated for evaluation of r_w. Capillary fringe effects do not have to be considered, since the capillary fringe was also present in the pack or in the developed zone before the water level was lowered. Because the rising water level in the hole during the slug test will also fill up the drained pore space of the gravel pack or developed zone, the value of r_c in the equation for calculation of K should be adjusted to take this effect into account, as discussed earlier in this article.

Conceivably, a well could have a gravel pack surrounded by a less permeable developed zone before the original aquifer material is reached. This could lead to a triple straight line effect, with an intermediate straight line portion at point B, or a curved transition zone at B if the hydraulic conductivity of the developed zone gradually decreases until K of the original aquifer material is reached. By the same token, portion AB in Figure 4 could also be curved if the hydraulic conductivity of the gravel pack or developed zone immediately around the well decreases with radial distance from the well.

FALLING WATER LEVEL TEST

The slug test was developed for a rising water level in the borehole, as obtained by quick removal of a certain volume or slug of water. This can be achieved by bailing, (quick) pumping, or by immersing a section of pipe filled with sand or other ballast and closed with caps on both ends, or other submersible object, in the borehole, letting the water level in the borehole return to equilibrium, and quickly removing the submerged object. The question is often raised: can the method also be used when a volume of water is quickly added to the hole and the subsequent rate of fall of the water level in the hole is measured for calculation of K? The answer is yes, provided that the equilibrium water level is above the screened or open section of the borehole (Figures 1 and 5B). In this

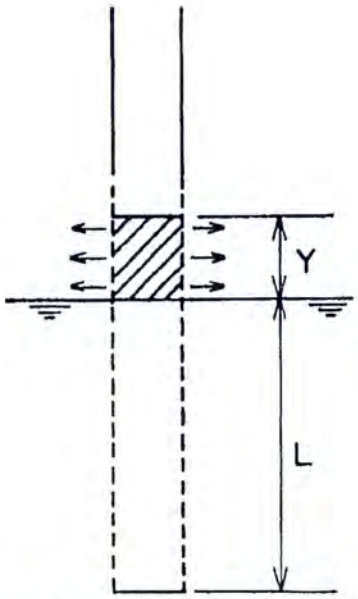

Fig. 6. Schematic of addition of water (hatched section) to borehole with equilibrium water level below top of screen or perforated section, with outflow of water into vadose zone (horizontal arrows).

case, the outflow from the well due to the falling water level occurs only through the screened or open section of the well, and the flow system in the aquifer is a true reverse of the flow system for the rising water level after a slug of water has been removed (ignoring, of course, eventual rises and drawdowns of the ground-water table immediately around the borehole if the aquifer is unconfined). Thus, equations (3), (4), and (5) are also applicable to the addition of a slug of water and measuring the subsequent rate of fall of the water level in the borehole for calculation of K of the aquifer around the hole.

If the equilibrium water level in the borehole is below the top of the screen or open section (Figure 6), and water is added (hatched section in Figure 6), the subsequent flow of water into the aquifer due to the falling water level not only takes place through the screen or perforations below the original water table, but also through the vadose zone above the original water table (arrows in Figure 6). This increases the rate of fall of the water level in the borehole beyond that caused by inflow into the aquifer and leads to an overestimation of K. The greater the ratio of y/L (Figure 6) in this case, the more the slug test will overestimate K if the measurement is based on adding water to the hole and measuring the subsequent rate of fall of the water level.

APPLICATION OF SLUG TEST TO CONFINED AQUIFERS

Theoretically, the slug test (Bouwer and Rice, 1976) applies to aquifers where the upper boundary is a plane source (rising water-level test) or sink (falling water-level test), as in an unconfined aquifer. However, because most of the head difference y between the static water table and the water level in the well is dissipated in the vicinity of the well around the screen or perforated section, the method should also be applicable to situations where the upper boundary of the aquifer is an impermeable or semipermeable plane, i.e., an impermeable or semipermeable upper confining layer. Thus the slug test should also give reasonable values for K in confined, semiconfined, or stratified aquifers. Theoretically, the larger the distance between the top of the screened or open section of the well and the upper confining layer (like $L_w - L_c$ in Figure 1), the more accurate the resulting values of K will be. In actuality, however, source boundaries of ground water flowing into the well in response to lowering the water level are hard to define because of elastic deformation of aquifer material and confining and interbedded fine-textured layers, and because of leakage through semiconfining layers.

EFFECT OF WELL DIAMETER

Theoretically, the Bouwer and Rice slug test applies to any diameter of the borehole. Practically, the hole dimensions should be selected so that the geometry parameters are covered by Figure 2. The larger r_w and L_e (Figure 1), the larger the portion of the aquifer on which K is determined. For layered aquifers, smaller values of L_e may sometimes be preferable because they give more resolution and more information about the vertical distribution of K when the slug test is carried out at different depths. Very small hole diameters (for example 2 in. or 5 cm) should still give accurate values for K, but the values apply to only a small region around the well and, hence, are more sensitive to spatial variability. Also, inaccuracies in the estimates of the thickness of gravel envelopes and developed zones have a greater effect on the calculated values of K where r_c is small than where r_c is large.

PROCESSING OF y VERSUS t MEASUREMENTS

To calculate $1/t \ln(y_0/y_t)$ for the appropriate straight line portion of curves as in Figure 3 or 4, two values of y on the straight line and their

corresponding values of t are read from the graph. The natural logarithm of the ratio y_0/y_t is then taken and divided by the difference between the two values of t. For example, Figure 3 shows that at y is 0.28 m and 0.001 m, t is 0 and 24 seconds, respectively. This yields
$1/t \ln(y_0/y_t) = 1/24 \ln(0.28/0.001) = 0.23$ m/sec.
If $1/t \ln(y_0/y_t)$ is calculated from the slope of the curve, the number of log cycles on the vertical scale between the two points is divided by the time increment and multiplied by 2.3 to convert to natural logarithm. For example, Figure 3 shows that the straight line from $y_0 = 0.28$ m to $y_t = 0.001$ m covers 2.4 log cycles. The time increment between the two points is again 24 seconds, yielding $1/t \ln(y_0/y_t) = 2.3 \times 2.4/24 = 0.23$ m/sec, which is the same as calculated earlier. Because of different coordinate scales in plots of log y versus t, the value of $1/t \ln(y_0/y_t)$ cannot be taken as the actual slope of the straight line portion!

ESTIMATING RATE OF RISE OR FALL OF WATER LEVEL IN WELL

If the water level in a slug-tested well rises or falls at a relatively slow rate, simple water-level measuring devices and a stop watch may be all that is needed to do the test. Fast-moving water levels, however, require the use of a pressure transducer and a fast-acting x-y plotter. To get some idea about the rate of water-level movement that can be expected in a slug-tested well and what equipment to use, equation (3) can be solved for t and $\ln(y_0/y_t)$ can be taken as ln 10 to calculate the time $t_{90\%}$ required for the water level in the well to rise or fall 90% of the initial lowering or raising, respectively, of the water level in the well. This yields the equation

$$t_{90\%} = 1.15 \frac{r_c^2}{KL_e} \ln \frac{R_e}{r_w} \qquad (6)$$

where K must be taken as the estimated or expected value of K of the aquifer. Equation (6) yields values of t that are 22 times greater than the t values calculated by the $t_{90\%}$ equation in the original article (Bouwer and Rice, 1976), where $\ln(y_0/y_t)$ was erroneously taken as ln 0.9, thus yielding the time required for only 10% of the water-level rise or fall to occur.

COMPUTER PROGRAMS

Where the Bouwer and Rice slug test is routinely used, time for calculating K with equation (3) is saved by developing a computer program in which values of L_e/r_w are stored for direct calculation of $\ln(R_e/r_w)$ and K from the field data. Such programs have been developed by several users (see, for example, Pandit and Miner, 1986; and Kemblowski and Klein, 1988). Also, a number of users have designed forms for easy and systematic recording of field data.

REFERENCES

Bouwer, H. and R. C. Rice. 1976. A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells. Water Resources Research. v. 12, pp. 423-428.

Kemblowski, M. W. and C. L. Klein. 1988. An automated numerical evaluation of slug test data. Ground Water. v. 26, pp. 435-438.

Pandit, N. S. and R. F. Miner. 1986. Interpretation of slug test data. Ground Water. v. 24, pp. 743-749.

* * * * *

Herman Bouwer received B.S. and M.S. degrees in 1949 and 1952 in Drainage, Reclamation, and Irrigation from the National Agricultural University at Wageningen, The Netherlands, and a Ph.D. degree in 1955 in Soil and Water Management from Cornell University, New York. He was associated with the Agricultural Engineering Department of Auburn University, Alabama, from 1955 to 1959, before joining the U.S. Water Conservation Laboratory in Phoenix, Arizona, where he became Director in 1972. In 1970, he also was appointed Adjunct Professor at Arizona State University in Tempe where he taught Ground-Water Hydrology in the Geology and Civil Engineering Departments. He is also an Adjunct Professor at the University of Arizona in Tucson.

Attachment 3

AECOM

Data Usability Report

NYSEG/Auburn Green Street Former MPG Site
Eurofins Environmental Laboratory Data,
November 2022 - FINAL

NYSEG

Project number: 60652550

November 11, 2022

Delivering a better world

Quality information

Prepared by	Verified by
	
Ann Marie Kropovitch, Chemist	Peter R. Fairbanks, Senior Chemist

Prepared for:

NYSEG
Binghamton, NY

Prepared by:

AECOM
Amherst, NY

Table of Contents

Executive Summary

Overview

Data validation was performed by Ann Marie Kropovitch of AECOM-Amherst on data packages from Eurofins - Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298 for the analysis of groundwater and soil samples collected on September 28, 2021 thru October 4, 2022 at the NYSEG/Auburn Green Street Former Manufactured Gas Plant (MGP) site. The soil samples were analyzed for total arsenic only, the groundwater samples were analyzed for the remaining parameters.

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

- Volatile Organic Compounds by USEPA SW-846 Method 8260C
- Semivolatile Organic Compounds by USEPA SW-846 Method 8270D
- Metals (Dissolved Iron, Total Arsenic) SW-846 Method 6010C
- Total Cyanide by USEPA SW-846 Method 9012B
- Sulfate by USEPA Method 300.0
- Nitrate by calculation by Standard Methods for the examination of Water and Wastewater Method 4500.

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region 2 standard operating procedures (SOPs) and the validation criteria set forth in the following USEPA guidance documents as they apply to the analytical procedures.

- USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-2017-002, November 2020;
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-001, November 2020.
- Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B & 8260C, SOP HW-24, Revision 4, October 2014;
- Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8270D, SOP HW-22, Revision 5, December 2010;
- ICP-AES Data Validation, SOP HW-3a, Revision 1, September 2016; and
- Mercury and Cyanide Data Validation, SOP HW-3c, Revision 1, September 2016.

Field duplicate relative percent difference (RPD) review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996 and USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, June 1988.

The samples were processed, and the results were reported under sample delivery groups (SDG) 480-190294-1, 480-190335-1, 480-190335-2, 480-190421-1, 480-190421-2, 480-200734-1, and 480-202303-1. Table 1 provides a sample submittal list with the field IDs cross-referenced with the laboratory IDs.

Table 1 Sample Submittals – NYSEG/Auburn Green Street Former MGP Soil

Field ID	Laboratory ID	QC	Matrix	Date Sampled
SS-13-0-6	480-190294-1	MS/MSD	Soil	09/28/21 09:00
SS-13-6-12	480-190294-2		Soil	09/28/21 09:15

Field ID	Laboratory ID	QC	Matrix	Date Sampled
FD-20210928	480-190294-3	Field duplicate	Soil	09/28/21 00:00
EB-20210928	480-190294-4	Equipment Blank	Water	09/28/21 08:50
MW-1	480-190335-1		Water	09/30/21 15:47
MW-6	480-190335-2		Water	09/30/21 11:05
Duplicate	480-190335-3	Field duplicate	Water	09/30/21 00:00
MW-3	480-190335-4	MS/MSD	Water	09/30/21 12:11
MW-4	480-190335-5		Water	09/30/21 14:40
MW-5	480-190335-6		Water	09/30/21 16:51
Trip Blank	480-190335-7	Trip Blank	Water	09/30/21 00:00
MW-2	480-190421-1		Water	10/04/21 10:00
MW-7	480-190421-2		Water	10/04/21 11:15
MW-8	480-190421-3		Water	10/04/21 13:00
MW-9	480-190421-4		Water	10/04/21 16:55
MW-10	480-190421-5		Water	10/04/21 14:40
Rinse Blank	480-190421-6	Rinse Blank	Water	10/04/21 07:20
TB-100421	480-190421-7	Trip Blank	Water	10/04/21 00:00
MW-1	480-200734-1		Water	08/16/22 08:50
MW-2	480-200734-2		Water	08/16/22 10:00
MW-3	480-200734-3	MS/MSD	Water	08/16/22 12:15
MW-4	480-200734-4		Water	08/15/22 15:15
MW-5	480-200734-5		Water	08/15/22 10:55
MW-6	480-200734-6		Water	08/15/22 12:45
MW-8	480-200734-7		Water	08/16/22 11:30
MW-9	480-200734-8		Water	08/15/22 15:52
MW-10	480-200734-9		Water	08/15/22 14:00
MW-11	480-200734-10		Water	08/15/22 14:10
MW-12	480-200734-11		Water	08/16/22 10:00
Duplicate	480-200734-12	Field duplicate	Water	08/15/22 00:00
Rinse Blank	480-200734-13	Rinse Blank	Water	08/15/22 15:45
Trip Blank	480-200734-14	Trip Blank	Water	08/15/22 00:00
MW-7	480-200734-15		Water	08/16/22 09:10
MW-1	480-202303-1		Water	10/03/22 13:40
MW-2	480-202303-2		Water	10/03/22 15:39
MW-3	480-202303-3	MS/MSD	Water	10/03/22 09:34
MW-4	480-202303-4		Water	10/04/22 09:55
MW-7	480-202303-5		Water	10/04/22 08:23
MW-9	480-202303-6			10/04/22 10:48

Field ID	Laboratory ID	QC	Matrix	Date Sampled
MW-10	480-202303-7			10/03/22 11:02
MW-11	480-202303-8			10/03/22 12:10
MW-12	480-202303-9			10/03/22 14:15
Duplicate	480-202303-10	Field duplicate		10/03/22 00:00
Rinse Blank	480-202303-11	Rinse Blank		10/04/22 09:34
Trip Blank	480-202303-12	Trip Blank		10/04/22 00:00

Summary

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, matrix spikes, initial calibrations, continuing calibration verification standard recoveries, contract required detection limit standard recoveries, laboratory control samples, ICP interference check sample recoveries, ICP serial dilution results, field and laboratory duplicates, laboratory blanks, and analyte quantitation.

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., soil and groundwater) as reported by Eurofins-Buffalo. No data points were rejected. 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 that required data qualification is discussed below. Support documentation for data qualifications was included in Appendix C of this report.

1. Volatile Organic Compounds

Several samples were analyzed for VOCs utilizing dilutions due to high target compounds. Sample MW-11 (10/3/22) and MW-4 (10/4/22) were analyzed utilizing a 2x dilution due to the sample matrix issues. Both of these samples had low detections of VOCs. The reporting limits (RLs) for the non-detect compounds have been elevated due to the dilutions utilized in the analysis.

2. Semivolatile Organic Compounds

Several samples were analyzed for SVOCs utilizing dilutions due to high target compounds. Sample MW-11 (10/3/22) and MW-4 (10/4/22) were analyzed utilizing a 10x and 5X dilution, respectively, due to the sample matrix issues. Sample MW-4 had a low detection for SVOCs, sample MW-11 was non-detect. The RLs for the non-detect compounds have been elevated due to the dilutions utilized in the analysis.

3. Metals

Arsenic was detected in the method blank associated with the soil samples at a concentration below the RL. Since the results for As were greater than the RL in the samples, the 'B' qualifier applied by the laboratory has been removed.

Dissolved Iron (Fe) was detected in the metals method blanks and/or rinse blank at a concentration below the RL. Those associated samples that had concentrations of dissolved Fe greater than the RL had the 'B' qualifier applied by the lab removed. The results for dissolved Fe in the following samples have been qualified 'U' at the RL: MW-2 (10/4/21), MW-2 (8/16/22), and MW-5 (8/15/22).

The percent recovery (%R) of dissolved Fe in the matrix spike performed on sample MW-3 (8/16/22) was below the lower QC limit. The detected result for Fe in this sample has been qualified 'J'.

4. Wet Chemistry

The matrix spike/matrix spike duplicate performed on sample MW-3 (8/16/22) exhibited recoveries above the QC limit for cyanide (CN). The detected result for Cn in this sample was qualified ‘J’.

The matrix spike performed on sample MW-7 (8/16/22) exhibited a %R above the QC limit for CN. The detected result for Cn in this sample was qualified ‘J’.

The Rinse Blank (10/4/22) was detected for CN below the RL, The detected results for CN in associated samples MW-3 (10/3/22), MW-11 (10/3/22),and MW-12 (10/3/22) have been qualified ‘U’ at the RL.

Several samples were analyzed at dilutions due to the presence of elevated levels of target analytes.

5. Field Duplicate Precision

Field duplicate samples were collected at SS-13-6-12, MW-6 (9/30/21), MW-6 (8/15/22), and MW-10 (10/3/22). 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 detection 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 detection limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

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 only to the affected analyte in the duplicate sample pair.

Field sampling/laboratory precision and sample homogeneity were acceptable; no data qualification was required.

6. Notes

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

Positive results less than the reporting limit (RL), but greater than the method detection limit (MDL) were qualified “J,” as estimated concentrations, due to increased uncertainty near the detection limit. These “J” qualifiers were maintained in the data validation. Sample results reported between the MDL and RL are usable as estimated values with an unknown directional bias.

Sample Custody: Sample identifications, sample dates, and sample times on the chain of custody matched those found in the laboratory data package. The chain-of-custody was signed and dated, and proper chain of command was followed from field to laboratory.

Some metals samples were received unpreserved and were properly preserved at the laboratory upon receipt.

Appendix A Glossary of Data Qualifier Codes

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 but may be biased high.
J-	The result is an estimated quantity but may 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.
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

Client Sample ID: SS-13-0-6"
Lab Sample ID: 480-190294-1
Date Collected: 09/28/21 09:00
Matrix: Solid
Date Received: 09/30/21 10:00
Percent Solids: 70.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21.2		2.7	0.54	mg/Kg	☼	10/04/21 16:28	10/05/21 21:27	1

Client Sample ID: SS-13-0-6"-12"
Lab Sample ID: 480-190294-2
Date Collected: 09/28/21 09:15
Matrix: Solid
Date Received: 09/30/21 10:00
Percent Solids: 66.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	24.1		3.1	0.62	mg/Kg	☼	10/04/21 16:28	10/05/21 21:46	1

Client Sample ID: FD-20210928
FD of SS-13-6-12
Lab Sample ID: 480-190294-3
Date Collected: 09/28/21 00:00
Matrix: Solid
Date Received: 09/30/21 10:00
Percent Solids: 73.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	27.0		2.7	0.55	mg/Kg	☼	10/04/21 16:28	10/05/21 21:50	1

Client Sample ID: EB-20210928
Lab Sample ID: 480-190294-4
Date Collected: 09/28/21 08:50
Matrix: Water
Date Received: 09/30/21 10:00

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		10/01/21 09:30	10/02/21 01:39	1

Client Sample ID: MW-1
Lab Sample ID: 480-190335-1
Date Collected: 09/30/21 15:47
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.3**		4.0	0.70	mg/L			10/06/21 01:41	2
Cyanide, Total	**0.0073**	**J**	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:15	1
Nitrate as N	**2.6**		0.050	0.020	mg/L			10/01/21 18:42	1

Client Sample ID: MW-6
Lab Sample ID: 480-190335-2
Date Collected: 09/30/21 11:05
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 03:42	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 03:42	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 03:42	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 03:42	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 03:42	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 03:42	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 03:42	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*10/08/21 03:42*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 03:42*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/21 03:42*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 03:42*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 01:53	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 01:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 01:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:53	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 01:53	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*48 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
Nitrobenzene-d5 (Surr)	*61*		*46 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
p-Terphenyl-d14 (Surr)	*75*		*60 - 148*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*41 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
2-Fluorophenol (Surr)	*38*		*35 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
Phenol-d5 (Surr)	*30*		*22 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*

Client Sample ID: MW-6
Lab Sample ID: 480-190335-2
Date Collected: 09/30/21 11:05
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.99**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**26.4**		10.0	1.7	mg/L			10/06/21 02:00	5
Cyanide, Total	**0.0063**	**J**	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:16	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:45	1

Client Sample ID: DUPLICATE
Lab Sample ID: 480-190335-3
Date Collected: 09/30/21 00:00
FD of MW-6
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 04:05	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 04:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 04:05	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 04:05	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 04:05	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 04:05	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 04:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 04:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*10/08/21 04:05*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*10/08/21 04:05*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/21 04:05*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*10/08/21 04:05*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 16:27	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 16:27	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 16:27	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:27	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 16:27	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*67*		*48 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
p-Terphenyl-d14 (Surr)	*83*		*60 - 148*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*41 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
2-Fluorophenol (Surr)	*47*		*35 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
Phenol-d5 (Surr)	*36*		*22 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*

Client Sample ID: DUPLICATE
Date Collected: 09/30/21 00:00
Date Received: 10/01/21 10:20

FD of MW-6

Lab Sample ID: 480-190335-3
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.97		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	26.2		10.0	1.7	mg/L			10/06/21 02:18	5
Cyanide, Total	0.0057	J	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:18	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:46	1

Client Sample ID: MW-3
Date Collected: 09/30/21 12:11
Date Received: 10/01/21 10:20

Lab Sample ID: 480-190335-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 04:28	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 04:28	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 04:28	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 04:28	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 04:28	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 04:28	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 04:28	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 04:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/21 04:28*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 04:28*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/21 04:28*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 04:28*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[a]anthracene	ND		25	1.8	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[a]pyrene	ND		25	2.4	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[b]fluoranthene	ND		25	1.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[k]fluoranthene	ND		25	3.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Chrysene	ND		25	1.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		10/01/21 14:09	10/05/21 19:21	1
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		10/01/21 14:09	10/05/21 19:21	1
Naphthalene	ND		25	3.8	ug/L		10/01/21 14:09	10/05/21 19:21	1
Phenol	ND		25	2.0	ug/L		10/01/21 14:09	10/05/21 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*64*		*48 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
Nitrobenzene-d5 (Surr)	*62*		*46 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
p-Terphenyl-d14 (Surr)	*73*		*60 - 148*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
2,4,6-Tribromophenol (Surr)	*69*		*41 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
2-Fluorophenol (Surr)	*38*		*35 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
Phenol-d5 (Surr)	*28*		*22 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*

Client Sample ID: MW-3
Lab Sample ID: 480-190335-4
Date Collected: 09/30/21 12:11
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**15.9**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**8.9**	**J**	20.0	3.5	mg/L			10/05/21 22:18	10
Cyanide, Total	**0.0091**	**J**	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:11	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:53	1

Client Sample ID: MW-4
Lab Sample ID: 480-190335-5
Date Collected: 09/30/21 14:40
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.22**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**23.0**		2.0	0.35	mg/L			10/06/21 06:01	1
Cyanide, Total	**0.55**		0.020	0.010	mg/L		10/05/21 12:26	10/05/21 14:42	2
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:47	1

Client Sample ID: MW-5
Lab Sample ID: 480-190335-6
Date Collected: 09/30/21 16:51
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 05:14	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 05:14	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 05:14	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 05:14	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 05:14	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 05:14	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 05:14	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 05:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/21 05:14*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*10/08/21 05:14*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/21 05:14*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 05:14*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 17:19	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 17:19	1

Client Sample ID: MW-5
Lab Sample ID: 480-190335-6
Date Collected: 09/30/21 16:51
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 17:19	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 17:19	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 17:19	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*87*		*48 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
p-Terphenyl-d14 (Surr)	*100*		*60 - 148*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*41 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
2-Fluorophenol (Surr)	*59*		*35 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**52.4**		10.0	1.7	mg/L			10/06/21 06:19	5
Cyanide, Total	ND		0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:24	1
Nitrate as N	**3.5**		0.050	0.020	mg/L			10/01/21 19:18	1

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-190335-7
Date Collected: 09/30/21 00:00
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 05:36	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 05:36	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 05:36	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 05:36	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 05:36	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 05:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*10/08/21 05:36*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 05:36*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*10/08/21 05:36*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 05:36*	*1*

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190335-2

Client Sample ID: MW-1
Date Collected: 09/30/21 15:47
Date Received: 10/01/21 10:20

Lab Sample ID: 480-190335-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 03:19	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 03:19	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 03:19	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 03:19	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 03:19	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 03:19	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 03:19	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*10/08/21 03:19*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*10/08/21 03:19*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/21 03:19*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*10/08/21 03:19*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 01:27	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 01:27	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 01:27	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:27	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 01:27	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 01:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*48 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
Nitrobenzene-d5 (Surr)	*76*		*46 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
p-Terphenyl-d14 (Surr)	*91*		*60 - 148*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*41 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
2-Fluorophenol (Surr)	*45*		*35 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
Phenol-d5 (Surr)	*34*		*22 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190335-2

Client Sample ID: MW-4
Date Collected: 09/30/21 14:40
Date Received: 10/01/21 10:20

Lab Sample ID: 480-190335-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		800	240	ug/L			10/08/21 04:51	80
Benzene	**3200**		80	33	ug/L			10/08/21 04:51	80
Ethylbenzene	ND		80	59	ug/L			10/08/21 04:51	80
m-Xylene & p-Xylene	**120**	**J**	160	53	ug/L			10/08/21 04:51	80
o-Xylene	ND		80	61	ug/L			10/08/21 04:51	80
Styrene	ND		80	58	ug/L			10/08/21 04:51	80
Toluene	**150**		80	41	ug/L			10/08/21 04:51	80
Xylenes, Total	**120**	**J**	160	53	ug/L			10/08/21 04:51	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*10/08/21 04:51*	*80*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/08/21 04:51*	*80*
Dibromofluoromethane (Surr)	*97*		*75 - 123*		*10/08/21 04:51*	*80*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/21 04:51*	*80*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 16:53	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 16:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 16:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:53	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 16:53	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*48 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
p-Terphenyl-d14 (Surr)	*89*		*60 - 148*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
2-Fluorophenol (Surr)	*53*		*35 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*

Client Sample ID: MW-2
Lab Sample ID: 480-190421-1
Date Collected: 10/04/21 10:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 17:46	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 17:46	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 17:46	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:46	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 17:46	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*104*		*48 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
Nitrobenzene-d5 (Surr)	*103*		*46 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
p-Terphenyl-d14 (Surr)	*103*		*60 - 148*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
2,4,6-Tribromophenol (Surr)	*114*		*41 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
2-Fluorophenol (Surr)	*68*		*35 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
Phenol-d5 (Surr)	*52*		*22 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050**	**U**	0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**32.1**		10.0	1.7	mg/L			10/07/21 23:49	5
Cyanide, Total	**0.053**		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:27	1
Nitrate as N	**1.7**		0.050	0.020	mg/L			10/05/21 19:11	1

Client Sample ID: MW-7
Lab Sample ID: 480-190421-2
Date Collected: 10/04/21 11:15
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 18:12	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 18:12	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 18:12	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:12	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 18:12	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*107*		*48 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
Nitrobenzene-d5 (Surr)	*105*		*46 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
p-Terphenyl-d14 (Surr)	*101*		*60 - 148*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
2,4,6-Tribromophenol (Surr)	*115*		*41 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*

Client Sample ID: MW-7
Lab Sample ID: 480-190421-2
Date Collected: 10/04/21 11:15
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*70*		*35 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
Phenol-d5 (Surr)	*54*		*22 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**10**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**6.2**	**J**	10.0	1.7	mg/L			10/08/21 00:08	5
Cyanide, Total	**0.0088**	**J**	0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:29	1
Nitrate as N	ND		0.050	0.020	mg/L			10/05/21 19:12	1

Client Sample ID: MW-8
Lab Sample ID: 480-190421-3
Date Collected: 10/04/21 13:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 17:20	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 17:20	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 17:20	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:20	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 17:20	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
Nitrobenzene-d5 (Surr)	*97*		*46 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
p-Terphenyl-d14 (Surr)	*98*		*60 - 148*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
2,4,6-Tribromophenol (Surr)	*104*		*41 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**14.5**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**19.5**	**J**	20.0	3.5	mg/L			10/08/21 00:26	10
Cyanide, Total	**0.0054**	**J**	0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:30	1
Nitrate as N	**0.37**		0.050	0.020	mg/L			10/05/21 19:23	1

Client Sample ID: MW-9
Lab Sample ID: 480-190421-4
Date Collected: 10/04/21 16:55
Matrix: Water
Date Received: 10/05/21 08:55

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.92		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20.6		10.0	1.7	mg/L			10/08/21 00:45	5
Cyanide, Total	0.088		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:32	1
Nitrate as N	0.036	J	0.050	0.020	mg/L			10/05/21 19:24	1

Client Sample ID: MW-10
Lab Sample ID: 480-190421-5
Date Collected: 10/04/21 14:40
Matrix: Water
Date Received: 10/05/21 08:55

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.11		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	23.2		2.0	0.35	mg/L			10/08/21 01:03	1
Cyanide, Total	0.28		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:33	1
Nitrate as N	0.029	J	0.050	0.020	mg/L			10/05/21 19:26	1

Client Sample ID: RISE BLANK
RINSE BLANK
Lab Sample ID: 480-190421-6
Date Collected: 10/04/21 17:20
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 18:38	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 18:38	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 18:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:38	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 18:38	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
p-Terphenyl-d14 (Surr)	*111*		*60 - 148*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
2,4,6-Tribromophenol (Surr)	*107*		*41 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
2-Fluorophenol (Surr)	*62*		*35 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
Phenol-d5 (Surr)	*47*		*22 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:59	1

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190421-1

Client Sample ID: RISE BLANK
Date Collected: 10/04/21 17:20
Date Received: 10/05/21 08:55

RINSE BLANK

Lab Sample ID: 480-190421-6
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	0.35	mg/L			10/08/21 01:22	1
Cyanide, Total	ND		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:34	1
Nitrate as N	ND		0.050	0.020	mg/L			10/05/21 19:27	1

Client Sample ID: MW-2
Lab Sample ID: 480-190421-1
Date Collected: 10/04/21 10:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 17:19	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 17:19	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 17:19	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 17:19	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 17:19	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 17:19	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 17:19	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*10/07/21 17:19*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*10/07/21 17:19*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/07/21 17:19*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/07/21 17:19*	*1*

Client Sample ID: MW-7
Lab Sample ID: 480-190421-2
Date Collected: 10/04/21 11:15
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 17:42	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 17:42	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 17:42	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 17:42	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 17:42	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 17:42	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 17:42	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*10/07/21 17:42*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*10/07/21 17:42*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*10/07/21 17:42*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/07/21 17:42*	*1*

Client Sample ID: MW-8
Lab Sample ID: 480-190421-3
Date Collected: 10/04/21 13:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 18:05	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 18:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 18:05	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 18:05	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 18:05	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 18:05	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 18:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 18:05	1

Client Sample ID: MW-8
Date Collected: 10/04/21 13:00
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		10/07/21 18:05	1
4-Bromofluorobenzene (Surr)	101		73 - 120		10/07/21 18:05	1
Dibromofluoromethane (Surr)	103		75 - 123		10/07/21 18:05	1
Toluene-d8 (Surr)	100		80 - 120		10/07/21 18:05	1

Client Sample ID: MW-9
Date Collected: 10/04/21 16:55
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		200	60	ug/L			10/07/21 18:28	20
Benzene	**1200**		20	8.2	ug/L			10/07/21 18:28	20
Ethylbenzene	ND		20	15	ug/L			10/07/21 18:28	20
m-Xylene & p-Xylene	**25**	**J**	40	13	ug/L			10/07/21 18:28	20
o-Xylene	ND		20	15	ug/L			10/07/21 18:28	20
Styrene	ND		20	15	ug/L			10/07/21 18:28	20
Toluene	**22**		20	10	ug/L			10/07/21 18:28	20
Xylenes, Total	**25**	**J**	40	13	ug/L			10/07/21 18:28	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		10/07/21 18:28	20
4-Bromofluorobenzene (Surr)	98		73 - 120		10/07/21 18:28	20
Dibromofluoromethane (Surr)	98		75 - 123		10/07/21 18:28	20
Toluene-d8 (Surr)	101		80 - 120		10/07/21 18:28	20

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 16:26	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 16:26	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 16:26	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:26	1
Naphthalene	**26**		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 16:26	1
Phenol	**2.0**	**J**	5.0	0.39	ug/L		10/06/21 14:15	10/08/21 16:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	96		48 - 120	10/06/21 14:15	10/08/21 16:26	1
Nitrobenzene-d5 (Surr)	92		46 - 120	10/06/21 14:15	10/08/21 16:26	1
p-Terphenyl-d14 (Surr)	100		60 - 148	10/06/21 14:15	10/08/21 16:26	1
2,4,6-Tribromophenol (Surr)	106		41 - 120	10/06/21 14:15	10/08/21 16:26	1
2-Fluorophenol (Surr)	61		35 - 120	10/06/21 14:15	10/08/21 16:26	1
Phenol-d5 (Surr)	49		22 - 120	10/06/21 14:15	10/08/21 16:26	1

Client Sample ID: MW-10
Lab Sample ID: 480-190421-5
Date Collected: 10/04/21 14:40
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 18:51	1
Benzene	**2.0**		1.0	0.41	ug/L			10/07/21 18:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 18:51	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 18:51	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 18:51	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 18:51	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 18:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/07/21 18:51*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/07/21 18:51*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*10/07/21 18:51*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*10/07/21 18:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 16:53	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 16:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 16:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:53	1
Naphthalene	**5.8**		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 16:53	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*90*		*48 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
Nitrobenzene-d5 (Surr)	*91*		*46 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
p-Terphenyl-d14 (Surr)	*85*		*60 - 148*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
2,4,6-Tribromophenol (Surr)	*101*		*41 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
2-Fluorophenol (Surr)	*63*		*35 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
Phenol-d5 (Surr)	*46*		*22 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*

Client Sample ID: RISE BLANK
Lab Sample ID: 480-190421-6
Date Collected: 10/04/21 17:20
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 19:14	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 19:14	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 19:14	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 19:14	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 19:14	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 19:14	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 19:14	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 19:14	1

Client Sample ID: RISE BLANK
Lab Sample ID: 480-190421-6

Date Collected: 10/04/21 17:20
Matrix: Water
Date Received: 10/05/21 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/07/21 19:14*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/07/21 19:14*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/07/21 19:14*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/07/21 19:14*	*1*

Client Sample ID: TB-100421
Lab Sample ID: 480-190421-7

Date Collected: 10/04/21 00:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 19:37	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 19:37	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 19:37	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 19:37	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 19:37	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 19:37	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 19:37	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/07/21 19:37*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/07/21 19:37*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*10/07/21 19:37*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/07/21 19:37*	*1*

Client Sample ID: MW-1
Date Collected: 08/16/22 08:50
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 02:22	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 02:22	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 02:22	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 02:22	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 02:22	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 02:22*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*08/17/22 02:22*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 02:22*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 02:22*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.4	0.43	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[a]anthracene	ND		5.4	0.39	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[a]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[b]fluoranthene	ND		5.4	0.37	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[k]fluoranthene	ND		5.4	0.79	ug/L		08/20/22 08:36	08/22/22 16:47	1
Chrysene	ND		5.4	0.36	ug/L		08/20/22 08:36	08/22/22 16:47	1
Dibenz(a,h)anthracene	ND		5.4	0.46	ug/L		08/20/22 08:36	08/22/22 16:47	1
Indeno[1,2,3-cd]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 16:47	1
Naphthalene	ND		5.4	0.83	ug/L		08/20/22 08:36	08/22/22 16:47	1
Phenol	ND		5.4	0.42	ug/L		08/20/22 08:36	08/22/22 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
2-Fluorobiphenyl (Surr)	*83*		*48 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
2-Fluorophenol (Surr)	*56*		*35 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*08/20/22 08:36*	*08/22/22 16:47*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15.5**		10.0	1.7	mg/L			08/24/22 18:30	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:09	1
Cyanide, Total	**0.0051**	**J**	0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 14:58	1
Nitrate as N	**0.15**		0.050	0.020	mg/L			08/16/22 16:13	1

Client Sample ID: MW-2
Date Collected: 08/16/22 10:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 02:44	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 02:44	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 02:44	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 02:44	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 02:44	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*77 - 120*		*08/17/22 02:44*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 02:44*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*08/17/22 02:44*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 02:44*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 17:15	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 17:15	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 17:15	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 17:15	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 17:15	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*41 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
2-Fluorobiphenyl (Surr)	*62*		*48 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
2-Fluorophenol (Surr)	*39*		*35 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
Nitrobenzene-d5 (Surr)	*55*		*46 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
Phenol-d5 (Surr)	*32*		*22 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 17:15*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050 U**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**31.6**		4.0	0.70	mg/L			08/24/22 18:44	2
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:11	1
Cyanide, Total	**0.11**		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:00	1
Nitrate as N	**1.5**		0.050	0.020	mg/L			08/16/22 16:14	1

Client Sample ID: MW-3
Date Collected: 08/15/22 12:15
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 03:06	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 03:06	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 03:06	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 03:06	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 03:06	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 03:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*08/17/22 03:06*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*08/17/22 03:06*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 03:06*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*08/17/22 03:06*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 16:19	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 16:19	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 16:19	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 16:19	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 16:19	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*96*		*41 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
2-Fluorobiphenyl (Surr)	*91*		*48 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
Nitrobenzene-d5 (Surr)	*81*		*46 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
p-Terphenyl-d14 (Surr)	*91*		*60 - 148*	*08/20/22 08:36*	*08/22/22 16:19*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**16.5**	**J**	0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**13.4**	**J**	20.0	3.5	mg/L			08/24/22 14:01	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:19	1
Cyanide, Total	**0.012**	**J**	0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 14:51	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:16	1

Client Sample ID: MW-4
Date Collected: 08/15/22 15:15
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		400	120	ug/L			08/17/22 14:38	40
Benzene	**1200**		40	16	ug/L			08/17/22 14:38	40
Ethylbenzene	ND		40	30	ug/L			08/17/22 14:38	40
Styrene	**29**	**J**	40	29	ug/L			08/17/22 14:38	40
Toluene	**270**		40	20	ug/L			08/17/22 14:38	40
Xylenes, Total	**150**		80	26	ug/L			08/17/22 14:38	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*08/17/22 14:38*	*40*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 14:38*	*40*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 14:38*	*40*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 14:38*	*40*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[a]anthracene	ND		25	1.8	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[a]pyrene	ND		25	2.4	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[b]fluoranthene	ND		25	1.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[k]fluoranthene	ND		25	3.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Chrysene	ND		25	1.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		08/20/22 08:36	08/22/22 17:43	5
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		08/20/22 08:36	08/22/22 17:43	5
Naphthalene	**95**		25	3.8	ug/L		08/20/22 08:36	08/22/22 17:43	5
Phenol	**2.6**	**J**	25	2.0	ug/L		08/20/22 08:36	08/22/22 17:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*41 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
2-Fluorobiphenyl (Surr)	*82*		*48 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
2-Fluorophenol (Surr)	*54*		*35 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
Nitrobenzene-d5 (Surr)	*71*		*46 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
Phenol-d5 (Surr)	*40*		*22 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
p-Terphenyl-d14 (Surr)	*94*		*60 - 148*	*08/20/22 08:36*	*08/22/22 17:43*	*5*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.21**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**36.0**		2.0	0.35	mg/L			08/24/22 18:58	1
Nitrite as N	**0.046**	**J**	0.050	0.020	mg/L			08/16/22 17:12	1
Cyanide, Total	**0.76**		0.050	0.025	mg/L		08/17/22 14:14	08/17/22 15:15	5
Nitrate as N	**0.37**		0.050	0.020	mg/L			08/16/22 16:20	1

Client Sample ID: MW-5
Date Collected: 08/15/22 10:55
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 03:51	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 03:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 03:51	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 03:51	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 03:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 03:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*08/17/22 03:51*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*08/17/22 03:51*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/17/22 03:51*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/17/22 03:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 18:10	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 18:10	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 18:10	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 18:10	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 18:10	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
2-Fluorobiphenyl (Surr)	*82*		*48 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
p-Terphenyl-d14 (Surr)	*93*		*60 - 148*	*08/20/22 08:36*	*08/22/22 18:10*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050**	**U**	0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**81.2**		10.0	1.7	mg/L			08/24/22 19:12	5
Nitrite as N	**0.042**	**J**	0.050	0.020	mg/L			08/16/22 17:13	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:05	1
Nitrate as N	**1.4**		0.050	0.020	mg/L			08/16/22 16:21	1

Client Sample ID: MW-6
Date Collected: 08/15/22 12:45
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 04:13	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 04:13	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 04:13	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 04:13	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 04:13	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 04:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*08/17/22 04:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*08/17/22 04:13*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/17/22 04:13*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*08/17/22 04:13*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 18:38	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 18:38	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 18:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 18:38	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 18:38	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
2-Fluorobiphenyl (Surr)	*78*		*48 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
2-Fluorophenol (Surr)	*51*		*35 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
Nitrobenzene-d5 (Surr)	*67*		*46 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
Phenol-d5 (Surr)	*39*		*22 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
p-Terphenyl-d14 (Surr)	*86*		*60 - 148*	*08/20/22 08:36*	*08/22/22 18:38*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.35**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**28.0**		10.0	1.7	mg/L			08/24/22 19:26	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:15	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:07	1
Nitrate as N	**0.065**		0.050	0.020	mg/L			08/16/22 16:25	1

Client Sample ID: MW-8
Date Collected: 08/16/22 11:30
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 04:36	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 04:36	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 04:36	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 04:36	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 04:36	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 04:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/17/22 04:36*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*08/17/22 04:36*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 04:36*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 04:36*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.4	0.43	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[a]anthracene	ND		5.4	0.39	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[a]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[b]fluoranthene	ND		5.4	0.37	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[k]fluoranthene	ND		5.4	0.79	ug/L		08/20/22 08:36	08/22/22 19:05	1
Chrysene	ND		5.4	0.36	ug/L		08/20/22 08:36	08/22/22 19:05	1
Dibenz(a,h)anthracene	ND		5.4	0.46	ug/L		08/20/22 08:36	08/22/22 19:05	1
Indeno[1,2,3-cd]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 19:05	1
Naphthalene	ND		5.4	0.83	ug/L		08/20/22 08:36	08/22/22 19:05	1
Phenol	ND		5.4	0.42	ug/L		08/20/22 08:36	08/22/22 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
2-Fluorobiphenyl (Surr)	*66*		*48 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
2-Fluorophenol (Surr)	*46*		*35 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
Nitrobenzene-d5 (Surr)	*57*		*46 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
Phenol-d5 (Surr)	*37*		*22 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
p-Terphenyl-d14 (Surr)	*88*		*60 - 148*	*08/20/22 08:36*	*08/22/22 19:05*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**18.2**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15.2**	**J**	20.0	3.5	mg/L			08/24/22 21:05	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:28	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:08	1
Nitrate as N	**0.027**	**J**	0.050	0.020	mg/L			08/16/22 16:28	1

Client Sample ID: MW-9
Date Collected: 08/15/22 15:52
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-8
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		80	24	ug/L			08/17/22 15:01	8
Benzene	**190**		8.0	3.3	ug/L			08/17/22 15:01	8
Ethylbenzene	ND		8.0	5.9	ug/L			08/17/22 15:01	8
Styrene	ND		8.0	5.8	ug/L			08/17/22 15:01	8
Toluene	ND		8.0	4.1	ug/L			08/17/22 15:01	8
Xylenes, Total	ND		16	5.3	ug/L			08/17/22 15:01	8

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 15:01*	*8*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 15:01*	*8*
Dibromofluoromethane (Surr)	*106*		*75 - 123*		*08/17/22 15:01*	*8*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/17/22 15:01*	*8*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.7	0.45	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[a]anthracene	ND		5.7	0.41	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[a]pyrene	ND		5.7	0.53	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[b]fluoranthene	ND		5.7	0.39	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[k]fluoranthene	ND		5.7	0.83	ug/L		08/20/22 08:36	08/22/22 19:32	1
Chrysene	ND		5.7	0.38	ug/L		08/20/22 08:36	08/22/22 19:32	1
Dibenz(a,h)anthracene	ND		5.7	0.48	ug/L		08/20/22 08:36	08/22/22 19:32	1
Indeno[1,2,3-cd]pyrene	ND		5.7	0.53	ug/L		08/20/22 08:36	08/22/22 19:32	1
Naphthalene	**1.0**	**J**	5.7	0.86	ug/L		08/20/22 08:36	08/22/22 19:32	1
Phenol	**2.8**	**J**	5.7	0.44	ug/L		08/20/22 08:36	08/22/22 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*41 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
2-Fluorobiphenyl (Surr)	*69*		*48 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
2-Fluorophenol (Surr)	*44*		*35 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
Nitrobenzene-d5 (Surr)	*60*		*46 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
Phenol-d5 (Surr)	*38*		*22 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 19:32*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**5.8**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**6.5**	**J**	20.0	3.5	mg/L			08/24/22 21:19	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:23	1
Cyanide, Total	**0.017**		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:10	1
Nitrate as N	**0.11**		0.050	0.020	mg/L			08/16/22 16:31	1

Client Sample ID: MW-10
Date Collected: 08/15/22 14:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-9
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 05:20	1
Benzene	**1.6**		1.0	0.41	ug/L			08/17/22 05:20	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 05:20	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 05:20	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 05:20	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 05:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/17/22 05:20*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/17/22 05:20*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 05:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 05:20*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 20:00	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 20:00	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 20:00	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:00	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 20:00	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
2-Fluorobiphenyl (Surr)	*60*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
2-Fluorophenol (Surr)	*37*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
Nitrobenzene-d5 (Surr)	*52*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
Phenol-d5 (Surr)	*32*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:00*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.085**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**18.8**		2.0	0.35	mg/L			08/24/22 21:33	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:32	1
Cyanide, Total	**0.19**		0.010	0.0050	mg/L		08/23/22 12:18	08/23/22 14:08	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:32	1

Client Sample ID: MW-11
Date Collected: 08/15/22 14:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.0	ug/L			08/19/22 15:00	2
Benzene	**3.2**		2.0	0.82	ug/L			08/19/22 15:00	2
Ethylbenzene	ND		2.0	1.5	ug/L			08/19/22 15:00	2
Styrene	ND		2.0	1.5	ug/L			08/19/22 15:00	2
Toluene	ND		2.0	1.0	ug/L			08/19/22 15:00	2
Xylenes, Total	ND		4.0	1.3	ug/L			08/19/22 15:00	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:00*	*2*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*08/19/22 15:00*	*2*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/19/22 15:00*	*2*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/19/22 15:00*	*2*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	**7.8**	**J**	52	4.2	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[a]anthracene	ND		52	3.8	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[a]pyrene	ND		52	4.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[b]fluoranthene	ND		52	3.5	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[k]fluoranthene	ND		52	7.6	ug/L		08/20/22 08:36	08/22/22 20:28	10
Chrysene	ND		52	3.4	ug/L		08/20/22 08:36	08/22/22 20:28	10
Dibenz(a,h)anthracene	ND		52	4.4	ug/L		08/20/22 08:36	08/22/22 20:28	10
Indeno[1,2,3-cd]pyrene	ND		52	4.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Naphthalene	**210**		52	7.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Phenol	ND		52	4.1	ug/L		08/20/22 08:36	08/22/22 20:28	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
2-Fluorobiphenyl (Surr)	*85*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
2-Fluorophenol (Surr)	*47*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
Nitrobenzene-d5 (Surr)	*67*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
Phenol-d5 (Surr)	*46*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
p-Terphenyl-d14 (Surr)	*68*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:28*	*10*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.14**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**25.8**		2.0	0.35	mg/L			08/24/22 21:48	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:33	1
Cyanide, Total	**0.31**		0.010	0.0050	mg/L		08/23/22 12:18	08/23/22 14:10	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:33	1

Client Sample ID: MW-12
Date Collected: 08/16/22 10:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-11
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/19/22 15:27	1
Benzene	**25**		1.0	0.41	ug/L			08/19/22 15:27	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/19/22 15:27	1
Styrene	ND		1.0	0.73	ug/L			08/19/22 15:27	1
Toluene	ND		1.0	0.51	ug/L			08/19/22 15:27	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/19/22 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:27*	*1*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*08/19/22 15:27*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*08/19/22 15:27*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*08/19/22 15:27*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 20:56	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 20:56	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 20:56	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:56	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 20:56	1
Phenol	**0.74**	**J**	5.2	0.41	ug/L		08/20/22 08:36	08/22/22 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
2-Fluorobiphenyl (Surr)	*75*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
2-Fluorophenol (Surr)	*49*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
Nitrobenzene-d5 (Surr)	*65*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
Phenol-d5 (Surr)	*41*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
p-Terphenyl-d14 (Surr)	*80*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:56*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**6.5**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**22.6**		10.0	1.7	mg/L			08/24/22 22:02	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:35	1
Cyanide, Total	**0.0070**	**J**	0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:12	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:35	1

Client Sample ID: DUPLICATE

FD of MW-6

Lab Sample ID: 480-200734-12

Date Collected: 08/15/22 00:00
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/19/22 15:51	1
Benzene	ND		1.0	0.41	ug/L			08/19/22 15:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/19/22 15:51	1
Styrene	ND		1.0	0.73	ug/L			08/19/22 15:51	1
Toluene	ND		1.0	0.51	ug/L			08/19/22 15:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/19/22 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:51*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*08/19/22 15:51*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/19/22 15:51*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/19/22 15:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 21:24	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 21:24	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 21:24	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:24	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 21:24	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*41 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
2-Fluorobiphenyl (Surr)	*65*		*48 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
2-Fluorophenol (Surr)	*43*		*35 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
Nitrobenzene-d5 (Surr)	*56*		*46 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
Phenol-d5 (Surr)	*35*		*22 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
p-Terphenyl-d14 (Surr)	*77*		*60 - 148*	*08/20/22 08:36*	*08/22/22 21:24*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.34**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**27.9**		10.0	1.7	mg/L			08/24/22 22:16	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:24	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:13	1
Nitrate as N	**0.076**		0.050	0.020	mg/L			08/16/22 16:36	1

Client Sample ID: RINSE BLANK
Lab Sample ID: 480-200734-13

Date Collected: 08/15/22 15:45
Matrix: Water

Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 05:43	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 05:43	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 05:43	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 05:43	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 05:43	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 05:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*08/17/22 05:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*08/17/22 05:43*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*08/17/22 05:43*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 05:43*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 21:51	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 21:51	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 21:51	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:51	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 21:51	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*68*		*41 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
2-Fluorobiphenyl (Surr)	*66*		*48 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
2-Fluorophenol (Surr)	*43*		*35 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
Nitrobenzene-d5 (Surr)	*57*		*46 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
Phenol-d5 (Surr)	*36*		*22 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
p-Terphenyl-d14 (Surr)	*98*		*60 - 148*	*08/20/22 08:36*	*08/22/22 21:51*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.037**	**J**	0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	0.35	mg/L			08/24/22 22:30	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:38	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:15	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:38	1

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-200734-14
Date Collected: 08/15/22 00:00
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 06:05	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 06:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 06:05	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 06:05	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 06:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*08/17/22 06:05*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*08/17/22 06:05*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 06:05*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/17/22 06:05*	*1*

Client Sample ID: MW-7
Lab Sample ID: 480-200734-15
Date Collected: 08/16/22 09:10
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 06:28	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 06:28	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 06:28	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 06:28	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 06:28	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 06:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 06:28*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/17/22 06:28*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 06:28*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*08/17/22 06:28*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 22:18	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 22:18	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 22:18	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 22:18	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 22:18	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*91*		*41 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
2-Fluorobiphenyl (Surr)	*87*		*48 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
2-Fluorophenol (Surr)	*59*		*35 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
Nitrobenzene-d5 (Surr)	*76*		*46 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*

Client Sample ID: MW-7
Date Collected: 08/16/22 09:10
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-15
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
p-Terphenyl-d14 (Surr)	*74*		*60 - 148*	*08/20/22 08:36*	*08/22/22 22:18*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**8.0**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**14.7**		10.0	1.7	mg/L			08/24/22 22:44	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:44	1
Cyanide, Total	**0.0062**	**J**	0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:16	1
Nitrate as N	**0.040**	**J**	0.050	0.020	mg/L			08/16/22 16:44	1

Client Sample ID: MW-1
Lab Sample ID: 480-202303-1
Date Collected: 10/03/22 13:40
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 14:43	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 14:43	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 14:43	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 14:43	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 14:43	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/08/22 14:43*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*10/08/22 14:43*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/22 14:43*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 14:43*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 14:31	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 14:31	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 14:31	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 14:31	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 14:31	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*41 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
2-Fluorobiphenyl	*97*		*48 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
Phenol-d5 (Surr)	*56*		*22 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 14:31*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.32**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**17.9**		10.0	1.7	mg/L			10/07/22 06:20	5
Cyanide, Total (SW846 9012B)	ND		0.010	0.0041	mg/L			10/05/22 20:31	1
Nitrate as N (SM Nitrate by calc)	**0.24**		0.050	0.020	mg/L			10/04/22 21:34	1

Client Sample ID: MW-2
Lab Sample ID: 480-202303-2
Date Collected: 10/03/22 15:39
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:06	1

Client Sample ID: MW-2
Lab Sample ID: 480-202303-2
Date Collected: 10/03/22 15:39
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.53**	**J**	1.0	0.41	ug/L			10/08/22 15:06	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:06	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:06	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:06	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/08/22 15:06*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 15:06*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/22 15:06*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*10/08/22 15:06*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 14:59	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 14:59	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 14:59	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 14:59	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 14:59	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*41 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
2-Fluorobiphenyl	*81*		*48 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
Nitrobenzene-d5 (Surr)	*70*		*46 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
p-Terphenyl-d14 (Surr)	*80*		*60 - 148*	*10/06/22 08:28*	*10/07/22 14:59*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.068**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**30.3**		10.0	1.7	mg/L			10/07/22 06:40	5
Cyanide, Total (SW846 9012B)	**0.046**		0.010	0.0041	mg/L			10/09/22 14:09	1
Nitrate as N (SM Nitrate by calc)	**0.68**		0.050	0.020	mg/L			10/04/22 21:35	1

Client Sample ID: MW-3
Lab Sample ID: 480-202303-3
Date Collected: 10/03/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:27	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 15:27	1

Client Sample ID: MW-3
Lab Sample ID: 480-202303-3
Date Collected: 10/03/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:27	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:27	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:27	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*10/08/22 15:27*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 15:27*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/22 15:27*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/22 15:27*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 13:35	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 13:35	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 13:35	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 13:35	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 13:35	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*58*		*41 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
2-Fluorobiphenyl	*78*		*48 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
2-Fluorophenol (Surr)	*53*		*35 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
Nitrobenzene-d5 (Surr)	*65*		*46 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*10/06/22 08:28*	*10/07/22 13:35*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**15.3**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**9.3**	**J**	20.0	3.5	mg/L			10/07/22 02:25	10
Cyanide, Total (SW846 9012B)	**0.010**	**U**	0.010	0.0041	mg/L			10/09/22 13:56	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:46	1

Client Sample ID: MW-4
Lab Sample ID: 480-202303-4
Date Collected: 10/04/22 09:55
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**17**	**J**	20	6.0	ug/L			10/10/22 01:16	2
Benzene	**88**		2.0	0.82	ug/L			10/10/22 01:16	2
Ethylbenzene	**2.0**		2.0	1.5	ug/L			10/10/22 01:16	2

Client Sample ID: MW-4
Lab Sample ID: 480-202303-4
Date Collected: 10/04/22 09:55
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		2.0	1.5	ug/L			10/10/22 01:16	2
Toluene	**12**		2.0	1.0	ug/L			10/10/22 01:16	2
Xylenes, Total	**9.2**		4.0	1.3	ug/L			10/10/22 01:16	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/10/22 01:16*	*2*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*10/10/22 01:16*	*2*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/10/22 01:16*	*2*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/10/22 01:16*	*2*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[a]anthracene	ND		25	1.8	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[a]pyrene	ND		25	2.4	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[b]fluoranthene	ND		25	1.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[k]fluoranthene	ND		25	3.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Chrysene	ND		25	1.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		10/06/22 08:28	10/07/22 15:26	5
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		10/06/22 08:28	10/07/22 15:26	5
Naphthalene	ND		25	3.8	ug/L		10/06/22 08:28	10/07/22 15:26	5
Phenol	**4.7**	**J**	25	2.0	ug/L		10/06/22 08:28	10/07/22 15:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*41 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
2-Fluorobiphenyl	*94*		*48 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
2-Fluorophenol (Surr)	*55*		*35 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
Nitrobenzene-d5 (Surr)	*79*		*46 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
Phenol-d5 (Surr)	*42*		*22 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 15:26*	*5*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.45**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**56.8**		10.0	1.7	mg/L			10/07/22 22:40	5
Cyanide, Total (SW846 9012B)	**0.36**		0.010	0.0041	mg/L			10/09/22 14:12	1
Nitrate as N (SM Nitrate by calc)	**0.086**		0.050	0.020	mg/L			10/04/22 21:37	1

Client Sample ID: MW-7
Lab Sample ID: 480-202303-5
Date Collected: 10/04/22 08:23
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 18:55	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 18:55	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 18:55	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 18:55	1

Client Sample ID: MW-7
Lab Sample ID: 480-202303-5
Date Collected: 10/04/22 08:23
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.51	ug/L			10/07/22 18:55	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*77 - 120*		*10/07/22 18:55*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*10/07/22 18:55*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*10/07/22 18:55*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/07/22 18:55*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 15:54	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 15:54	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 15:54	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 15:54	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 15:54	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*41 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
2-Fluorobiphenyl	*102*		*48 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
Phenol-d5 (Surr)	*57*		*22 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
p-Terphenyl-d14 (Surr)	*101*		*60 - 148*	*10/06/22 08:28*	*10/07/22 15:54*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**9.7**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**10.8**		10.0	1.7	mg/L			10/07/22 22:59	5
Cyanide, Total (SW846 9012B)	ND		0.010	0.0041	mg/L			10/05/22 20:38	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:38	1

Client Sample ID: MW-9
Lab Sample ID: 480-202303-6
Date Collected: 10/04/22 10:48
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**7.7**	**J**	10	3.0	ug/L			10/10/22 01:38	1
Benzene	**6.1**		1.0	0.41	ug/L			10/10/22 01:38	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/10/22 01:38	1
Styrene	ND		1.0	0.73	ug/L			10/10/22 01:38	1
Toluene	**0.70**	**J**	1.0	0.51	ug/L			10/10/22 01:38	1

Client Sample ID: MW-9
Lab Sample ID: 480-202303-6
Date Collected: 10/04/22 10:48
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		2.0	0.66	ug/L			10/10/22 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/10/22 01:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/10/22 01:38*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/10/22 01:38*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/10/22 01:38*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 16:22	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 16:22	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 16:22	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 16:22	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 16:22	1
Phenol	**0.74**	**J**	5.0	0.39	ug/L		10/06/22 08:28	10/07/22 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*41 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
2-Fluorobiphenyl	*88*		*48 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
Nitrobenzene-d5 (Surr)	*74*		*46 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
p-Terphenyl-d14 (Surr)	*79*		*60 - 148*	*10/06/22 08:28*	*10/07/22 16:22*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**239**		20.0	3.5	mg/L			10/07/22 23:19	10
Cyanide, Total (SW846 9012B)	**0.023**		0.010	0.0041	mg/L			10/09/22 14:14	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:39	1

Client Sample ID: MW-10
Lab Sample ID: 480-202303-7
Date Collected: 10/03/22 11:02
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:49	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 15:49	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:49	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:49	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:49	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:49	1

Client Sample ID: MW-10
Date Collected: 10/03/22 11:02
Date Received: 10/04/22 14:10

Lab Sample ID: 480-202303-7
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/08/22 15:49*	*1*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*10/08/22 15:49*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/22 15:49*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*10/08/22 15:49*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.7	0.45	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[a]anthracene	ND		5.7	0.41	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[a]pyrene	ND		5.7	0.53	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[b]fluoranthene	ND		5.7	0.39	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[k]fluoranthene	ND		5.7	0.83	ug/L		10/06/22 08:28	10/07/22 16:50	1
Chrysene	ND		5.7	0.38	ug/L		10/06/22 08:28	10/07/22 16:50	1
Dibenz(a,h)anthracene	ND		5.7	0.48	ug/L		10/06/22 08:28	10/07/22 16:50	1
Indeno[1,2,3-cd]pyrene	ND		5.7	0.53	ug/L		10/06/22 08:28	10/07/22 16:50	1
Naphthalene	ND		5.7	0.86	ug/L		10/06/22 08:28	10/07/22 16:50	1
Phenol	ND		5.7	0.44	ug/L		10/06/22 08:28	10/07/22 16:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*41 - 120*	*10/06/22 08:28*	*10/07/22 16:50*	*1*
2-Fluorobiphenyl	*81*		*48 - 120*	*10/06/22 08:28*	*10/07/22 16:50*	*1*
2-Fluorophenol (Surr)	*60*		*35 - 120*	*10/06/22 08:28*	*10/07/22 16:50*	*1*
Nitrobenzene-d5 (Surr)	*70*		*46 - 120*	*10/06/22 08:28*	*10/07/22 16:50*	*1*
Phenol-d5 (Surr)	*50*		*22 - 120*	*10/06/22 08:28*	*10/07/22 16:50*	*1*
p-Terphenyl-d14 (Surr)	*84*		*60 - 148*	*10/06/22 08:28*	*10/07/22 16:50*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.067**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**21.1**		2.0	0.35	mg/L			10/07/22 23:38	1
Cyanide, Total (SW846 9012B)	**0.15**		0.010	0.0041	mg/L			10/09/22 14:29	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:50	1

Client Sample ID: MW-11
Date Collected: 10/03/22 12:10
Date Received: 10/04/22 14:10

Lab Sample ID: 480-202303-8
Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.0	ug/L			10/08/22 16:11	2
Benzene	**1.9**	**J**	2.0	0.82	ug/L			10/08/22 16:11	2
Ethylbenzene	ND		2.0	1.5	ug/L			10/08/22 16:11	2
Styrene	ND		2.0	1.5	ug/L			10/08/22 16:11	2
Toluene	ND		2.0	1.0	ug/L			10/08/22 16:11	2
Xylenes, Total	ND		4.0	1.3	ug/L			10/08/22 16:11	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/08/22 16:11*	*2*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*10/08/22 16:11*	*2*

Client Sample ID: MW-11
Lab Sample ID: 480-202303-8
Date Collected: 10/03/22 12:10
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/22 16:11*	*2*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 16:11*	*2*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		52	4.2	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[a]anthracene	ND		52	3.8	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[a]pyrene	ND		52	4.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[b]fluoranthene	ND		52	3.5	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[k]fluoranthene	ND		52	7.6	ug/L		10/06/22 08:28	10/07/22 17:19	10
Chrysene	ND		52	3.4	ug/L		10/06/22 08:28	10/07/22 17:19	10
Dibenz(a,h)anthracene	ND		52	4.4	ug/L		10/06/22 08:28	10/07/22 17:19	10
Indeno[1,2,3-cd]pyrene	ND		52	4.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Naphthalene	ND		52	7.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Phenol	ND		52	4.1	ug/L		10/06/22 08:28	10/07/22 17:19	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*63*		*41 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
2-Fluorobiphenyl	*77*		*48 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
2-Fluorophenol (Surr)	*40*		*35 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
Nitrobenzene-d5 (Surr)	*61*		*46 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
Phenol-d5 (Surr)	*27*		*22 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
p-Terphenyl-d14 (Surr)	*65*		*60 - 148*	*10/06/22 08:28*	*10/07/22 17:19*	*10*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.13**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**17.3**		2.0	0.35	mg/L			10/08/22 01:36	1
Cyanide, Total (SW846 9012B)	**0.010 U**		0.010	0.0041	mg/L			10/05/22 21:12	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:52	1

Client Sample ID: MW-12
Lab Sample ID: 480-202303-9
Date Collected: 10/03/22 14:50
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 16:33	1
Benzene	**7.3**		1.0	0.41	ug/L			10/08/22 16:33	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 16:33	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 16:33	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 16:33	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*10/08/22 16:33*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*10/08/22 16:33*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*10/08/22 16:33*	*1*

Client Sample ID: MW-12
Lab Sample ID: 480-202303-9
Date Collected: 10/03/22 14:50
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/08/22 16:33*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 17:46	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 17:46	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 17:46	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 17:46	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 17:46	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*78*		*41 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
2-Fluorophenol (Surr)	*65*		*35 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
Nitrobenzene-d5 (Surr)	*82*		*46 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
Phenol-d5 (Surr)	*50*		*22 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
p-Terphenyl-d14 (Surr)	*81*		*60 - 148*	*10/06/22 08:28*	*10/07/22 17:46*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**8.8**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**19.0**		10.0	1.7	mg/L			10/08/22 01:56	5
Cyanide, Total (SW846 9012B)	**0.010 U**		0.010	0.0041	mg/L			10/05/22 21:14	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:53	1

Client Sample ID: DUPLICATE
FD of MW-10
Lab Sample ID: 480-202303-10
Date Collected: 10/03/22 00:00
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 16:55	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 16:55	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 16:55	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 16:55	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 16:55	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/22 16:55*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 16:55*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*10/08/22 16:55*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 16:55*	*1*

Client Sample ID: DUPLICATE
FD of MW-10
Lab Sample ID: 480-202303-10
Date Collected: 10/03/22 00:00
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 18:14	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 18:14	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 18:14	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 18:14	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 18:14	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
2-Fluorobiphenyl	*102*		*48 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
Phenol-d5 (Surr)	*59*		*22 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 18:14*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.11**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**21.2**		2.0	0.35	mg/L			10/08/22 02:16	1
Cyanide, Total (SW846 9012B)	**0.15**		0.010	0.0041	mg/L			10/09/22 14:33	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:55	1

Client Sample ID: RINSE BLANK
Lab Sample ID: 480-202303-11
Date Collected: 10/04/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 19:40	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 19:40	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 19:40	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 19:40	1
Toluene	ND		1.0	0.51	ug/L			10/07/22 19:40	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*77 - 120*		*10/07/22 19:40*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/07/22 19:40*	*1*
Dibromofluoromethane (Surr)	*90*		*75 - 123*		*10/07/22 19:40*	*1*
Toluene-d8 (Surr)	*86*		*80 - 120*		*10/07/22 19:40*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 18:41	1

Client Sample ID: RINSE BLANK
Lab Sample ID: 480-202303-11
Date Collected: 10/04/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 18:41	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 18:41	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 18:41	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 18:41	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 18:41	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*61*		*41 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
2-Fluorobiphenyl	*87*		*48 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
2-Fluorophenol (Surr)	*62*		*35 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
Nitrobenzene-d5 (Surr)	*78*		*46 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
Phenol-d5 (Surr)	*49*		*22 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
p-Terphenyl-d14 (Surr)	*105*		*60 - 148*	*10/06/22 08:28*	*10/07/22 18:41*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	ND		2.0	0.35	mg/L			10/08/22 02:35	1
Cyanide, Total (SW846 9012B)	**0.0088 J**		0.010	0.0041	mg/L			10/05/22 21:19	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:56	1

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-202303-12
Date Collected: 10/04/22 00:00
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 20:03	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 20:03	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 20:03	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 20:03	1
Toluene	ND		1.0	0.51	ug/L			10/07/22 20:03	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*77 - 120*		*10/07/22 20:03*	*1*
4-Bromofluorobenzene (Surr)	*84*		*73 - 120*		*10/07/22 20:03*	*1*
Dibromofluoromethane (Surr)	*92*		*75 - 123*		*10/07/22 20:03*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*		*10/07/22 20:03*	*1*

Appendix C Support Documentation

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: S. Connelly	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165719-36301 1
Client Contact: Tami Raby	Phone: (716)393-0870	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days): STD			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order Requested			
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
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	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)	6010C - Metals - Arsenic	6010C - Metals - Arsenic	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
SS-13-0-6"	9/25/21	0900	G	Solid	N	N	1			
SS-13-0-6"-MS		0900	G	Solid	N	Y	1			
SS-13-6"-12"-MSD		0900	G	Solid	N	Y	1			
SS-13-6"-12"		0915	G	Solid	N	N	1			
FD-20210928	9/25/21	—	G	Solid	N	N	1			
EB-20210928	9/28/21	0850	G	Water	N	N		1		

480-190294 Chain of Custody

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Sam P. Connelly	9/29/21 1300	Aecom	Cavalliere	9/30/21 1000	TAB
2						
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #1 29

Ver: 06/08/2021

Page 1306 of 1307

10/06/2021

Job Narrative
480-190294-1

Comments
No additional comments.

Receipt
The samples were received on 9/30/2021 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190294-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 480-598949/1-A

Instrument Code: ICAP1 Batch No.: 599215

CAS No.	Analyte	Concentration	C	Q	Method
7440-38-2	Arsenic	0.575	J		6010C

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Sean P. Connolly	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165718-36300.1
Client Contact: Tami Raby	Phone: (716) 393-0870	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 2 1
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 137633 Purchase Order Requested			
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888 QUOTE: 43024181			
Site:	SSOW#:			

480-190335 Chain of Custody

Preservation Codes: A - HCL ... vv - pH 4-5 L - EDA Z - other (specify) Other:

Nitrate field filtered
4 Day TAT for MW-4

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers
			Preservation Code:				N	N	A	B	N	N	
MW-1	9/30/21	1547	G	Water	N	N	2	1	3	1	1	1	9
~~MW-2~~ MW-6	9/30/21	1105	G	Water	N	N	2	1	3	1	1	1	9
~~MW-3 MS/MSD~~ Duplicate	9/30/21	—	G	Water	N	N	2	1	3	1	1	1	9
~~MW-4~~ MW-3 MS/MSD	9/30/21	1211	G	Water	Y	Y	6	3	9	3	3	3	27
MW-5 MW-4	9/30/21	1440	G	Water	Y	N	2	1	3	1	1	1	9
MW-6 MW-5	9/30/21	1651	G	Water	Y	N	2	1	3	1	1	1	9
~~MW-7~~ Trip Blank	9/30/21	—	G	Water	N	N			2				2
~~MW-8~~				Water									
~~MW-9~~				Water									
~~MW-10~~				Water									
~~MW-11~~				Water									

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Special Instructions/Note:

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Sean P. Connolly	Date/Time: 10/1/21 1020	Company: Aecom	Received by: [signature] Date/Time: 10/1/21 1020 Company: TA
Relinquished by:	Date/Time:	Company:	Received by: Date/Time: 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: 3.6 4.1 #1

Ver: 06/08/2021

10/12/2021

Job Narrative
480-190335-1

Comments
No additional comments.

Receipt
The samples were received on 10/1/2021 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6º C and 4.1º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-190335-1), MW-6 (480-190335-2), DUPLICATE (480-190335-3) and MW-3 (480-190335-4). Elevated reporting limits (RLs) are provided.

Method 300.0: The following sample was diluted due to the nature of the sample matrix: MW-5 (480-190335-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 3005A: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: MW-1 (480-190335-1), MW-6 (480-190335-2), DUPLICATE (480-190335-3), MW-3 (480-190335-4), MW-3 (480-190335-4[MS]), MW-3 (480-190335-4[MSD]), MW-4 (480-190335-5) and MW-5 (480-190335-6). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. Preserved 10/6/21 at 1325. Second check 10/7/21 at 1630.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-3 (480-190335-4), MW-3 (480-190335-4[MS]) and MW-3 (480-190335-4[MSD]). The reporting limits (RLs) have been adjusted proportionately.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190335-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 480-599519/1-A	10/08/2021 09:22	599519		50	50
LCS 480-599519/2-A	10/08/2021 09:22	599519		50	50
480-190335-1	10/08/2021 09:22	599519		50	50
480-190335-2	10/08/2021 09:22	599519		50	50
480-190335-3	10/08/2021 09:22	599519		50	50
480-190335-4	10/08/2021 09:22	599519		50	50
480-190335-4 MS	10/08/2021 09:22	599519		50	50
480-190335-4 MSD	10/08/2021 09:22	599519		50	50
480-190335-5	10/08/2021 09:22	599519		50	50
480-190335-6	10/08/2021 09:22	599519		50	50

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190335-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 480-599519/1-A

Instrument Code: ICAP1 Batch No.: 599838

CAS No.	Analyte	Concentration	C	Q	Method
7439-89-6	Iron, Dissolved	0.0190	J		6010C

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Tami Raby	Sean P. Connolly	Schove, John R		480-165718-36300.1
Company: AECOM	Phone: (716) 393-0870	E-Mail: John.Schove@Eurofinset com	State of Origin	Page: Page 1 of 2 1
Address: One John James Audubon Parkway Suite 210	PWSID:	Due Date Requested:		Job #:
City: Amherst		TAT Requested (days):		
State, Zip: NY, 14228		Compliance Project: Δ Yes Δ No		
Phone:		PO #: 137633 Purchase Order Requested		
Email: tamara.raby@aecom.com		WO #:		
Project Name: NYSEG Auburn Green Street		Project #: 48020888 QUOTE: 48024181		
Site:		SSOW#:		

Analysis Requested

480-190335 Chain of Custody

Preservation Codes:
A - HCL
L - EDA
** - pH 4-5
Z - other (specify)
Other:

Nitrate field filtered 4 Dg TAT for MW-4

Special Instructions/Note:

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of contai
			Preservation Code:				N	N	A	B	N	N	
MW-1	9/30/21	1547	G	Water	N	N	2	1	3	1	1	1	9
~~MW-2~~ MW-6	9/30/21	1105	G	Water	N	N	2	1	3	1	1	1	9
~~MW-3 MS/MSD~~ Duplicate	9/30/21	—	G	Water	N	N	2	1	3	1	1	1	9
~~MW-4~~ MW-3 MS/MSD	9/30/21	1211	G	Water	Y	Y	6	3	9	3	3	3	27
MW-5 MW-4	9/30/21	1440	G	Water	Y	N	2	1	3	1	1	1	9
MW-6 MW-5	9/30/21	1651	G	Water	Y	N	2	1	3	1	1	1	9
~~MW-7~~ Trip Blank	9/30/21	—	G	Water	N	N			2				2
~~MW-8~~				Water									
~~MW-9~~				Water									
~~MW-10~~				Water									
~~MW-11~~				Water									

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by: Sean P. Connolly	Date/Time: 10/1/21 C 1020	Company: Aecom	Received by:	Date/Time: 10/1/21 1020	Company: TA	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	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:	3.6 4.1 #1

Ver: 06/08/2021

Job ID: 480-190335-2

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-190335-2

Comments
No additional comments.

Receipt
The samples were received on 10/1/2021 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6º C and 4.1º C.

GC/MS VOA
Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-190335-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information

Client Contact: Tami Raby
Company: AECOM
Address: One John James Audubon Parkway Suite 210
City: Amherst
State, Zip: NY, 14228
Phone:
Email: tamara.raby@aecom.com
Project Name: NYSEG Auburn Green Street
Site:

Sampler: Emily Au
Phone: 716-531-3312
Lab PM: Schove, John R
E-Mail: John.Schove@Eurofinset.com
PWSID:

Due Date Requested:
TAT Requested (days): 7 Day for ALL VOCs ALL other STANDARD + mw-9/10 SVOCs
Compliance Project: Δ Yes Δ No
PO #: 137633 Purchase Order Requested
WO #:
Project #: 48020888 Quote: 48024181
SSOW#:

Carrier Tracking No(s):
State of Origin:

COC No: 480-165718-36300.1
Page: Page 1 of 2
Job #:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3

480-190421 Chain of Custody

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron (Field Filtered)	Total Nu
			Preservation Code:				N	N	A	B	N	N	
MW-2	10/4/21	1000	G	Water	Y	N	2	1	3	1	1	1	
MW-7	10/4/21	1115	G	Water	Y	N	2	1	3	1	1	1	
MW-8	10/4/21	1300	G	Water	Y	N	2	1	3	1	1	1	
MW-9	10/4/21	1655	G	Water	Y	N	2	1	3	1	1	1	
MW-10	10/4/21	1440	G	Water	Y	N	2	1	3	1	1	1	
TB-100421	10/4/21	-	TRIP	Water	N	N	X	X	2	X	X	X	
RINSE BLANK	10/4/21	1720	G	Water	Y	N	2	1	2	1	1	1	
				Water									
				Water									
				Water									
				Water									

Special Instructions/Note:

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify) per contract

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:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Emily Au	10/5/21 855	AECOM			
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
			Received by:	10/5/21 855	TA

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.5 #1

Ver: 06/08/2021

10/19/2021

Job Narrative
480-190421-1

Comments
No additional comments.

Receipt
The samples were received on 10/5/2021 8:55 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-2 (480-190421-1), MW-7 (480-190421-2), MW-8 (480-190421-3) and MW-9 (480-190421-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 3005A: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: MW-2 (480-190421-1), MW-7 (480-190421-2), MW-8 (480-190421-3), MW-9 (480-190421-4), MW-10 (480-190421-5) and RISE BLANK (480-190421-6). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. Preserved 10/6/21 at 1325. Second check 10/7/21 at 1630.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method 353.2: The continuing calibration verification (CCV) associated with batch 480-599163 recovered above the upper control limit for Nitrite. The samples associated with this CCV did not have any detections above the reporting limit for the affected analyte; therefore, the data have been reported. The associated samples are impacted: MW-2 (480-190421-1), MW-8 (480-190421-3) and MW-10 (480-190421-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190421-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 480-599519/1-A	10/08/2021 09:22	599519		50	50
LCS 480-599519/2-A	10/08/2021 09:22	599519		50	50
480-190421-1	10/08/2021 09:22	599519		50	50
480-190421-2	10/08/2021 09:22	599519		50	50
480-190421-3	10/08/2021 09:22	599519		50	50
480-190421-4	10/08/2021 09:22	599519		50	50
480-190421-5	10/08/2021 09:22	599519		50	50
480-190421-6	10/08/2021 09:22	599519		50	50

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190421-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 480-599519/1-A

Instrument Code: ICAP1 Batch No.: 599838

CAS No.	Analyte	Concentration	C	Q	Method
7439-89-6	Iron, Dissolved	0.0190	J		6010C

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information
Client Contact: Tami Raby
Company: AECOM
Address: One John James Audubon Parkway Suite 210
City: Amherst
State, Zip: NY, 14228
Phone:
Email: tamara.raby@aecom.com
Project Name: NYSEG Auburn Green Street
Site:

Sampler: Emily Au
Phone: 716-531-3312
Lab PM: Schove, John R
E-Mail: John.Schove@Eurofinset.com
PWSID:
Due Date Requested:
TAT Requested (days): 7 Day for ALL VOCs ALL other STANDARD + mw-9/10 SVOCs
Compliance Project: Δ Yes Δ No
PO #: 137633 Purchase Order Requested
WO #:
Project #: 48020888 Quote: 48024181
SSOW#:

Carrier Tracking No(s):
State of Origin:
COC No: 480-165718-36300.1
Page: Page 1 of 2
Job #:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3

480-190421 Chain of Custody

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron (Field Filtered)	Total Nu
			Preservation Code:				N	N	A	B	N	N	
MW-2	10/4/21	1000	G	Water	Y	N	2	1	3	1	1	1	
MW-7	10/4/21	1115	G	Water	Y	N	2	1	3	1	1	1	
MW-8	10/4/21	1300	G	Water	Y	N	2	1	3	1	1	1	
MW-9	10/4/21	1655	G	Water	Y	N	2	1	3	1	1	1	
MW-10	10/4/21	1440	G	Water	Y	N	2	1	3	1	1	1	
TB-100421	10/4/21	-	TRIP	Water	N	N	X	X	2	X	X	X	
RINSE BLANK	10/4/21	1720	G	Water	Y	N	2	1	2	1	1	1	
				Water									
				Water									
				Water									
				Water									

Special Instructions/Note:

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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) per contract

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Emily Au	10/5/21 855	AECOM			
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
			Received by:	10/5/21 855	TA

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.5 #1

Ver: 06/08/2021

Job Narrative
480-190421-2

Comments
No additional comments.

Receipt
The samples were received on 10/5/2021 8:55 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-9 (480-190421-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: JC McGowan / C Hance	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-176317-36300.1
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, M - Hexane, N - None, O - AsNaO2, P - Na2O4S

480-200734 Chain of Custody

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-1	8/16/22	08:50	G	Water	Y	N	2	1	3	1	1	1	9	
MW-2	"	10:30	"	Water	Y	"	2	1	3	1	1	1	9	
MW-3	8/15/22	12:15	G	Water	Y	Y	2	1	3	1	1	1	9	
MW-4		15:15		Water	Y	N	2	1	3	1	1	1	9	
MW-5		10:55		Water	Y	"	2	1	3	1	1	1	9	
MW-6		12:45		Water	Y	"	2	1	3	1	1	1	9	
MW-7	8/16/22	09:10		Water										
MW-8	8/15/22	11:30	G	Water	Y	N	2	1	3	1	1	1	9	
MW-9		15:50		Water	Y	"	2	1	3	1	1	1	9	
MW-10		14:00		Water	Y	"	2	1	3	1	1	1	9	
MW-11		14:10		Water	Y	"	2	1	3	1	1	1	9	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	8/16/22, 13:33	Aecom			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	8/16/22 1330	TBS

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

Ver: 06/08/2021

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: JC McGoun / C. Hoon	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-176317-36300 2
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
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, Y - Trizma, Z - other (specify)
Other:

Sample Identification	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)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-12	8/16/22	10:10	G	Water	Y	N	2	1	3	1	1	1	9	
DUPLICATE	8/15/22	—	G	Water	Y	N	2	1	3	1	1	1	9	
MW-3 MS	"	12:15	"	Water	Y	Y	"	"	"	"	"	"	9	
MW-3 MSD	"	12:15	"	Water	Y	Y	"	"	"	"	"	"	9	
				Water										
				Water										
RINSE BLANK	8/15/22	15:45	G	Water	Y	N	2	1	3	1	1	1	9	
TRIP BLANK	—	—	—	Water		N			2				2	
TRIP BLANK	—	—	—	Water		N			2				2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		8/16/22 13:30	AECOM			
2						
3					8/16/22 18:20	TDD

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

Ver: 06/08/2021

Job Narrative
480-200734-1

Comments
No additional comments.

Receipt
The samples were received on 8/16/2022 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.5º C, 2.7º C, 3.0º C and 3.2º C.

GC/MS VOA
Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-200734-4) and MW-9 (480-200734-8). Elevated reporting limits (RLs) are provided.

Method 8260C: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW-11 (480-200734-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-200734-4) and MW-11 (480-200734-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following sample was diluted due to the nature of the sample matrix: MW-2 (480-200734-2). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-200734-1), MW-3 (480-200734-3), MW-5 (480-200734-5), MW-6 (480-200734-6), MW-8 (480-200734-7) and MW-9 (480-200734-8). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were reported with elevated reporting limits for all analytes: MW-12 (480-200734-11), DUPLICATE (480-200734-12) and MW-7 (480-200734-15). The sample was analyzed at a dilution based on screening results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS - DISSOLVED

Client ID: MW-3 MS MS
Lab ID: 480-200734-3 MS
Lab Name: Eurofins Buffalo
Job No.: 480-200734-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Iron, Dissolved	23.35		16.5		10.0	68	75-125	F1	6010C

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo Job No.: 480-200734-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 638702 Date: 08/24/2022 14:15											
300.0	480-200734-3	Sulfate	13.4	J	mg/L						
300.0	480-200734-3 MS	Sulfate	524.8		mg/L	500	102	80-120			
Batch ID: 638702 Date: 08/24/2022 22:58											
300.0	480-200734-15	Sulfate	14.7		mg/L						
300.0	480-200734-15 MS	Sulfate	272.2		mg/L	250	103	80-120			
Batch ID: 637728 Date: 08/16/2022 17:20											
353.2	480-200734-3	Nitrite as N	ND		mg/L						F1
353.2	480-200734-3 MS	Nitrite as N	1.11		mg/L	1.00	111	90-110			F1
Batch ID: 637893 Date: 08/17/2022 14:52			Prep Batch: 637871		Date: 08/17/2022 14:14						
9012B	480-200734-3	Cyanide, Total	0.012		mg/L						F1
9012B	480-200734-3 MS	Cyanide, Total	0.0212		mg/L	0.00500	182	90-110			F1
Batch ID: 638927 Date: 08/24/2022 14:21			Prep Batch: 638906		Date: 08/24/2022 13:02						
9012B	480-200734-15	Cyanide, Total	0.0062	J	mg/L						F1
9012B	480-200734-15 MS	Cyanide, Total	0.0134		mg/L	0.00500	143	90-110			F1

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo Job No.: 480-200734-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 638702 Date: 08/24/2022 14:29											
300.0	480-200734-3 MSD	Sulfate	527.2		mg/L	500	103	80-120	0	15	
Batch ID: 637728 Date: 08/16/2022 17:22											
353.2	480-200734-3 MSD	Nitrite as N	1.01		mg/L	1.00	101	90-110	9	20	
Batch ID: 637893 Date: 08/17/2022 14:54			Prep Batch: 637871			Date: 08/17/2022 14:14					
9012B	480-200734-3 MSD	Cyanide, Total	0.0192		mg/L	0.00500	142	90-110	10	15	F1

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Kevin J. McGowan	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-177075-37993.1
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
M - Hexane
N - None
O - AsNaO2

480-202303 Chain of Custody

Sample Identification	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)	8270D - SVOCs - PAH + Phenols	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of co	Special Instructions/Note:
Preservation Code:							N	N	A	B	N	N		
MW-1	10/3/22	13:10	G	Water	Y	N	2	1	3	1	1	1	9	
MW-2		15:39		Water										
MW-3		09:34		Water		Y								
MW-4	10/4/22	09:55	G	Water	Y	N	2	1	3	1	1	1	9	
MW-7		08:23		Water										
MW-9		10:48		Water										
MW-10	10/3/22	11:02	G	Water	Y	N	2	1	3	1	1	1	9	
MW-11		12:10		Water										
MW-12		14:50		Water										
DUPLICATE	10/3/22	—		Water										
MW-3 MS	10/3/22	09:34	G	Water	Y	Y								

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 10/4/22, 1453	Company: AECOM	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10-4-22 1410	Company: TAB

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

Ver: 06/08/2021

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Leann T. McCollum	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-177075-37993.2
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Analysis Requested

Sample Identification	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)	8270D - SVOCs - PAH + Phenols	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-3 MSD	10/3/22	09:34	G	Water	Y	Y	2	1	3	1	1	1	9	
RINSE BLANK	10/4/22	08:50	G	Water	Y	N	2	1	3	1	1	1	9	
TRIP BLANK	—	—	—	Water	N	N			2					
TRIP BLANK	—	—	—	Water	N	N			2					

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, Y - Trizma, Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	10/4/22 / 14:13	ACCOM			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by [signature]	Date/Time 10-4-22 1410	Company TAB

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Job Narrative
480-202303-1

Comments
No additional comments.

Receipt
The samples were received on 10/4/2022 2:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 2.7º C and 3.1º C.

GC/MS VOA
Method 8260C: The following sample was diluted due to the abundance of non-target analytes: MW-11 (480-202303-8). Elevated reporting limits (RLs) are provided.

Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-202303-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The continuing calibration verification (CCV) analyzed in batch 480-644396 was outside the method criteria for the following analyte(s): 2,4,6-Tribromophenol (Surr). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8270D: The following samples were diluted due to the nature of the sample matrix: MW-4 (480-202303-4) and MW-11 (480-202303-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-202303-1) and MW-2 (480-202303-2). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were reported with elevated reporting limits for all analytes: MW-4 (480-202303-4), MW-7 (480-202303-5), MW-9 (480-202303-6) and MW-12 (480-202303-9). The sample was analyzed at a dilution based on screening results.

Method 300.0: The following sample was diluted due to the abundance of non-target analytes: MW-3 (480-202303-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Methods 335.4, 9012B: The continuing calibration verification (CCV) and the high laboratory control sample (HLCS) and the laboratory control sample (LCS) associated with batch 480-644220 recovered above the upper control limit for Cyanide. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.