

Hydraulic Dredge Pilot Test Work Plan

Former North Water Street Manufactured Gas Plant Site
Poughkeepsie, NY NYSDEC Site ID No. C314070

Central Hudson Gas and Electric Corp

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1. Introduction

AECOM USA, Inc. (AECOM) has prepared this Pilot Test Work Plan (PTWP) on the behalf of Central Hudson Gas and Electric Corporation (CHGE) to implement an in-river pilot test at the former North Water Street Manufactured Gas Plant (MGP) site (site) located at 2 Dutchess Avenue, Poughkeepsie, New York. The purpose of the pilot test is to assess the applicability of hydraulic dredging (HD) with a submersible high-solids dredge pump for removal of impacted sediment at the site. This PTWP provides details of the HD Pilot Test (HDPT) elements and the approaches that will be used to evaluate the equipment, methodology, and control actions that will be undertaken in response to potential observation of site-related impacts (evidence of non-aqueous phase liquid [NAPL], sheen, turbidity, etc.). Severson Environmental Services (SES) will be subcontracted to perform the work outlined in this PTWP.

1.1 Background

The remediation of the site is being conducted pursuant to a Decision Document issued by the New York State Department of Environmental Conservation (NYSDEC 2016). The selected remedy includes upland and in-river remedial actions to remove or isolate remaining sources of MGP residuals and to remove accessible impacted materials from public areas, to the extent feasible. The in-river portion of the selected remedy includes:

- Removal of visual non-aqueous phase liquid (NAPL) impacted sediment areas within the Hudson River;
- Installation of an approximately near shore barrier wall to prevent further migration of NAPL into the river;
- Re-grading and capping of near shore areas where dredging is impracticable due to stability concerns associated with the steep shoreline and adjacent bulkhead; and
- Capping of utility corridors within the proposed removal areas.

In accordance with the site Decision Document, 7.4 acres of river sediment are targeted for removal, with planned dredging depths ranging from 2 to 13 feet below the existing sediment surface and a neat-line volume of approximately 51,000 cubic yards. The original plan for implementing the remedy, as presented in the Remedial Design/Remedial Action Work Plan (RD/RA Work Plan; AECOM 2018), involved mechanical dredging of impacted sediment within a containment cell fitted with permeable turbidity curtains.

In-water remediation activities commenced in the fall of 2018, following NYSDEC approval of the RD/RA Work Plan. Activities performed during Season 1 (November 26, 2018 to January 16, 2019) centered on remediation of the upland portion of the site and installation of the near shore barrier wall. A turbidity curtain with oil absorbent booms was deployed outboard of the barrier wall alignment as a water quality best management practice (BMP). In response to sheens that were observed during this construction activity, given the proximity of the work to a water intake for Poughkeepsie's Water Treatment Facility (PWTF), the NYSDEC and other stakeholders (including the PWTF, the New York State Department of Health (NYSDOH) and the Dutchess County Department of Health) required the development of additional measures to control the release and migration of constituents of interest (COIs) as a pre-requisite to conducting dredging in Season 2.

To address the requirement to protect the public water supply, a number of enhancements were made to the existing containment cell design (referred to as the "moon pool") (AECOM, 2019). The moon pool design was revised to consist of an impermeable curtain extended to the full depth of the Hudson River and a double-row perimeter barrier system. Additional measures taken to address water quality concerns included revisions to the water quality monitoring program, including additional support/observation vessels and more rigorous in-river monitoring requirements, and performance of a dye study to aid the understanding of any potential contaminant migration.

While many elements of the revised water quality control measures were successfully implemented in Season 2 (August 19, 2019 to January 6, 2020), mechanical dredging could not be initiated due to tearing of the impermeable curtain during assembly of the moon pool. Based on the Season 2 construction observations it was determined that the site's water depth and hydrodynamic forces present significant constraints that make use of a moon pool with an impermeable curtain extending close to the sediment surface technically infeasible at this site.

Following Season 2, an assessment of alternative technologies was conducted to identify an alternative approach to mechanical dredging of impacted sediment within a moon pool containment cell. The assessment concluded that HD is expected to be technically implementable at this site, however additional data and information was recommended to confirm this conclusion. Thus, this HDPT is being conducted in order to determine the viability of HD to the full-scale removal of site sediment and if it will satisfy the remedial implementation criteria established by the NYSDEC, NYSDOH, and other project stakeholders.

All HDPT activities to be outlined in this PTWP will be conducted pursuant to the following NYSDEC approved plans, with some modifications as noted herein:

- Modification to the Water Quality Monitoring Plan (CHGE, 2019); and
- HDPT Water Supply Protection and Contingency Plan (AECOM, 2020) - Approval pending

1.2 Pilot Test Objectives

The scope of the HDPT, as outlined in this PTWP, has been developed to achieve the following objectives:

1. Evaluate the capability of HD equipment to effectively remove and manage sediments within the footprint defined in the approved RD/RA Work Plan given the existing site conditions and the need to satisfy the established remedial implementation criteria. This includes the effectiveness of the HD process, controlling the release of site-related sheens and COIs, generated residuals, and debris removal.
2. Evaluate the material management processes including the sediment slurry conveyance to dewatering barges and the control of odor that may be generated.
3. Evaluate the dewatering technologies including the spatial needs, ability to scale to full-scale operations, management of dewatered material including stabilization, and the ability to process filtrate from the dewatering system.
4. Evaluate an alternative method to place backfill material within the footprint defined in the approved RD/RA Work Plan given the existing site conditions and the need to satisfy the established remedial implementation criteria.
5. Assess the requirements, equipment, spatial needs, and production rate for a full-scale operation.

1.3 Work Plan Organization

This work plan is organized as follows:

- Section 1 describes the purpose of the work plan and the work plan organization.
- Section 2 provides an overview of the preliminary HDPT activities and their results. Based on these results, this section discusses the areas in which the HDPT will be conducted.
- Section 3 presents the equipment and operation to be utilized during each step of the HDPT process.
- Section 4 discusses the implementation of the HDPT and how these results will be utilized to meet the objectives of the HDPT.
- Section 5 identifies the environmental controls and monitoring to be utilized during the HDPT.

- Section 6 discusses the HDPT regulatory requirements and permitting elements.
- Section 7 presents the HDPT schedule.
- Section 8 provides details of the report to be provided upon completion of the HDPT.
- Section 9 provides references cited in the PTWP.

2. Preliminary Pilot Test Activities and Determination of Test Areas

AECOM identified three information collection tasks to be conducted prior to the preparation of the PTWP. These information collection tasks include:

- Geotechnical Investigation;
- Sediment Dewatering Treatability Study; and
- Identification of Equipment and Long Lead Items

This Section summarizes the collected information and, utilizing this information, presents the areas where the HDPT will be conducted. The results of the Geotechnical Investigation and Sediment Dewatering Treatability Study were also used to aid in the selection of appropriate dredging and dredge material management equipment to be employed in the HDPT, as discussed in Section 3.

2.1 Geotechnical Investigation

Objectives for the selection of the three areas in which to conduct the HDPT include:

- Characterize geotechnical properties of sediment in an area outside of the impacted sediment footprint for initial proof of concept testing of the dredging equipment and approach;
- Characterize geotechnical properties of sediment in two areas within the footprint of the site's Central Area (CA) of impacted sediments, one deep and the other shallower, for conducting HD to the full depth of remediation approved by NYSDEC for those areas; and
- Identify locations of subsurface obstructions/debris and over-sized material (i.e. gravel) to test and assess the effect on HD operations and potential removal options during full-scale HD operations.

In order to meet these selection objectives, a geotechnical investigation (GI) of the CA was conducted in June 2020. **Figure 1** presents the GI sampling locations. This GI included split spoon borings to 14 feet within the sediment at locations, PSB 1, 2, 4, 5, 7, and 8. At PSB 3, refusal was encountered at 8 feet within the sediment. Vibracore samples were collected at PSB 6 and 9 for subsequent dewatering treatability studies as described below. With the exception of PSB 1, all sample locations were within the CA. All boring samples were monitored for volatile organic compounds by a Photo Ionization Detector (PID) and visual and olfactory observations noted for NAPL.

For each boring location, blow counts were recorded, and samples were collected at 2-foot intervals. These samples were tested for moisture content, Atterberg Limits and sieve analysis. The boring logs are included in **Appendix A** and the geotechnical analytical results are included in **Appendix B**.

The geotechnical results indicate:

- PSB 1 samples had no MGP odor or sheen, and the material at this location is soft, composed primarily of clay and sand
- PSB 2 samples had a slight MGP odor and sheen, and the material at this location is soft, composed primarily of clay and sand but with some gravel at its 2 to 4-foot interval
- PSB 3 samples had MGP odor and sheen, and the material at this location is stiff, composed primarily of tight clay and sand, with refusal encountered at 8 feet within the sediment
- PSB 4 samples had MGP odor and sheen, and the material at this location is soft, composed primarily of clay and sand
- PSB 5 samples had a moderate organic odor and no sheen, and the material at this location is soft, composed primarily of clay and sand

- PSB 7 samples had MGP odor and sheen, and the material at this location is soft, composed of clay and sand
- PSB 8 samples had MGP odor and sheen, and the material at this location is soft, composed of clay and sand

2.2 Sediment Dewatering Treatability Study

A sediment dewatering treatability study was conducted in June 2020 by Waste Stream Technology (a wholly owned subsidiary of SES). Samples collected from the GI were provided to the laboratory to perform bench scale testing utilizing the following technologies:

- High pressure filter press
- Gravity drainage geotextile tubes

The vibracore samples collected at locations PSB 6 and PSB 9 during the June 2020 geotechnical investigation were evaluated in this study. The results of the dewatering treatability study are presented in **Appendix C**.

The study evaluated the ability of the sediments to be dewatered through a bench-scale high-pressure filter system with polymer addition. The results show that the PSB 6 and PSB 9 sediments were able to be dewatered effectively by this method to over 70% solids.

Of the two samples, PSB 6 exhibited the most visible NAPL. Based on this, it was decided that this sample would be evaluated for dewatering through a gravity membrane system, to simulate a geotextile tube, and to assess the impact of the NAPL on the membrane's ability to concentrate the sediment. The results indicate that with polymer addition this sample was effectively dewatered to over 50% solids by this method.

The filtrates from the gravity membrane system and pressure filter tests on this sample were analyzed for the site's current NYSDEC State Pollution Discharge Elimination System (SPDES) Permit Equivalency parameters. The results of these analyses are presented in **Appendix D**.

Since the results of this study indicate that dewatering by both a geotextile tube and filter press method are viable, these methods will be included in the HDPT. The results of the treatability study were used to plan the spatial needs, quantities, and time frame of the HDPT in order to meet Objective 3 (evaluate dewatering technologies).

2.3 Identification of Equipment and Long Lead Items

HDPT equipment requiring long-lead times to acquire were identified and ordered to mitigate impact to the schedule of the HDPT. These items include:

- High solids HD pump, auger head and shroud
- Dredging excavator arm and extension long-stick required to reach the proposed depths of dredging

2.4 Determination of Test Areas

The HDPT will be conducted in three areas based on the results of the GI. The dredge areas are depicted on **Figure 2**. A proof of concept will be conducted in Area 1 outside of the CA followed by primary dredging in Area 2 and a secondary short-term dredge in Area 3 within the CA.

2.4.1 Proof of HDPT Concept Plan

The geotechnical analytical results for location PSB 1 (**Figure 1**), located outside of the CA, indicate that this sediment is a mixture of sand and clay which is a similar soil classification to those samples within the

CA. The PSB 1 boring log indicates that no visual and olfactory impacts were observed, no VOCs were detected by the PID, and no sheen was detected in any sample interval.

PSB 1 is, therefore, recommended as a suitable location for conducting the initial proof of concept for the HDPT operation as described below.

Conducting the proof of concept in this area will enable the HDPT to meet the following objectives:

- Evaluate the capability of HD equipment to effectively remove and manage sediments; and,
- Evaluate the material management processes including the sediment slurry conveyance to dewatering barges.

The depth of dredging in this area will be approximately 5 feet and the anticipated volume will be approximately 200 cubic yards.

2.4.2 Pilot Dredge Plan Within Central Area Footprint

2.4.2.1 Area 2

Once all HD operations are complete at the initial proof of concept area, and upon receipt of approval from NYSDEC, the HDPT would commence HD at Area 2 within the CA.

Based on the GI boring logs and geotechnical analytical results, it is recommended that the HDPT dredging site within the CA be at the PSB 2 sample location (**Figure 1**). The boring log for this location indicates that the sediment is slightly impacted with a light MGP odor and a slight sheen on the sediment, so this location is representative of the CA with respect to potential releases.

The 2-4-foot interval sample at PSB 2 exhibited the highest level of gravel at 48.8%. Although no debris was detected in the samples at this location, its high level of gravel will enable the HDPT to test and assess the following with the goal of meeting the project Objective 1:

- The effect of over-sized material on HD operations;
- The potential effectiveness of the HD process in controlling the release of site activity related sheens and COIs, as well as generated residuals; and
- The combined effectiveness of HD, including pump shroud(s), and water quality control measures developed in Season 2 were applied in satisfying the established remedial implementation criteria.

The depth of impacted sediments to be remediated in this area is 10 feet. The test dredge will be extended to an additional depth of approximately 3 feet for a total dredge depth of 13 feet. This will allow the system to be tested for conditions that represent the deepest extent of impacts to be removed. The sediment below the 2-4-foot interval at this location is a mixture of clays and sands, similar to the samples at the other locations assessed in the GI. HD operations in this area will also, therefore, enable the HDPT to meet the project objective for the determining the scalability of the HD system's removal and dewatering capabilities for the sand and clay mixtures to full-scale HD remediation at the site (Objective 5).

2.4.2.2 Area 3

Once all HD operations are complete at Area 2, schedule permitting, and upon receipt of approval from NYSDEC, the HDPT would commence HD at Area 3 within the CA.

Previous remedial investigations indicate that these locations are heavily impacted with NAPL. During the GI, vibracore samples were collected at these two locations, PSB 6 and PSB 9 (**Figure 1**) for subsequent assessment in sediment dewatering treatability studies. The samples were obtained at the 8-10-foot interval of the sediment and no obstructions were encountered in collecting these samples. The sediment from both samples was described as a mixture of clays and sands.

Based on these assessments, it is recommended that the secondary HDPT dredging site within the CA be at the PSB 6 location. The HDPT operations at Area 3 will enable the HDPT to test and assess the following with the goal of meeting Objectives 1 and 3:

- The potential effectiveness of the HDPT process in controlling the release of site-related sheens and COIs, as well as generated residuals;
- The combined effectiveness of HDPT, including pump shroud(s), and water quality control measures developed in Season 2, were applied in satisfying the established remedial implementation criteria; and
- The on-site water treatment system for processing filtrate from dewatering system.

It is anticipated that the HD in Area 3 will take place over one or two days. The extent of dredge depth will depend on the production rate of the HD acceptable to all parties and the control of COIs generated during the HD.

3. Equipment and Operation

This Section provides details on the equipment to be used for the HDPT and their operation. The conceptual layout for all equipment discussed in this Section is shown in **Figure 3**. The operations described below will include the necessary controls to prevent to the extent feasible dredged sediments and/or associated filtrate from re-entering the river.

The equipment listed below for each operation was selected based on the following:

- The experience of AECOM and SES in conducting hydraulic dredging projects
- The results of the June 2020 geotechnical investigation; to select the proper hydraulic dredging pump/auger head/shroud, and, consequently, the proper dredger and extended arm system
- The results of the July 2020 sediment dewatering study; to size the dewatering equipment for the HDPT
- The depth of the impacted sediments to be dredged in the HDPT
- The potential for debris removal
- The potential for turbidity and sheen releases

3.1 Fixed Arm Excavator with High Solids HD Pump with Shroud

3.1.1 Equipment

- **Dredge Excavator:** Sennebogen 875 E Material Handler
- **Custom Boom and Stick:** Customized boom and stick built specifically for hydraulic dredging at large depths
- **Shroud:** Custom. Details to be provided following fabrication at SES facilities
- **Spud Barge:** 45'x150'x9' (approximate) spud barge
- **High Solids Pump:** Bell 200 Dredging Pump
- **Attendant Plant (Tugs & Push Boats)**

3.1.2 Operation

Sediment removal will be performed with a Sennebogen dredge excavator mounted to a spud barge. The dredge excavator will be outfitted with a custom-built boom and stick designed specifically to reach the maximum dredge depth with appropriately sized attachments (**Figure 4**). The proposed dredge pump, a Bell 200, (**Figure 4**) has various cutterhead/suction designs. For this application, the traditional vane and teeth cutterhead and auger attachment will be used to develop a slurry with in-situ sediment, allowing the pump to extract and convey the sediment from the river bottom to the dewatering equipment. The pump assembly will be fitted with a shroud to control the turbidity released during the dredging operation.

Figure 5 presents a concept of the shroud design.

The dredge excavator will be outfitted with Trimble Machine Control (TMC). TMC is an advanced monitoring and positioning system and is capable of maintaining positional accuracy of +/- 6 inches horizontally and +/- 3 inches vertically. The dredge excavator will be equipped with

- Two RTK GPS beacons of known separation distance mounted on the machine's upper structure for positioning and heading;
- A boom inclinometer; and a

- Stick inclinometer.

The measurements taken by these sensors, combined with precision measured lengths between articulated joints, height of pump and the location of the main pin on the boom relative to the RTK GPS positional antenna, allows the GPS-equipped excavator to accurately determine the position of the cutting face and its orientation in relation to bathymetry, dredging template, and previous cuts (sediment removal).

3.1.3 Start-up and Shut-down Procedures

The following start-up and shut-down procedures will be implemented for the dredging unit to prevent incidental releases. Prior to the commencement of any dredging activity, a tailgate health and safety (H&S) meeting will be held during which all activities planned for the day will be reviewed and their associated H&S issues and Task Hazard Assessments discussed. Then all monitoring and control systems included within the Water Intake Protection and Contingency Plan will be checked and verified to be functional, this will include communication with the observer on the Walkway Over the Hudson, communication with and positioning of the patrol boats, and an inspection of the perimeter sheen containment system. Similarly, all hydraulic dredging, dewatering and transfer piping systems will be inspected and verified to be functional. Once these verifications are satisfactorily completed, dredging operations will commence. Information to remotely access turbidity and fluorometer data will be provided to all concerned parties. The PWTF will be contacted prior to the initiation of all dredging activities, both to inform them of the impending work and to verify that the PWTF monitoring equipment is operating.

To prevent the back-flow of contamination to the river, the dredging piping system will include a check valve. Similarly, to minimize incidental releases, check valves will be installed on all dewatering and transfer pumping lines. The plan views in **Appendix E** show the proposed location for the two check valves and associated spec sheets. It is anticipated that each of the valves will be 8-inch in size.

At the shut-down of daily dredging operations, the hydraulic dredging pump will draw in river water to flush the dredge pump and piping system through to the dewatering operation. Two times the pipeline volume will be pumped to flush the pipeline (about 2,800 gallons total). Based on Severson's experience, this volume will be sufficient to satisfactorily flush the pump and associated piping. The dredge pump will be lifted from the river and secured within a dedicated containment pad on the dredge barge.

3.1.4 Dredging Compliance/Completion Determination

Pre-dredge, post-dredge and progress multi-beam bathymetric surveys will be performed prior to, during and after dredge operations. The pre-dredge survey will determine available volume to be removed and obstructions/debris. The survey results will also be used to establish the over-dredge required to achieve the target grades, given the accuracy of the HD equipment.

Progress surveys will be performed to monitor progress and to update the TMC with the latest dredge surface. Post-dredge surveys will be performed to record the final dredge surface. Should the post-dredge survey show any areas not cleared to the design grade, SES will return to these areas and resume dredging operations.

3.2 Debris and Over-Sized Material Removal

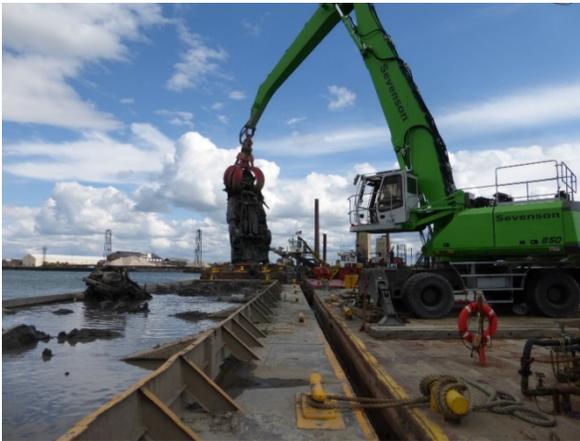
3.2.1 Equipment

- **Dredge Excavator:** Sennebogen 875 E Material Handler
- **Custom Boom and Stick:** Customized boom and stick built specifically for hydraulic dredging at large depths
- **Spud Barge:** 45'x150'x9' (approximate) spud barge

- **Orange Peel Grapple or Rake:** Grapple attachment for the Sennebogen 875 E, used to remove large debris from the river bottom.
- **Tugs and Push Boats:** 1,500 HP Work Boat to maneuver barges locally. Support boats for personnel transport and surveys. 2,000+ HP tugboats to move debris deck barge from work area to offloading area.

3.2.2 Operation

The HDPT dredge sites were selected to avoid the need for removal of debris and oversized material (D/OM) to the greatest extent. A pre-dredge bathymetric surface survey including side sonar scans will be conducted to identify the presence of any surface D/OM within the planned HDPT areas. The results of the survey and determination of surface D/OM will be provided to the NYSDEC prior to start of the HDPT. If the survey indicates that surface D/OM is present, the pump head will be relocated to an area where D/OM is not observed. If deemed necessary by the HDPT team (CHGE, AECOM, and SES) and NYSDEC, removal of sediment surface D/OM identified during the pre-operations bathymetric survey will be conducted prior to dredging operations in the specific area where the D/OM is located and only during outgoing tides. Furthermore in the event the survey indicates that surface D/OM is unavoidable in the planned dredging areas, this material will be removed using the same dredge machine, the Sennebogen 875, as would be used for the dredging operations with the exception of using an “orange peel” grapple attachment instead of the hydraulic dredge pump. Below are photos of an “orange peel” grapple.



A similar approach of marking the D/OM location will be taken for D/OM observed at depth. The operator will potentially “feel” the debris while trying to dredge with the pump or the crew will see an increase in cutterhead pressure. If the operator “feels” the debris, the boom and stick may have a difficult time advancing the pump through or across the sediment bottom. Also, if the cutterhead teeth encounter debris, the hydraulic fluid that is used to operate the pump and cutterhead teeth will increase in pressure. A third indicator of debris would be a reduction in slurry flow measured with a flow meter (gallons per minute) on the barge where the dredge pipe surfaces onto the barge but before discharge into geotextile tubes or pumped to the press dewatering operations.

If the operator believes they have encountered debris, a debris target will be generated by marking the location with the GPS positioning software. D/OM encountered at depth during dredging operations in an area would be recorded and following the completion of dredge operations at this location, an assessment would be made by the HDPT Team, including NYSDEC, whether removal of this material is necessary. SES will return to the recorded D/OM locations to attempt removal during outgoing tides, should the HDPT team deem this work necessary. If D/OM is encountered that is too large to be removed with onsite equipment it will be evaluated further by the HDPT team and NYSDEC to determine if the D/OM can remain in place.

Subsurface D/OM removal operations will be performed using the same setup as sediment removal operations with the exception of using an orange peel grapple attachment instead of the hydraulic dredge pump. The Sennebogen 875 with the grapple attachment will remove identified D/OM from the river bottom and place it on a deck barge positioned adjacent to the dredge barge. If or when the deck barge becomes filled with D/OM, it will be transported to the riverbank to be unloaded, processed, and properly disposed.

3.3 Conveyance of Dredged Material to Dewatering Barges

3.3.1 Equipment

- **Dredge Pump:** Bell 200 Dredging Pump with two attachments (cutter head and auger attachment)
- **Pipe:** 10" SDR 17 HDPE Pipe
- **Booster:** C9 DSC Booster Pump

3.3.2 Operation

Dredged material will be removed from the river bottom using the dredge pump, which will create a slurry of the targeted in-situ sediment and use suction to draw the material into the pump and through the dredge pipe towards the surface. The dredge pipe will be 10" SDR 17 HDPE pipe. A booster pump will be stationed on the dredge barge. As the material reaches the surface of the water, it will pass through the booster pump which will convey the material to one of the two dewatering operations at a time. The slurry will be pre-treated with the addition of ferric sulfate and sodium hydroxide into the slurry stream. The pre-treatment additives will be staged on the dewatering barge in 200 gallon "totes" which will have secondary containment.

3.4 Dewatering of Dredge

Two methods of dewatering will be evaluated during the HDPT, gravity dewatering using geotextile tubes (Method 1), and mechanical dewatering using a plate frame filter press (Method 2).

3.4.1 Equipment

3.4.1.1 Method 1 – Geotextile Tubes

The equipment for geotextile tube dewatering will be housed in dewatering scows measuring approximately 37'x150' and containing:

- 500 cubic yard (CY) geotextile dewatering tube(s)
- Polyblend unit
- Manifolds
- Sump area
- Pump

3.4.1.2 Method 2 – Mechanical

The configuration for the mechanical dewatering consists of the following equipment housed on a dewatering barge:

- Screening system for the removal of oversized material
- Mixing tanks
- Pumps

- Filter presses (two)
- Conveyor
- Generator
- Effluent tank

3.4.2 Operation

3.4.2.1 Method 1 – Geotextile Tubes

During the HDPT, dewatering of the sediment will be conducted by only one method at a time so that a dedicated assessment of that methodology can be made. To conduct the assessment of Method 1, the geotextile tube process, approximately 75 percent of the sediment from an area will be dewatered in this manner. This will enable the filling of the tubes which will achieve this method's greatest dewatering potential.

Method 1 for dewatering will be achieved with hopper scows, polymer addition, and geotextile tubes. The system consists of 500 CY geotextile dewatering tubes placed within the hopper scows. The scows will be modified to create sump areas at either end of the internal hopper. These sump areas will provide clearance for positioning a submersible pump to access seep water filtrate from the geotextile tubes as they are being filled. This filtrate will be pumped directly to the site's existing water treatment plant (WTP) for processing.

The dredge pump and booster pump will convey sediment to the geotextile tubes. Within the piping from the pump to the tubes, a polyblend unit will be used to introduce polymer into the excavated sediment to assist in the coagulation of solids and in dewatering within the geotextile tubes. As a geotextile tube becomes filled, a manifold system will be utilized to direct the slurry to another tube. Once a geotextile tube is filled, pumping into that tube will cease and it will be allowed to dewater for at least 24 hours. Once the geotextile tube is not releasing any significant additional water, the remaining free water will be pumped to the WTP and the scow containing the filled geotextile tube will be transported for disposal at a permitted facility.

As noted in Section 5.2, Item 6 of this Work Plan, the geotextile tube scows will be covered to the extent practicable for odor control.

3.4.2.2 Method 2 – Mechanical

Method 2 for dewatering will be achieved using mechanical processing, positioned on a deck barge. The dewatering barge will consist of a screening system for the removal of gravel, agitated mixing tanks, two filter presses, a conveyor, an effluent tank, and miscellaneous pumps and generators.

The dredge and booster pump will convey sediment to the screening system on the filter press barge which will remove gravel. Following this screening, the slurry will be sent to mixing tanks located on the dewatering barge. Screened material will be stockpiled on the deck barge or conveyed to an adjacent hopper scow. The mixing tanks will serve as holding tanks to regulate the flow of fine-grained slurry. This slurry will then be pumped to the filter presses which will utilize pressure to remove water from the dredged slurry, producing a "cake" of solids. As the filter cake exits the filter presses it will be collected by a conveyor staged under the presses and discharged into a hopper scow positioned adjacent to the dewatering barge. Filtrate from the presses will be pumped to the WTP. The filter cake and screenings will be transported offsite by scow for final disposal at a permitted facility.

To confirm integrity, the system conveying material between multiple barges will be filled with river water and pressurized using an air compressor. The pressure will be monitored to ensure there are not any leaks within the system. The testing of the pipeline system will occur before any dredging begins for each aspect of the project (i.e. before geotextile tube filling and before dewatering operations using the filter presses. In addition, secondary containment will be provided on the barge to prevent leaks from entering the river. In addition, this system will be located within the work area and carefully monitored by the support vessels.

As noted in Section 5.2 Item 6 of this Work Plan, the filter cake scow will be covered to the extent practicable for odor control.

3.5 Conveyance of Liquid from Dewatering Operation to WTP

3.5.1 Measurement of liquid flow

Liquid flow to the WTP will be measured by a flow meter. The flow meter will be placed within the onsite WTP to provide quantitative measurements of flow entering the plant from the HDPT dewatering operations.

3.5.2 Equipment

- Flow meter
- Godwin transfer pump
- HDPE piping

3.5.3 Operation

Filtrate from the dredging and dewatering operations will be either temporarily held in an effluent tank located on the dewatering barge or pumped directly to the WTP. Water will be conveyed to the onsite WTP by a Godwin pump and HDPE pipe.

3.6 Dewatered Dredge Material Transportation and Disposal

3.6.1 Equipment

- **Scow:** 37'x150' Hopper Scow (approximate)

3.6.2 Operation/Disposal Facility

Dewatered sediment processing at the disposal facility may vary depending upon the dewatering method. For the geotextile dewatering method, the hopper scows will be filled with an intact geotextile dewatering tube upon arrival to the disposal location. Upon arrival of the scow, the facility will open the dewatering tube to access the dredged sediment. If upon examination the dredged sediment does not meet disposal requirements, stabilization will be conducted by the facility with Portland cement and/or Super Absorbent Polymer addition.

For the dewatered solids from the filter press system, the hopper scows will arrive at the disposal facility with dewatered filter cake. Upon arrival, the facility will remove the filter cake from the scows. If stabilization is required, operations will be similar to those detailed above for the geotextile dewatered sediments.

Foam (Rusmar Inc or similar) will be used to control odor on all scows containing geomembrane tubes, filter press solids, and scows transporting materials to offsite disposal facilities. Sufficient freeboard will be maintained above the sediment surface to prevent releases of foam to surface water. Scows transporting impacted material to offsite facilities will be covered with poly tarps to the extent practical for odor control.

3.7 Backfill Operation

3.7.1 Equipment

- **Dredge Excavator:** Sennebogen 875 E Material Handler
- **Custom Boom and Stick:** Customized boom and stick built specifically for work at large depths
- **High Solids Pump:** Bell 200 Dredging Pump

- **Backfill Material Barge:** 45'x150'x9' (approximate) spud barge

3.7.2 Operation

As discussed below, Areas 1, 2 and 3 will be backfilled with NYSDEC- approved material. CHGE will submit to NYSDEC for approval the required grain size and chemical analysis information from the proposed borrow source of this material. A fill source and material was previously approved by the NYSDEC for Season 2 and the fill for the HDPT is expected to be from the same source. The volume of backfill to be placed will be calculated using the pre-dredge bathymetric survey and dredge equipment GPS information.

3.7.2.1 Sacrificial Backfill

Three to six-inch lifts of sacrificial backfill will be placed in areas not dredged to the full PT design depth at the end of each day. Dredge production rates will be monitored daily to allow dredge activities to be halted and sacrificial fill placement to take place, if needed. The sacrificial backfill will be placed at the mudline with a small (1.5 – 3.0 CY) clamshell bucket. The backfill material and equipment will be staged on a separate material barge and equipment barge. The volume of required backfill will be calculated based on the real-time dredging positioning software that will be utilized on-board the hydraulic dredging barge. This program will define the location of the dredging in X, Y and Z coordinates, which will then enable the calculation of the volume, and the location of placement, of the sacrificial backfill material. The sacrificial backfill equipment and material barges will be present in the work area from the start of the PT activities.

3.7.2.2 Backfill

The equipment to place sacrificial backfill as discussed in Section 3.7.2.1 above will be on site and will be utilized for backfill operations. The volume of required backfill will be calculated based on the pre-dredge bathymetric survey and real-time dredging positioning software that will be utilized on-board the hydraulic dredging barge. This program will define the location of the dredging in X, Y and Z coordinates, which will then enable the calculation of the volume, and the location of placement, of the backfill material. The backfill material will be staged on a separate material barge.

A post-backfilling bathymetric survey will be conducted in Areas 1, 2, and 3. If the survey indicates that backfilling has not met the design elevations across the dredged area, backfilling will resume to meet those elevations.

As part of the HDPT, efficiency of placement of the backfill material by means of a hydraulic pump at the mudline will be conducted to assess its viability for full-scale remediation. The hydraulic pump will be connected to the custom boom and stick and the Sennebogen excavator as will be done for the hydraulic dredging. For this placement of material, a different pump and conveyance pipe will be used than the one used for hydraulic dredging to prevent any cross-contamination of the backfill material. It is anticipated that the material for placement by this method will be less than $\frac{3}{4}$ inch nominal to facilitate pump operation. In the event this method proves inefficient, an alternate means to place backfill will be evaluated and discussed with the NYSDEC prior to implementation.

3.8 Existing On-Site Water Treatment Plant

The on-site Water Treatment Plant (WTP) is designed to operate at an average of 250 GPM, with a maximum flow rate of 300 GPM.

3.8.1 Equipment

- 180,000-gallon modular equalization tank
- (3) 18,000-gallon weir tanks with polymer addition for particle settling
- (4) 36 inch-diameter sand filters
- (6) 48 inch-diameter carbon adsorption tanks
- Dual 6-bag filter system

- (4) 21,000-gallon effluent holding tanks
- Effluent flow meter
- Polymer feed system
- Instrumentation and controls

3.8.2 Operation

The WTP's unit treatment operation processes were selected to treat MGP parameters. The system includes factors of safety and redundancies to treat the planned flow rate. The filtrate from the dewatering operations will be pumped to the WTP's modular equalization tank after which polymer will be blended with the water through an in-line static mixer. The water will then be conveyed to the system's weir tanks which will facilitate precipitation. The weir tank effluent will then be treated through sand filtration, carbon adsorption for organics removal, and residuals bag filtration. As per the facility's SPDES Permit, the final effluent will be held each day for the first 7 days of operation until it is tested for compliance with the Permit. Three effluent holding scows, each with a capacity of 200,000 gallons, will be provided during the HDPT to augment the system's existing 84,000 gallons of effluent holding tankage and provide a safety factor and redundancy. These scows will be staged within the work zone. To provide a factor of safety, each scow will only be filled with approximately 175,000 gallons (87.5% capacity). The treated water will be discharged to the Hudson River as per the facility's project approved SPDES Permit.

Solids generation in the equalization tank and the weir tanks will be monitored, tested and disposed in permitted facilities.

Consideration for 24-hour operation of the WTP may be part of the pilot test evaluation to best align its operations with the dredging and filtrate production while meeting SPDES Permit conditions. A WTP operator will be present at all times while the WTP is in use to ensure that the treatment unit operations are not adversely impacted by the hydraulic dredging rates and that the WTP operates in accordance with its SPDES Permit.

During cold weather additional measures will be taken to prevent freezing of water in the lines. The polymers used to promote flocculation are not as effective during colder weather, additional polymer will be used to offset the lower efficiency. The polymer storage totes will be heated to a minimum of 50 degrees during the colder months using a heating blanket. Heat tracing with a 120-volt electric heating cable will be utilized on all applicable WTP pipes. An automated pump recirculation or additional manpower will be used as needed to recirculate water through pipes that cannot be heat traced. Pipelines that can be drained at the end of the workday will be drained and potentially evacuated with low pressure compressed air during cold weather.

4. Implementation

One week prior to the mobilization of the HDPT equipment to the site, CHGE will notify NYSDEC, NYSDOH, Dutchess County Department of Health, PWTF, and all other stakeholders of the planned mobilization date. A pre-dredge bathymetric survey will be conducted to evaluate the initial dredge elevation as well as oversized material/debris in Areas 2 and 3. The equipment will be set up using the barge configuration shown on **Figure 3** and the perimeter sheen containment system as shown on **Figure 6** and discussed in Section 5.1 will be deployed.

4.1 Proof of Concept

The HDPT will begin in Area 1 for a proof of concept which will enable the evaluation of the hydraulic pump control and effectiveness under depth, flow, and sediment conditions without the presence of NAPL. During the proof of concept, an evaluation of the equipment and process will occur at each stage of work as described in Section 3. At this location sediment will be removed to a depth of about 5 feet using the hydraulic dredging pump and shroud system detailed in Section 3.1, transferred to the dewatering equipment, and dewatered. It is anticipated that approximately 200 cubic yards of sediment will be dredged from this location. During this time, assessments will be made regarding the ability to maintain pump control accuracy in vertical and horizontal planes, the dredge depth accuracy, and variability in pumping rates. Water quality monitoring, discussed in Section 5, will be conducted by AECOM.

The sediment will be dewatered using the geotextile tubes and mechanical dewatering. The liquid from the dewatering operation will be transferred to the WTP for processing. The dredged volume will be confirmed with a post-dredging bathymetric survey and GPS data from the dredge pump. Area 1 will then be backfilled utilizing the backfill operations discussed in Section 3.7.

4.2 Central Area

Upon receipt of approval from NYSDEC, the HDPT will progress to Area 2 within the CA as discussed in Section 2.4.2.1. Dredging will commence at a low pumping rate, the starting flow rate is anticipated to be approximately 900 GPM. Based on the results of dredging, dewatering, filtrate treatment operations and release control at this rate, the dredging would be increased in stages to a maximum of 2,500 GPM, which is the rate that would be used in full-scale hydraulic dredging remediation. It is a critical element of the HDPT to attempt to achieve and maintain full-scale dredging operation rates during a portion of the HDPT. The duration of hydraulic dredging will be adjusted such that it does not adversely impact the operation of the WTP. The increase in pumping rate will be monitored to ensure the HDPT Water Supply Protection and Contingency Plan (AECOM 2020) Level II or Level III response is not triggered. Work will stop if uncontrolled sheen or turbidity in exceedance of the action levels is present outside of the perimeter sheen containment system. These conditions will be treated as a release and notification will be made to NYSDEC, PWTF, and all required stakeholders. The observations will be discussed with NYSDEC, and any changes to the procedure will be evaluated. Dredging will resume upon approval from NYSDEC.

During the dredging, the following will be evaluated in support of meeting Objective 1 (evaluate the capability of HSHD equipment):

- Test and assess the hydraulic dredging pump system;
- Test and assess the ability of the barge-mounted excavator with arm extension to accommodate the hydraulic pump system;
- Assess the capability and scalability of hydraulic pumping system components;
- Test and assess potential impact of debris and over-sized material on HDPT operations;
- Test and assess the capability of the hydraulic pump to accurately remove and manage sediment within the CA areas (footprint defined in the approved RD/RA Work Plan);

- Test and assess the effectiveness of the hydraulic pump and water quality control measures in satisfying the established remedial implementation criteria; and
- Conduct field assessment of dredge completeness determination methodology (i.e. GPS, bathymetry, visual, olfactory).

The dredged sediment will be conveyed to the dewatering systems beginning with the geotextile tube. During this time, the following will be evaluated in support of meeting Objective 2 (evaluate material management processes):

- Test and assess solids slurry conveyance to dewatering barges;
- Test and assess the ability of hydraulic pump to delivery high solids sediment to either shore-side or barge-mounted dewatering plants;
- Assess odor generated/control.

The hydraulically dredged material will be dewatered as discussed in Section 3.4. The liquid obtained from the dewatering will be transferred to the WTP for processing. This process will be evaluated for the following in support of meeting Objective 3 (evaluate dewatering technologies):

- Evaluate dewatering technologies;
- Determine spatial needs for dewatering and location;
- Test and assess dewatered material management; and
- Test and assess wastewater treatment.

Placement of the backfill will be measured using a final bathymetric survey. The following will be evaluated in support of meeting Objective 4 (evaluate backfill placement):

- Test and assess effectiveness of alternate backfill placement methodology;
- Test and assess the impact of sacrificial fill on productivity; and
- Confirm the type of backfill to be used for full-scale remediation.

Upon completion of Area 2, and receipt of approval from NYSDEC, HDPT activities will commence in Area 3 with dredging in this area to the remediation depth of 13 feet within a prescribed footprint. This is the maximum required depth for any area to be remediated. It is anticipated that approximately 1,050 cubic yards of sediment will be dredged from this area.

The results of the HDPT will be evaluated and assessed to determine the requirements and production rate for a full-scale remediation (Objective 5). To do this, the following will be evaluated:

- Determine the availability of hydraulic dredging equipment and determine customization requirements needed for full-scale implementation;
- Assess the capability and scalability of hydraulic dredging system components;
- Determine whether sediment management and dewatering technologies are scalable to full-scale hydraulic dredging remediation at the site;
- Test and assess the logistics of backfill storage and delivery to placement area;
- Estimate the backfill quantity needed for full scale remediation; and
- Estimate equipment, ancillary infrastructure requirements, and production rate for full-scale operations to determine the total number of seasons for the full-scale hydraulic dredging -based remediation, including the capping components for the shoreline slopes and the utility alignments and the final restoration work, based on pilot study results.

5. Environmental Controls and Monitoring

5.1 Perimeter Sheen Containment System

A perimeter sheen containment system (perimeter system) consisting of a double barrier between the designated work area and other users of the Hudson River will be installed prior to the commencement of the HDPT. The perimeter system that would be utilized for the HDPT will consist of a double row of 18-inch oil boom, connected to the existing anchor block buoys, with a row of absorbent sausage boom between the 18-inch oil booms, and a row of sausage boom connected on the in-board side of this system, as shown in **Figure 6**.

A gate will be installed on the western arm of this perimeter system (parallel to the main river flow direction), similar to the gate used during Season 2, to facilitate vessels (tugs, material scows, etc.) to enter and exit the work area.

The perimeter system will be along the same alignment as was utilized for Season 2, which will be approximately 100 feet riverward of the farthest areal extents of the dredging.

5.2 Control Actions

Control actions may be used proactively or in response to detection of sheen or exceedances of turbidity limits, and the appropriate action will depend on the extent and intensity of the event triggering the known or expected generation of sheen or turbidity. In general, the control actions include, in order of preference:

1. **Application of absorbent materials and bioremediation agents.** Absorbent materials will be deployed to physically remove sheens to the extent practicable. Use of bioremediation agents, provided use is consistent with manufacturer directions, has been approved by the NYSDEC. Use of bioremediation agents may be employed to mitigate sheen concurrently with the use of absorbent materials. This combined approach is anticipated to reduce the likelihood of sheen migrating toward the perimeter system.
2. **Use of patrol boats inside the perimeter system.** During the HDPT, two patrol boats are proposed to be positioned inside the perimeter system. These patrol boats will respond as directed, and when needed, to any sheens observed. Use of absorbent booms by the patrol boats will initially be the first response action for any sheen observed. If this is not sufficient to control the sheen, bioremediation agents and/or additional oil absorbent materials (such as temporary placement of floating socks/booms, pom-poms, etc.) will be deployed.
3. **Use of a patrol boats outside the perimeter system.** During the HDPT, two patrol boats are proposed to be positioned outside the perimeter system. These patrol boats will employ the same response measures as the patrol boats inside the perimeter barrier. If the sheen is not fully controlled within the first 20 minutes after observation, which would constitute a reportable spill, notifications to interested parties will be made in accordance with the HDPT Water Supply Protection and Contingency Plan (AECOM, 2020). In addition, the patrol boats will be equipped with handheld turbidity monitors to provide additional turbidity measurements to the permanent locations. Handheld units will be utilized in all dredge areas of the HDPT.
4. **Monitoring.** Routine monitoring will be employed for the purpose of identifying potential COI releases as quickly as possible, and then limiting these releases to the smallest possible area within the work zone in order to maximize the effectiveness of mitigation and clean-up actions. Monitoring will be conducted in accordance with the RD/RA Work Plan (AECOM, 2018), the Modifications to the Water Quality Monitoring Plan (CHGE, 2019) and the HDPT Water Supply Protection and Contingency Plan (AECOM, 2020).
5. **Operations shutdown.** Level II Alert Conditions, in some circumstances, or Level III Action Conditions resulting from site operations will result in shutdown of site operations in accordance with the HDPT Water Supply Protection and Contingency Plan (AECOM, 2020). Dredging will not

resume following a Level II Alert Condition or Level III Action Condition until NYSDEC has reviewed any relevant data regarding the event and concurred that work may resume.

6. **Odor Control.** To mitigate odor releases from the HDPT operations, the dewatering solids barges will be tarped to the extent practicable. In addition, as necessary, NYSDEC-approved odor control materials and bio-agents will be applied to the dewatered solids within their respective scows.

The project objective is to conduct the work with no release of sheen or exceedances of turbidity action limits beyond the perimeter system. To achieve this objective, response actions will be initiated in the event sheen or exceedance of turbidity alert limits is detected inside the perimeter system. For sheen, this will consist of patrol boats responding to the area of the observed sheen and deploying absorbent materials and/or bioremediation agents, as appropriate based on the extent and intensity of the sheen. For turbidity, responses may include temporary suspension of work and/or modification of work procedures. The HDPT Water Supply Protection and Contingency Plan (AECOM, 2020) provides details of the responses that will be implemented as a result of Level II or Level III response levels.

5.3 Time-of-Work Administrative Control

In addition to the physical procedures and related observations described above, an administrative control will be enforced at all times (including during production work after startup evaluations have been completed) to limit sediment-disturbing work to times when sufficient daylight remains for the visual observer(s) to complete their work.

In general terms, sediment-disturbing work will be limited to the time between dawn and one hour before dusk. Dawn and dusk are defined as the beginning and end of civil twilight time at Poughkeepsie. As these times change each day, the specific times for dawn, dusk and stop-work for sediment-intrusive activities will be included in daily site briefings. Additionally, weather conditions such as cloud cover can obscure the sky and may cause insufficient light for observations at a time later than dawn or earlier than dusk. In the event such conditions are known or predicted to occur, the project team will establish later start-work and/or earlier stop-work times as appropriate to the conditions, but never earlier than the nominal dawn time or later than one hour before the nominal dusk time for the day.

As this relates to specific types of sediment-disturbing work, the following sediment-intrusive work will not be permitted after the daily stop-work time and at no time within one hour of dusk:

- Dredging – A new dredge cycle may not be started after the stop-work time for intrusive activities.
- Dredge barge relocation – No work that requires releasing or initiating anchorage/spudding will be permitted after the daily stop-work time for time-limited activities.

6. Regulatory Approvals and Notifications

Regulatory approvals, more specifically the Work Plan, for conducting the HDPT will be required from NYSDEC and NYSDOH.

Following receipt of approvals, notification will be made to the USACE with regard to the change in Means and Methods associated with the HDPT prior to commencing work.

Prior to the start of work, information to remotely access turbidity and fluorometer data will be provided to all parties.

7. Pilot Test Schedule

The schedule for the HDPT is as follows:

- Install Perimeter Sheen Control System and in-river monitoring equipment – late August/early September 2020
- Commence HDPT in Area 1 – late September/early October 2020
- Complete all HDPT activities in Areas 2 and 3 – late November/early December 2020
- Submit Final HDPT Summary Report to NYSDEC – on or about February 15, 2021

8. HDPT Final Summary Report

Following the completion of the HDPT, a report will be prepared summarizing:

- Field activities
- Adequacy of environmental controls
- Equipment performance assessment
- Overall operational and technical approach assessment / lessons learned
- Dredging productivity
- Sediment dewatering methodology comparisons
- Filtrate management
- Solids management
- Odor management

The results and findings of the HDPT will be discussed against the five objectives presented in Section 1.2 of this Work Plan. The report will provide conclusions and recommendations for full scale implementation of HD, assessing the processes and components for such implementation as well as the associated capital and operation and maintenance costs.

9. References

AECOM 2018. Remedial Design/Remedial Action (RD/RA) Work Plan. Former North Water Street MGP Site. Poughkeepsie, New York. August 2018.

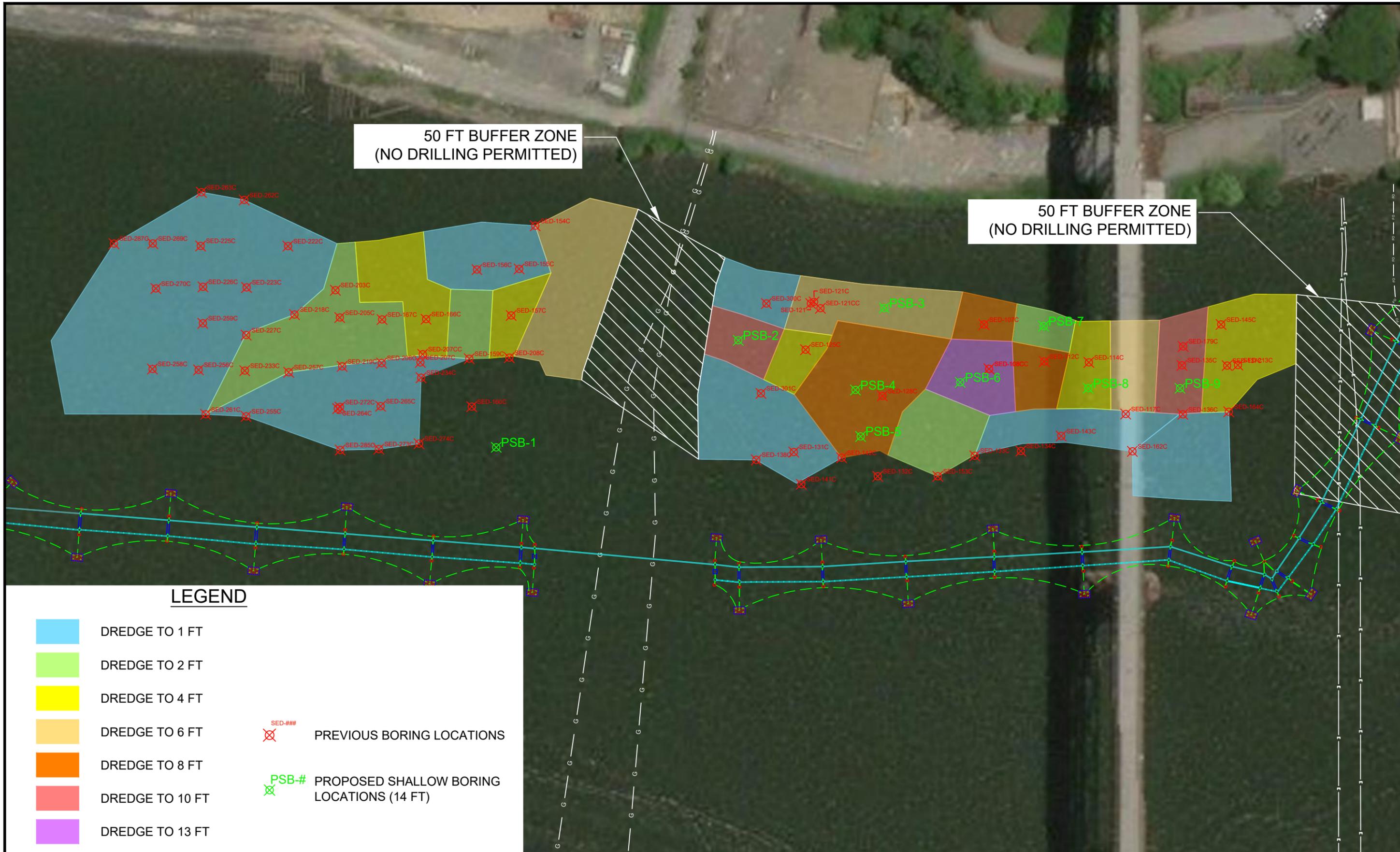
AECOM 2020. Water Supply Protection and Contingency Plan. Former North Water Street MGP Site. Poughkeepsie, New York. July 2020.

CHGE 2019. Modification to the Water Quality Monitoring Plan. Former North Water Street MGP Site. Poughkeepsie, New York. 2019.

NYSDEC 2016. Decision Document. Former North Water Street MGP Site (Site No. C314070). Poughkeepsie, New York. March 2016.

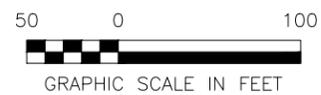
Figures

File: C:\Users\dorrell.kennedy\OneDrive - AECOM\Directory\NW MGP\910 CAD\20-SKETCHES\Geotech Boring Locations_20200424.dwg Layout: Figure 1 User: Darrell.Kennedy Plotted: Apr 24, 2020 - 11:33am Xref: s:



LEGEND

- DREDGE TO 1 FT
 - DREDGE TO 2 FT
 - DREDGE TO 4 FT
 - DREDGE TO 6 FT
 - DREDGE TO 8 FT
 - DREDGE TO 10 FT
 - DREDGE TO 13 FT
- X SED-### PREVIOUS BORING LOCATIONS
X PSB-# PROPOSED SHALLOW BORING LOCATIONS (14 FT)

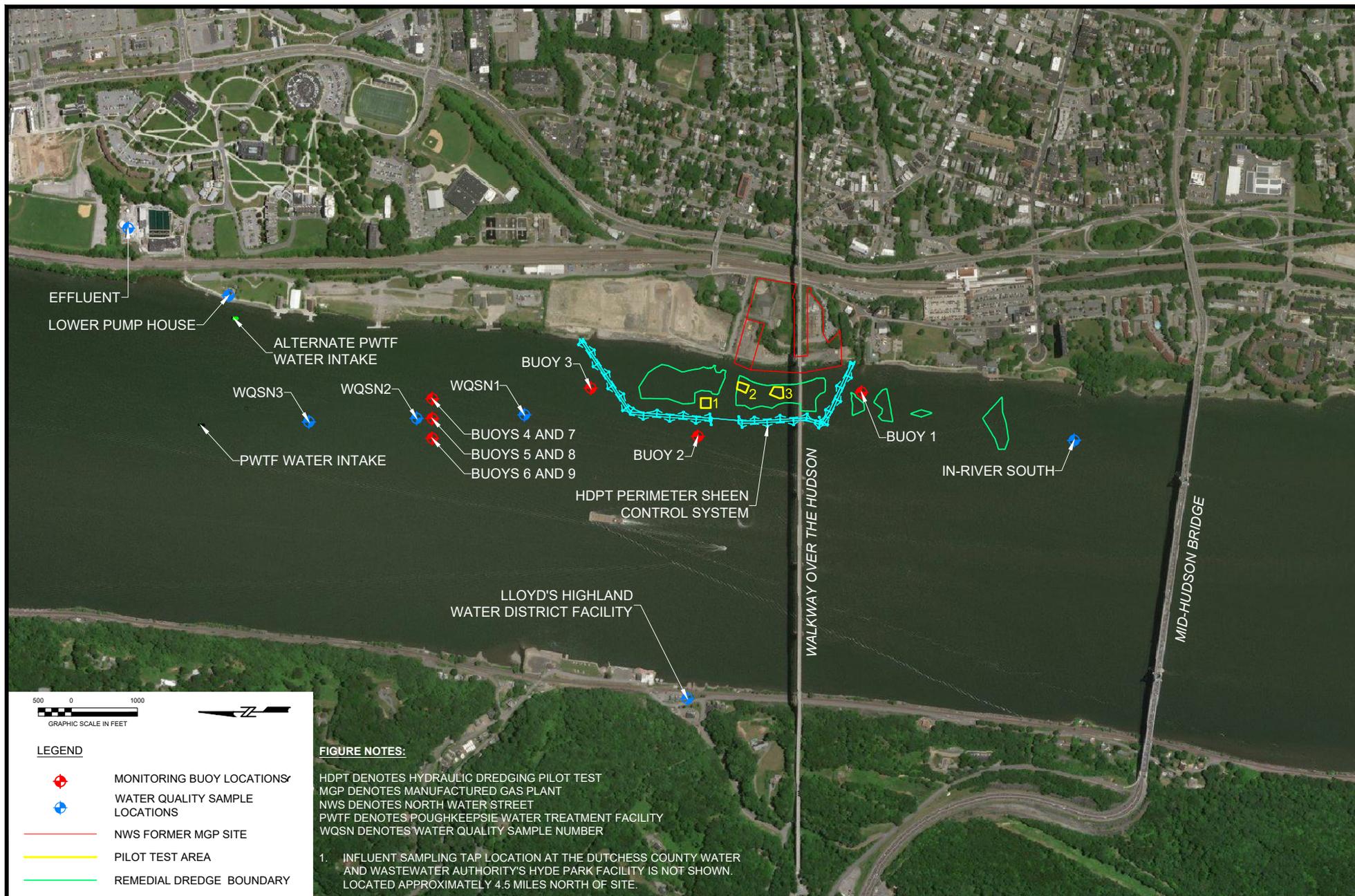


CENTRAL HUDSON GAS & ELECTRIC CORP.
 FORMER NORTH WATER STREET MGP
 POUGHKEEPSIE, NY

DATE: 4/24/2020 DRWN: REV: 0

GEOTECHNICAL BORING LOCATIONS

FIGURE 1



LEGEND

- MONITORING BUOY LOCATIONS
- WATER QUALITY SAMPLE LOCATIONS
- NWS FORMER MGP SITE
- PILOT TEST AREA
- REMEDIAL DREDGE BOUNDARY

FIGURE NOTES:

HDPT DENOTES HYDRAULIC DREDGING PILOT TEST
MGP DENOTES MANUFACTURED GAS PLANT
NWS DENOTES NORTH WATER STREET
PWTF DENOTES POUGHKEEPSIE WATER TREATMENT FACILITY
WQSN DENOTES WATER QUALITY SAMPLE NUMBER

1. INFLUENT SAMPLING TAP LOCATION AT THE DUTCHESS COUNTY WATER AND WASTEWATER AUTHORITY'S HYDE PARK FACILITY IS NOT SHOWN. LOCATED APPROXIMATELY 4.5 MILES NORTH OF SITE.



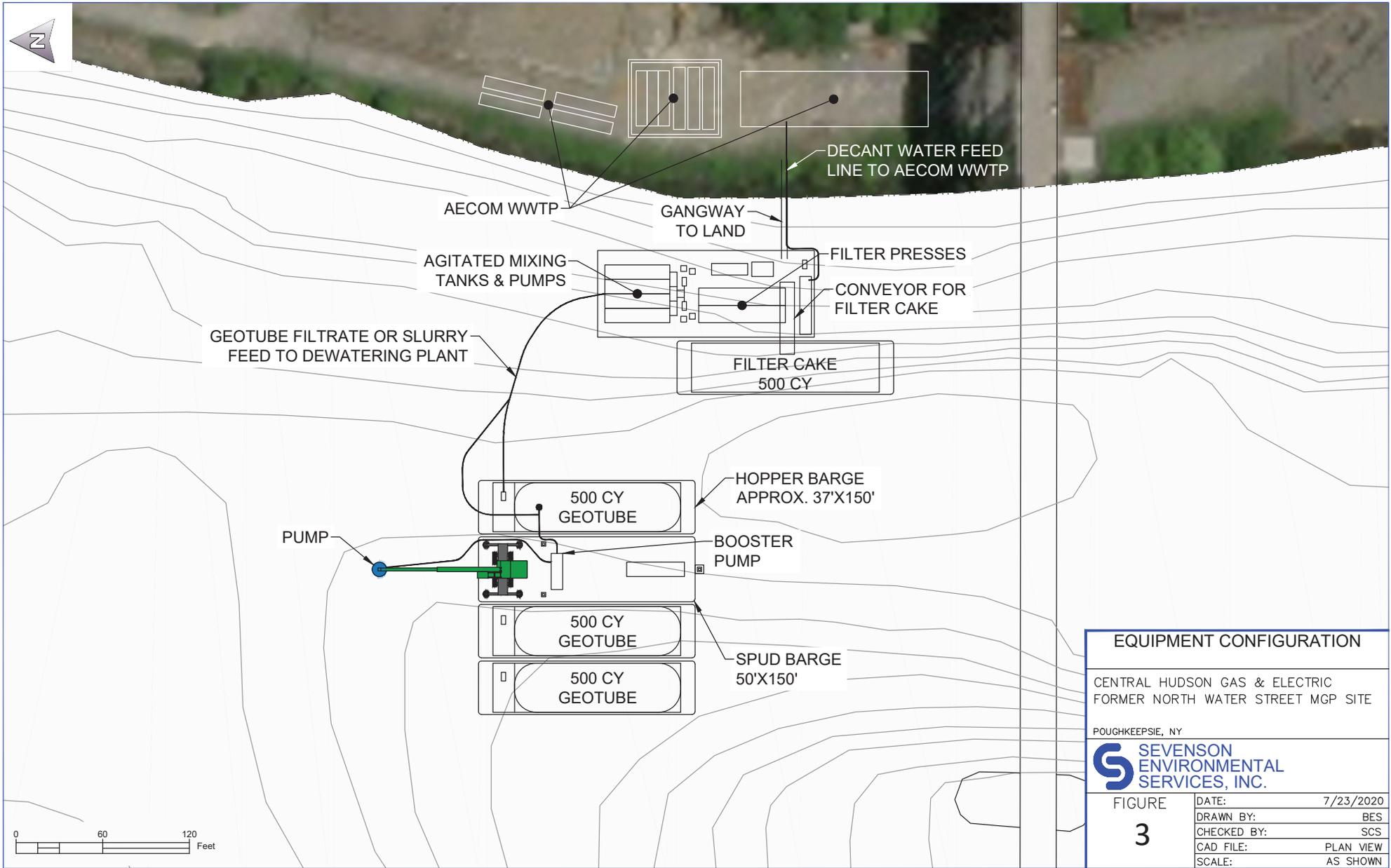
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NORTH WATER STREET MGP
60540671

SEASON 3
MONITORING LOCATIONS

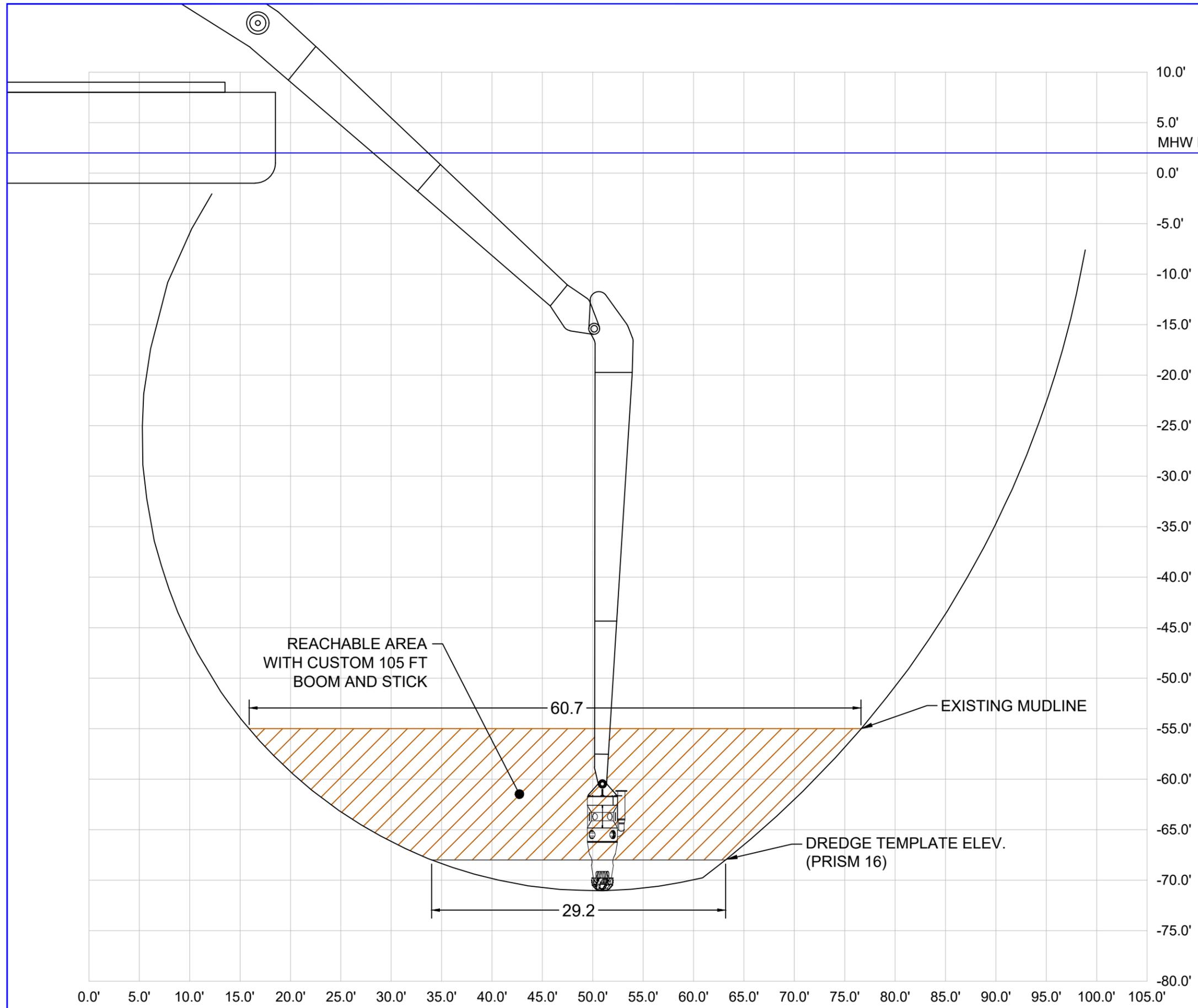
DATE: 07/17/2020

DRWN: DSK

FIGURE 2



EQUIPMENT CONFIGURATION	
CENTRAL HUDSON GAS & ELECTRIC FORMER NORTH WATER STREET MGP SITE	
POUGHKEEPSIE, NY	
 SEVENSON ENVIRONMENTAL SERVICES, INC.	
FIGURE	DATE: 7/23/2020
3	DRAWN BY: BES
	CHECKED BY: SCS
	CAD FILE: PLAN VIEW
	SCALE: AS SHOWN



10.0'
5.0'
MHW ELEV. 2.0' (NAVD 88)
0.0'
-5.0'
-10.0'
-15.0'
-20.0'
-25.0'
-30.0'
-35.0'
-40.0'
-45.0'
-50.0'
-55.0'
-60.0'
-65.0'
-70.0'
-75.0'
-80.0'

REACHABLE AREA
WITH CUSTOM 105 FT
BOOM AND STICK

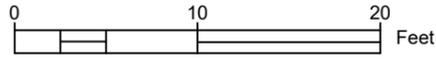
60.7

EXISTING MUDLINE

DREDGE TEMPLATE ELEV.
(PRISM 16)

29.2

NOTE:
CHART SHOWN IS FOR DREDGE PRISM 16 WITH
A 13 FOOT CUT THICKNESS



EXCAVATOR PROFILE	
CENTRAL HUDSON GAS & ELECTRIC FORMER NORTH WATER STREET MGP SITE	
POUGHKEEPSIE, NY	
SEVENSON ENVIRONMENTAL SERVICES, INC.	
FIGURE 4	DATE: 6/24/2020 DRAWN BY: BES CHECKED BY: SCS CAD FILE: SITE LAYOUT SCALE: AS SHOWN

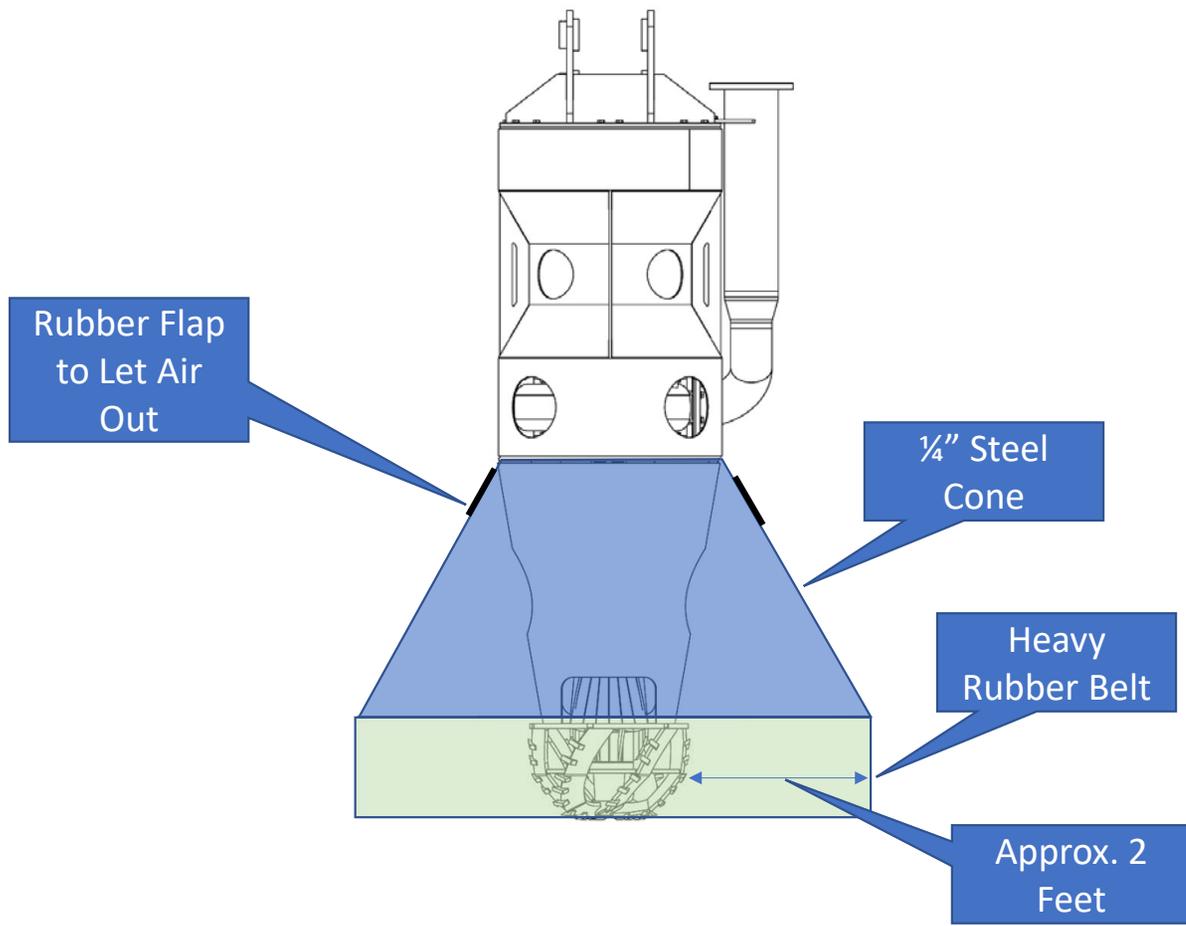
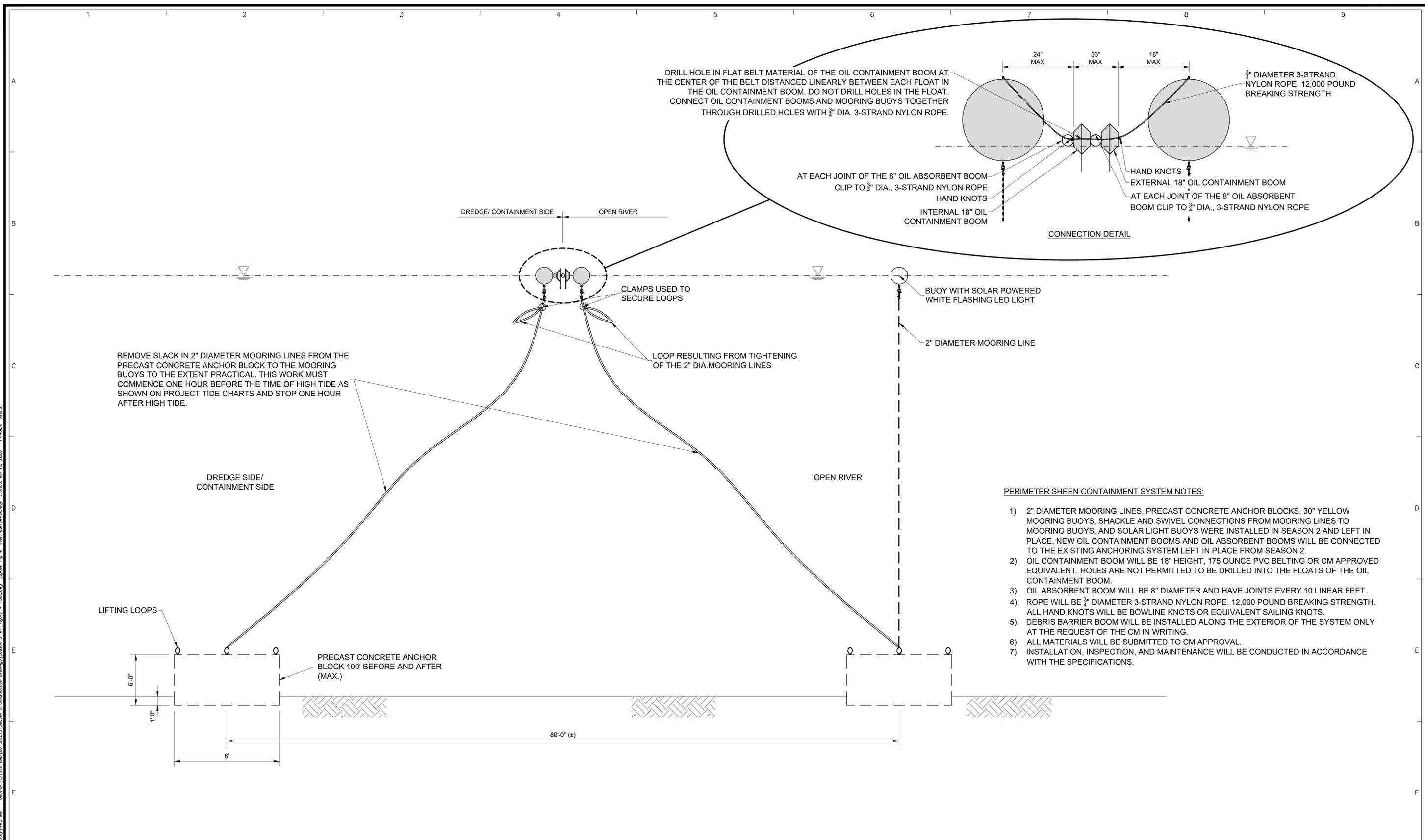


Figure 5 - Conceptual Shroud Configuration for the Hydraulic Dredging Pump

File: C:\Users\jennell.kennedy\AECOM\Directory\WMS MGP - General (1)\1910 CAD\20 SHEETS\Season 3 Construction Drawings\Season 3-WP-Figure 4-PCS.dwg Layout: Fig. 4 User: Jennell.Kennedy Plotout: Jul 23, 2020 - 11:45am Xref: 5



- PERIMETER SHEEN CONTAINMENT SYSTEM NOTES:**
- 1) 2" DIAMETER MOORING LINES, PRECAST CONCRETE ANCHOR BLOCKS, 30" YELLOW MOORING BUOYS, SHACKLE AND SWIVEL CONNECTIONS FROM MOORING LINES TO MOORING BUOYS, AND SOLAR LIGHT BUOYS WERE INSTALLED IN SEASON 2 AND LEFT IN PLACE. NEW OIL CONTAINMENT BOOMS AND OIL ABSORBENT BOOMS WILL BE CONNECTED TO THE EXISTING ANCHORING SYSTEM LEFT IN PLACE FROM SEASON 2.
 - 2) OIL CONTAINMENT BOOM WILL BE 18" HEIGHT, 175 OUNCE PVC BELTING OR CM APPROVED EQUIVALENT. HOLES ARE NOT PERMITTED TO BE DRILLED INTO THE FLOATS OF THE OIL CONTAINMENT BOOM.
 - 3) OIL ABSORBENT BOOM WILL BE 8" DIAMETER AND HAVE JOINTS EVERY 10 LINEAR FEET.
 - 4) ROPE WILL BE 3/4" DIAMETER 3-STRAND NYLON ROPE, 12,000 POUND BREAKING STRENGTH. ALL HAND KNOTS WILL BE BOWLINE KNOTS OR EQUIVALENT SAILING KNOTS.
 - 5) DEBRIS BARRIER BOOM WILL BE INSTALLED ALONG THE EXTERIOR OF THE SYSTEM ONLY AT THE REQUEST OF THE CM IN WRITING.
 - 6) ALL MATERIALS WILL BE SUBMITTED TO CM APPROVAL.
 - 7) INSTALLATION, INSPECTION, AND MAINTENANCE WILL BE CONDUCTED IN ACCORDANCE WITH THE SPECIFICATIONS.

7							
6							
5							
4							
3							
2							
1							
0							
NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE



CENTRAL HUDSON GAS & ELECTRIC CORP.
POUGHKEEPSIE, NY

PERIMETER SHEEN CONTAINMENT SYSTEM
SEASON 3 PILOT STUDY WORK PLAN

PROJ. NUMBER: 60540671 DATE: 07/23/2020

FORMER NORTH WATER STREET MGP

DRAWING NUMBER:	FIG 6
SHEET NUMBER:	1 of 1
REVISION:	0

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Appendices

Appendix A Geotechnical Investigation Boring Logs

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-1
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	Page #:	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	Partly Cloudy
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i> 60.25 ft	<i>Start Date:</i>	6/2/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	6/2/2020
<i>Logged By:</i> D. Kennedy	<i>Water Elevation:</i>	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	P/D	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOR	SS	-	24	Wet	0.0	ML	Very soft, wet, dark grey SILT with sand, no odor, no sheen
1.0	WOR					0.0		
1.5	WOR					0.0		
2.0	WOR					0.0		
2.5	WOR	SS	-	24	Wet	0.0	ML	Very soft, wet, dark grey SILT, trace sand, small (penny size) debris pieces, no odor, no sheen
3.0	WOR					0.0		
3.5	WOR					0.0		
4.0	WOR					0.0		
4.5	WOR	SS	-	24	Wet	0.0	ML-CL	SAA @5 very soft, wet, dark grey SILTY CLAY, trace organics, no odor, no sheen
5.0	WOR					0.0		
5.5	WOR					0.0		
6.0	WOR					0.0		
6.5	WOR	SS	-	10	Wet	0.0	ML-CL	Very soft, wet, dark grey SILTY CLAY, trace metal debris pieces, no odor, no sheen
7.0	WOR					0.0		
7.5	WOR					0.0		
8.0	WOR					0.0		
8.5	WOR	SS	-	22	Wet	0.0	CL	Very soft, wet, dark grey CLAY with silt, trace sand, trace organic matter in bottom 4 inches, no odor, no sheen
9.0	WOR					0.0		
9.5	WOR					0.0		
10.0	WOR					0.0		
10.5	WOR	SS	-	24	Wet	0.0	CL	SAA
11.0	WOR					0.0		
11.5	WOR					0.0		
12.0	WOR					0.0		
12.5	WOR	SS	-	24	Wet	0.0	CL	SAA, trace shells, trace organic material, moderate plasticity, no odor, no sheen
13.0	WOR					0.0		
13.5	WOR					0.0		
14.0	WOR					0.0		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

S3
SS
ST
R

Soil Descriptors:

trace 0 to 5%
few 5 to 10%
little 15 to 25%
some 30 to 45%
mostly >50%

Cohesionless Density:

0-4: Very Loose
5-9: Loose
10-29: Med Dense
30-49: Dense
50+ Very Dense

Cohesive Consistency:

0-2: Very Soft
3-4: Soft
5-8: Med Stiff
9-15: Stiff
16-30: Very Hard
31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-2
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	Page #:	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	75°F Mostly Cloudy
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i> 31 ft (Approx.)	<i>Start Date:</i>	6/3/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	6/3/2020
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i> 56 ft	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	PID	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOR	SS	-	0	-	-	-	No Recovery
1.0	WOR					-		
1.5	WOR					-		
2.0	WOH					-		
2.5	3	SS	-	7	Wet	35.9	GW	Very loose, wet, black, fine to medium angular GRAVEL with little shell fragments, trace silt, moderate MGP odor, weak sheen
3.0	2					-		
3.5	WOH					28.8		
4.0	WOH					-		
4.5	2	SS	-	1	Wet	16.7	GW	SAA
5.0	WOH					-		
5.5	WOH					-		
6.0	WOH					-		
6.5	WOR	SS	-	5	Wet	1.0	ML	Very soft, wet, dark brown/grey SILT with trace fine angular gravel, slight to moderate MGP odor, weak sheen
7.0	WOR					-		
7.5	WOR					0.9		
8.0	WOR					-		
8.5	WOR	SS	-	8	Wet	0.3	ML	SAA, slight odor, no sheen
9.0	WOR					-		
9.5	WOR					0.3		
10.0	WOR					-		
10.5	WOR	SS	-	19	Wet	0.2	ML	SAA @11.75 little fine sand, trace shell fragments, passing odor
11.0	WOR					0.2		
11.5	WOR					0.1		
12.0	WOR					0.0		
12.5	WOR	SS	-	18	Wet	0.0	ML	SAA @13 very soft, wet, dark grey CLAY with little silt, trace shell fragments, no odor
13.0	WOR					0.0		
13.5	WOR					0.0	CL	
14.0	WOR					0.0		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

- S3
- SS
- ST
- R

Soil Descriptors:

- trace 0 to 5%
- few 5 to 10%
- little 15 to 25%
- some 30 to 45%
- mostly >50%

Cohesionless Density:

- 0-4: Very Loose
- 5-9: Loose
- 10-29: Med Dense
- 30-49: Dense
- 50+ Very Dense

Cohesive Consistency:

- 0-2: Very Soft
- 3-4: Soft
- 5-8: Med Stiff
- 9-15: Stiff
- 16-30: Very Hard
- 31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-3
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-8 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	Page #:	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	80°F Sunny
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i> Unknown	<i>Start Date:</i>	6/8/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 8 ft	<i>End Date:</i>	6/8/2020
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i> 52 ft	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	PID	USCS	Classification of Material/ Description of Material	
Feet				Inches		ppm			
0.5	10	SS	-	6	Wet	2.3	GM	Medium dense, wet, dark grey to black angular fine to medium GRAVEL, some silt, slight MGP odor, no sheen	
1.0	10					-			
1.5	5					0.9			
2.0	WOH					-			
2.5	12	SS	-	9	Wet	98.7	GM	SAA	
3.0	13					-			
3.5	3					139.1			
4.0	15					-			Wood
4.5	57	SS	-	0	Wet	-	-	Wood (rod pushed through @ 4.5 ft)	
5.0	-					-			
5.5	-					-			
6.0	-					-			
6.5	5	SS	-	16	Wet	102.7	GM	@6-7 - same as 0-2	
7.0	2					76.2			
7.5	2					44.5	ML		@7-8 - Soft, wet, dark brown grey SILT, little clay, strong MGP odor, medium sheen
8.0	3					38.4			
8.5								Bottom of Boring @ 8 ft	
9.0									
9.5									
10.0									
10.5									
11.0									
11.5									
12.0									
12.5									
13.0									
13.5									
14.0									

Notes:

Sample Types:

- S3
- SS
- ST
- R

Soil Descriptors:

- trace 0 to 5%
- few 5 to 10%
- little 15 to 25%
- some 30 to 45%
- mostly >50%

Cohesionless Density:

- 0-4: Very Loose
- 5-9: Loose
- 10-29: Med Dense
- 30-49: Dense
- 50+ Very Dense

Cohesive Consistency:

- 0-2: Very Soft
- 3-4: Soft
- 5-8: Med Stiff
- 9-15: Stiff
- 16-30: Very Hard
- 31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-4
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	Page #:	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	84°F Cloudy, Rain
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i>	<i>Start Date:</i>	6/5/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	6/5/2020
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i> 56 ft	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	PID	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOR	SS	-	0	-	-	-	No Recovery
1.0	WOR					-		
1.5	WOR					-		
2.0	WOR					-		
2.5	WOR	SS	-	0	-	-	-	No Recovery Small fragments of sand with moderate MGP odor
3.0	WOR					0.6		
3.5	WOR					-		
4.0	WOR					-		
4.5	WOR	SS	-	18	Wet	46.9	ML	Very soft, wet, dark grey SILT, trace clay, trace fine gravel, moderate MGP odor, strong sheen
5.0	WOR					92.4		
5.5	WOR					99.7		
6.0	WOR					91.2		
6.5	WOR	SS	-	16	Wet	99.8	ML	SAA
7.0	WOR					36.1		
7.5	WOR					57.7		
8.0	WOR					61.3		
8.5	WOR	SS	-	9	Wet	10.7	ML	SAA, slight to moderate odor, slight sheen, no gravel
9.0	WOR					-		
9.5	WOR					3.6		
10.0	WOR					2.9		
10.5	WOR	SS	-	7.5	Wet	2.9	ML	Very soft, wet, dark grey SILT, trace clay, slight MGP odor, no sheen
11.0	WOR					-		
11.5	WOR					1.6		
12.0	WOR					0.9		
12.5	WOR	SS	-	18.5	Wet	0.1	ML	SAA @12.5 very soft, wet, dark grey CLAY, little silt, trace shell fragments, slight MGP odor, no sheen
13.0	WOR					0.1	CL-ML	
13.5	WOR					0.3		
14.0	WOR					0.3		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

S3
SS
ST
R

Soil Descriptors:

trace 0 to 5%
few 5 to 10%
little 15 to 25%
some 30 to 45%
mostly >50%

Cohesionless Density:

0-4: Very Loose
5-9: Loose
10-29: Med Dense
30-49: Dense
50+ Very Dense

Cohesive Consistency:

0-2: Very Soft
3-4: Soft
5-8: Med Stiff
9-15: Stiff
16-30: Very Hard
31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-5
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	Page #:	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	88°F Hazy/Muggy
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i>	<i>Start Date:</i>	6/4/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	6/4/2020
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i> 62 ft	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	P/D	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOR	SS	-	24	Wet	0.0	ML	Very soft, wet, dark brown/grey SILT, moderate organic odor, no stain. @0.5-1.0 some fine sand
1.0	WOR					0.0		
1.5	WOR					0.0		
2.0	WOR					0.0		
2.5	WOR	SS	-	22	Wet	0.0	ML	Very soft, wet, dark brown/grey SILT, moderate organic odor, no stain. @3.5-4.0 some fine sand
3.0	WOR					0.0		
3.5	WOR					0.0		
4.0	WOR					0.0		
4.5	WOR	SS	-	14	Wet	0.0	ML	Very soft, wet, dark brown/grey SILT, trace clay, moderate organic odor
5.0	WOR					0.0		
5.5	WOR					0.0		
6.0	WOR					0.0		
6.5	WOR	SS	-	8	Wet	0.0	ML	SAA
7.0	WOR					-		
7.5	WOR					0.0		
8.0	WOR					-		
8.5	WOR	SS	-	16	Wet	0.0	ML	SAA
9.0	WOR					0.0		
9.5	WOR					0.0		
10.0	WOR					0.0		
10.5	WOR	SS	-	14	Wet	-	ML	SAA
11.0	WOR					0.1		
11.5	WOR					-		
12.0	WOR					-		
12.5	WOR	SS	-	21	Wet	0.0	CL-ML	Very soft, wet, dark brown/grey CLAY, some silt, trace shells, moderate organic odor
13.0	WOR					0.0		
13.5	WOR					0.0		
14.0	WOR					0.0		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

S3
SS
ST
R

Soil Descriptors:

trace 0 to 5%
few 5 to 10%
little 15 to 25%
some 30 to 45%
mostly >50%

Cohesionless Density:

0-4: Very Loose
5-9: Loose
10-29: Med Dense
30-49: Dense
50+ Very Dense

Cohesive Consistency:

0-2: Very Soft
3-4: Soft
5-8: Med Stiff
9-15: Stiff
16-30: Very Hard
31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-7
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	<i>Page #:</i>	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i>	<i>Start Date:</i>	
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i>	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	P/D	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOH	SS	-		Wet	-	ML	Pulverized, weathered cobble Very soft, wet, dark grey SILT, little fine sand, trace fine angular gravel fragments
1.0	WOR					0.6		
1.5	WOR					-		
2.0	WOR					0.9		
2.5	WOR	SS	-	14	Wet	0.9	SM	Very loose, wet, dark grey to black fine to medium SAND, little silt, moderate MGP odor, slight sheen @3.5 very soft, wet, dark grey to grey SILT, trace clay, slight MGP odor, slight sheen
3.0	WOR					1.2		
3.5	WOR					0.7		
4.0	WOR					-	ML	
4.5	WOR	SS	-	8	Wet	0.5	SM	Very loose, wet, dark grey to black fine to medium SAND, little silt, moderate MGP odor, slight sheen
5.0	WOR					0.5		
5.5	WOR					0.3		
6.0	WOR					0.4		
6.5	WOR	SS	-	8.5	Wet	2.6	ML	Very soft, wet, dark grey SILT, little clay, slight MGP odor, slight sheen (possibly residual)
7.0	WOR					-		
7.5	WOR					1.5		
8.0	WOR					-		
8.5	WOR	SS	-	11	Wet	0.5	ML	SAA
9.0	WOR					0.5		
9.5	WOR					0.5		
10.0	WOR					-		
10.5	2	SS	-	12	Wet	0.3	ML	SAA, pulverized cobble/gravelly @ 11.5
11.0	2					0.2		
11.5	2					0.0		
12.0	2					-		
12.5	WOR	SS	-	9	Wet	0.0	ML	SAA
13.0	WOR					0.1		
13.5	WOR					0.2		
14.0	WOR					-		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

S3
SS
ST
R

Soil Descriptors:

trace 0 to 5%
few 5 to 10%
little 15 to 25%
some 30 to 45%
mostly >50%

Cohesionless Density:

0-4: Very Loose
5-9: Loose
10-29: Med Dense
30-49: Dense
50+ Very Dense

Cohesive Consistency:

0-2: Very Soft
3-4: Soft
5-8: Med Stiff
9-15: Stiff
16-30: Very Hard
31+ Hard

<i>Client:</i> Central Hudson Gas & Electric	<i>Hole Site:</i> 5"	Boring ID:	PSB-8
<i>Project Number:</i> 60543645	<i>Drilling Method:</i> Split Spoon	Boring Interval:	0-14 ft
<i>Site:</i> North Water Street MGP	<i>Drilling Fluid:</i> Water	<i>Page #:</i>	1 of 1
<i>Project Manager:</i> George Leahy	<i>Location (easting):</i>		
<i>Drilling Co.:</i> Atlantic Testing Lab (ATL)	<i>Location (northing):</i>	<i>Weather:</i>	90°F Sunny
<i>Drill Rig:</i> CME75	<i>Top of Boring:</i>	<i>Start Date:</i>	6/9/2020
<i>Driller:</i> M. Childs	<i>Depth of Boring:</i> 14 ft	<i>End Date:</i>	6/9/2020
<i>Logged By:</i> J. Christopher	<i>Water Elevation:</i> 56 ft	<i>QC Initials:</i>	
	<i>Top of Rock:</i> Not Encountered	<i>QC Date:</i>	

Depth	Blow Count per 6 inches	Sample Type	Lab Sample	Recovery	Moisture	PID	USCS	Classification of Material/ Description of Material
Feet				Inches		ppm		
0.5	WOR	SS	-	0	-	-	-	No Recovery, no odor
1.0	WOR					-		
1.5	WOR					-		
2.0	WOR					-		
2.5	WOR	SS	-	5	Wet	-	ML	Very soft, wet, grey to dark grey SILT, little angular gravel, little slag, strong MGP odor, strong sheen
3.0	WOR					193.7		
3.5	WOR					-		
4.0	WOR					-		
4.5	WOR	SS	-	9	Wet	52.1	ML	SAA
5.0	WOR					-		
5.5	WOR					50.9		
6.0	WOR					-		
6.5	WOR	SS	-	14	Wet	34.6	ML	Very soft, wet, dark grey SILT, little clay, moderate MGP odor, moderate sheen @ 7-8 Very soft, wet, dark grey CLAY, little silt, moderate MGP odor, no sheen
7.0	WOR					27.9		
7.5	WOR					29.3	CL	
8.0	WOR					31.1		
8.5	WOR	SS	-	9	Wet	-	ML	Very soft, wet, dark grey SILT, little clay, moderate MGP odor, moderate sheen
9.0	WOR					16.8		
9.5	WOR					17.2		
10.0	WOR					10.9		
10.5	WOR	SS	-	9	Wet	6.1	ML	SAA @ 11-12 Very soft, wet, dark grey CLAY, little silt, moderate MGP odor, no sheen
11.0	WOR					-		
11.5	WOR					4.2	CL	
12.0	WOR					3.8		
12.5	WOR	SS	-	9	Wet	-	CL	SAA
13.0	WOR					5.9		
13.5	WOR					4.7		
14.0	WOR					-		
								Bottom of Boring @ 14 ft

Notes:

Sample Types:

- S3
- SS
- ST
- R

Soil Descriptors:

- trace 0 to 5%
- few 5 to 10%
- little 15 to 25%
- some 30 to 45%
- mostly >50%

Cohesionless Density:

- 0-4: Very Loose
- 5-9: Loose
- 10-29: Med Dense
- 30-49: Dense
- 50+ Very Dense

Cohesive Consistency:

- 0-2: Very Soft
- 3-4: Soft
- 5-8: Med Stiff
- 9-15: Stiff
- 16-30: Very Hard
- 31+ Hard

Appendix B Geotechnical Investigation Analytical Results



*Technologies to manage risk
for infrastructure*

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Geotechnical Test Report

6/29/2020

GTX-311893

CHGE NWS

Poughkeepsie, NY

Client Project No.: 60543645

Prepared for:

AECOM



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: ---	Tested By: ckg	Checked By: bfs
Sample ID: ---	Test Date: 06/23/20	Test Id: 560343	
Depth : ---			

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	PSB- 1	0-2	Wet, very dark gray clay with sand	64.6
---	PSB- 1	2-4	Moist, very dark gray sandy clay	40.7
---	PSB- 1	6-8	Wet, very dark gray clay with sand	52.4
---	PSB- 1	8-10	Wet, very dark gray clay with sand	58.7
---	PSB- 1	12-14	Wet, very dark gray clay	59.9
---	PSB- 2	2-4	Moist, very dark gray gravel with silt and sand	25.8
---	PSB- 2	8-10	Wet, very dark gray silt with sand	61.7
---	PSB- 2	12-14	Wet, very dark gray clay	64.0
---	PSB- 3	2-4	Moist, very dark gray silty sand with gravel	42.4
---	PSB- 3	6-8	Moist, very dark gray gravelly clay with sand	37.9

Notes: Temperature of Drying : 110° Celsius



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: ---	Tested By: ckg	Checked By: bfs
Sample ID: ---	Test Date: 06/23/20	Test Id: 560336	
Depth : ---			

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	PSB- 4	4-6	Wet, very dark gray clay with sand	66.6
---	PSB- 4	10-12	Wet, very dark gray clay with sand	53.5
---	PSB- 4	12-14	Wet, very dark gray clay	58.6
---	PSB- 5	0-2	Wet, very dark gray clay with sand	80.6
---	PSB- 5	2-4	Wet, very dark gray sandy clay	54.0
---	PSB- 5	8-10	Wet, very dark gray clay with sand	52.8
---	PSB- 5	10-12	Wet, very dark gray clay	62.2

Notes: Temperature of Drying : 110° Celsius



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: ---	Tested By: ckg	
Sample ID: ---	Test Date: 06/22/20	Checked By: bfs	
Depth : ---	Test Id: 560328		

Moisture Content of Soil and Rock - ASTM D2216

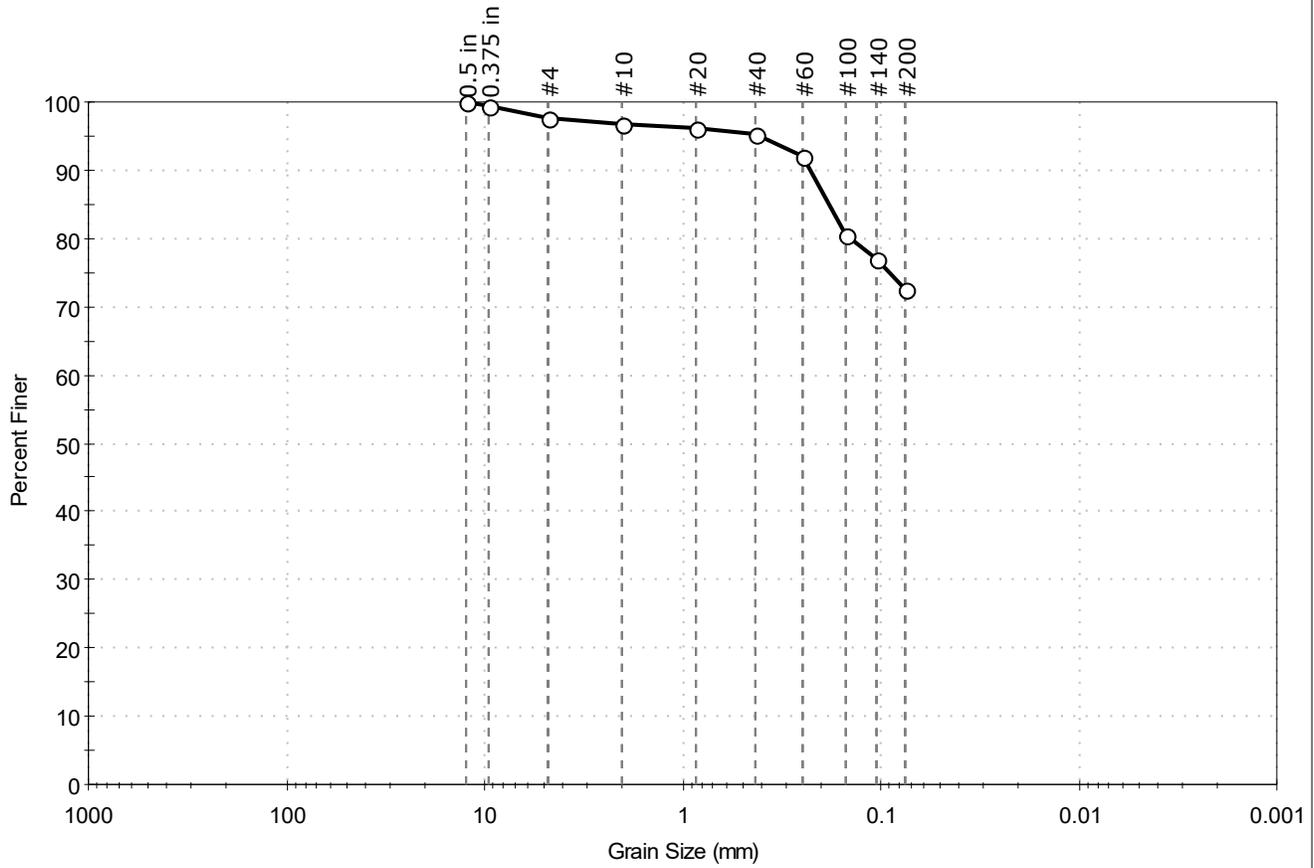
Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	PSB- 7	2-4	Wet, very dark gray clayey sand	64.8
---	PSB- 7	4-6	Moist, very dark gray silty sand	58.0
---	PSB- 7	6-8	Wet, very dark gray clay with sand	49.8
---	PSB- 7	10-12	Moist, very dark gray gravelly clay	42.9
---	PSB- 8	4-6	Moist, very dark gray sandy silt with gravel	75.3
---	PSB- 8	6-8	Moist, very dark gray clay with sand	57.9
---	PSB- 8	10-12	Wet, very dark gray clay	62.5
---	PSB- 8	12-14	Moist, very dark gray clay with sand	59.4

Notes: Temperature of Drying : 110° Celsius



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-1	Test Date: 06/23/20	Test Id: 560377	
Depth: 0-2			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	2.3	25.2	72.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	100		
#4	4.75	98		
#10	2.00	97		
#20	0.85	96		
#40	0.42	95		
#60	0.25	92		
#100	0.15	81		
#140	0.11	77		
#200	0.075	73		

Coefficients

D ₈₅ = 0.1827 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM Lean CLAY with Sand (CL)

AASHTO Clayey Soils (A-7-6 (15))

Sample/Test Description

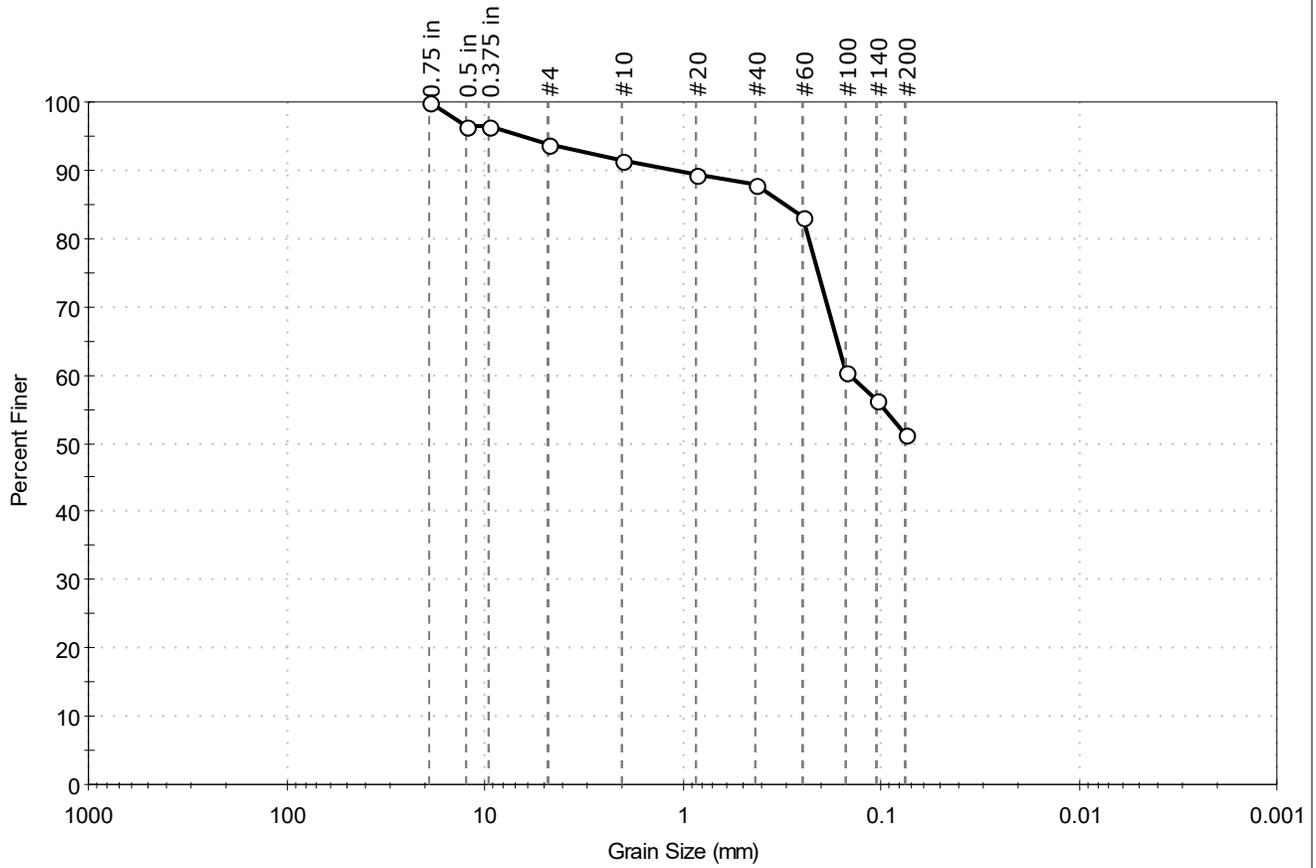
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-1	Test Date: 06/23/20	Test Id: 560376	
Depth: 2-4			
Test Comment: ---			
Visual Description: Moist, very dark gray sandy clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	6.3	42.3	51.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	96		
0.375 in	9.50	96		
#4	4.75	94		
#10	2.00	91		
#20	0.85	90		
#40	0.42	88		
#60	0.25	83		
#100	0.15	61		
#140	0.11	56		
#200	0.075	51		

<u>Coefficients</u>	
D ₈₅ = 0.3038 mm	D ₃₀ = N/A
D ₆₀ = 0.1434 mm	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

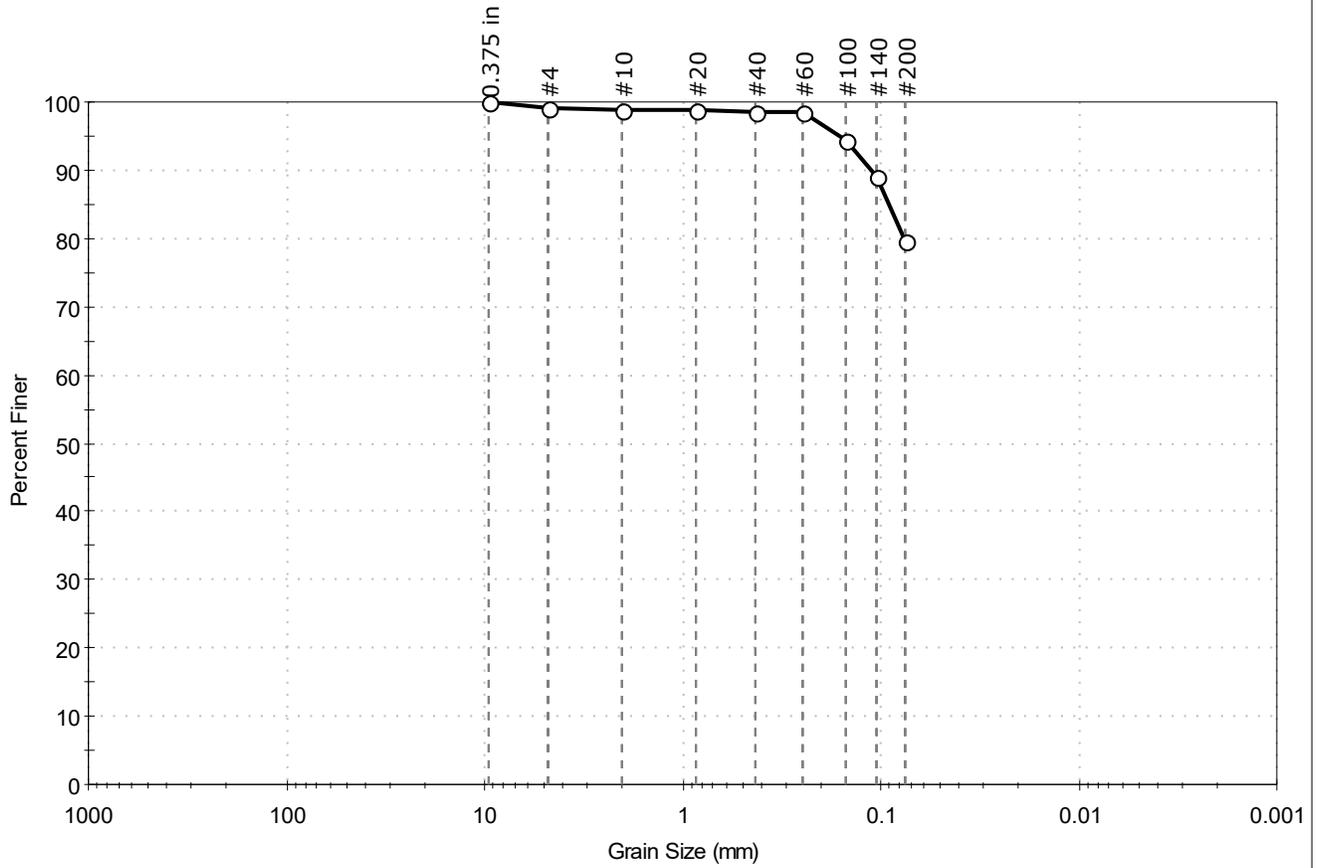
<u>Classification</u>	
<u>ASTM</u>	Sandy Lean CLAY (CL)
<u>AASHTO</u>	Clayey Soils (A-7-6 (7))

<u>Sample/Test Description</u>	
Sand/Gravel Particle Shape : ANGULAR	
Sand/Gravel Hardness : HARD	



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-1	Test Date: 06/23/20	Test Id: 560375	
Depth: 6-8			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.9	19.4	79.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	94		
#140	0.11	89		
#200	0.075	80		

Coefficients	
D ₈₅ = 0.0911 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

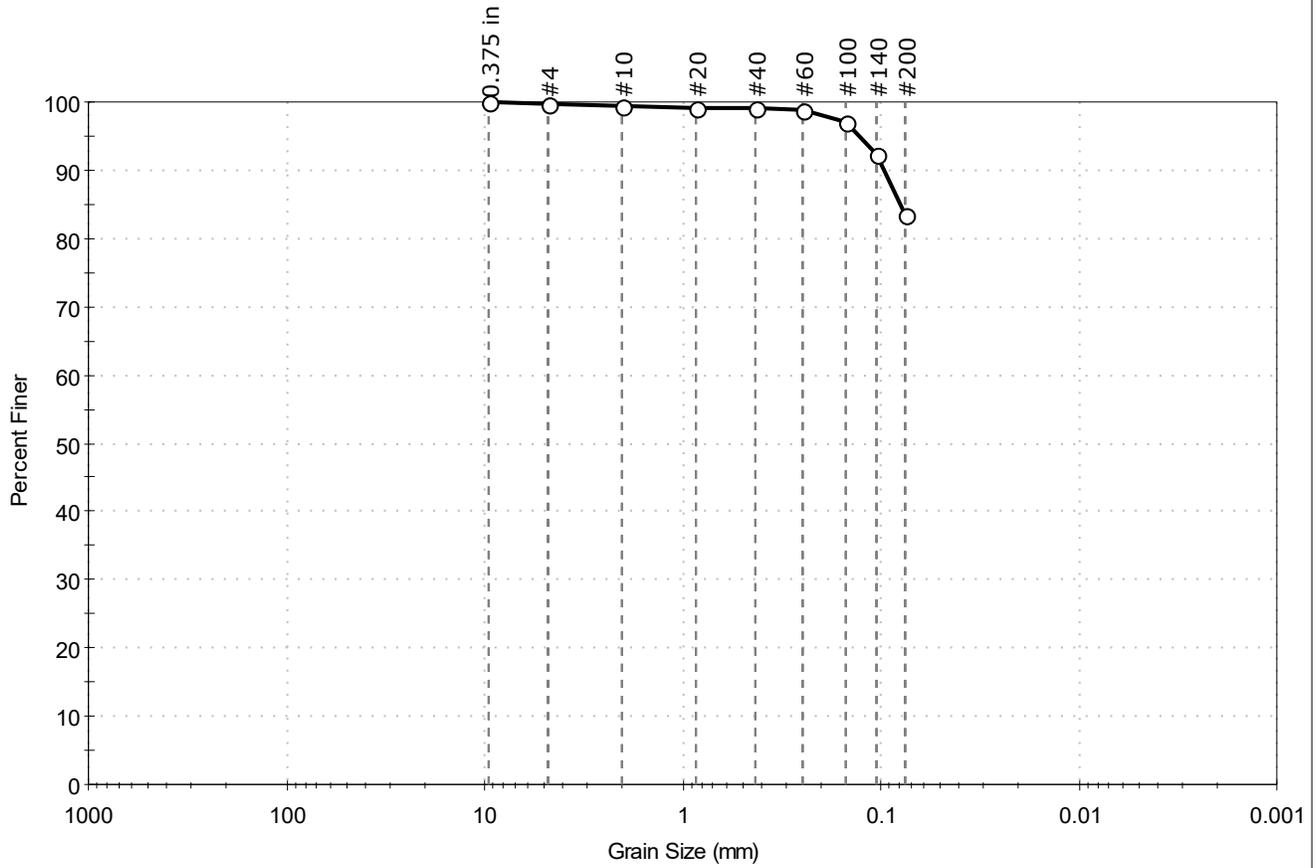
Classification	
ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (20))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-1	Test Date: 06/23/20	Test Id: 560374	
Depth: 8-10			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.4	16.2	83.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	97		
#140	0.11	92		
#200	0.075	83		

Coefficients	
D ₈₅ = 0.0795 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

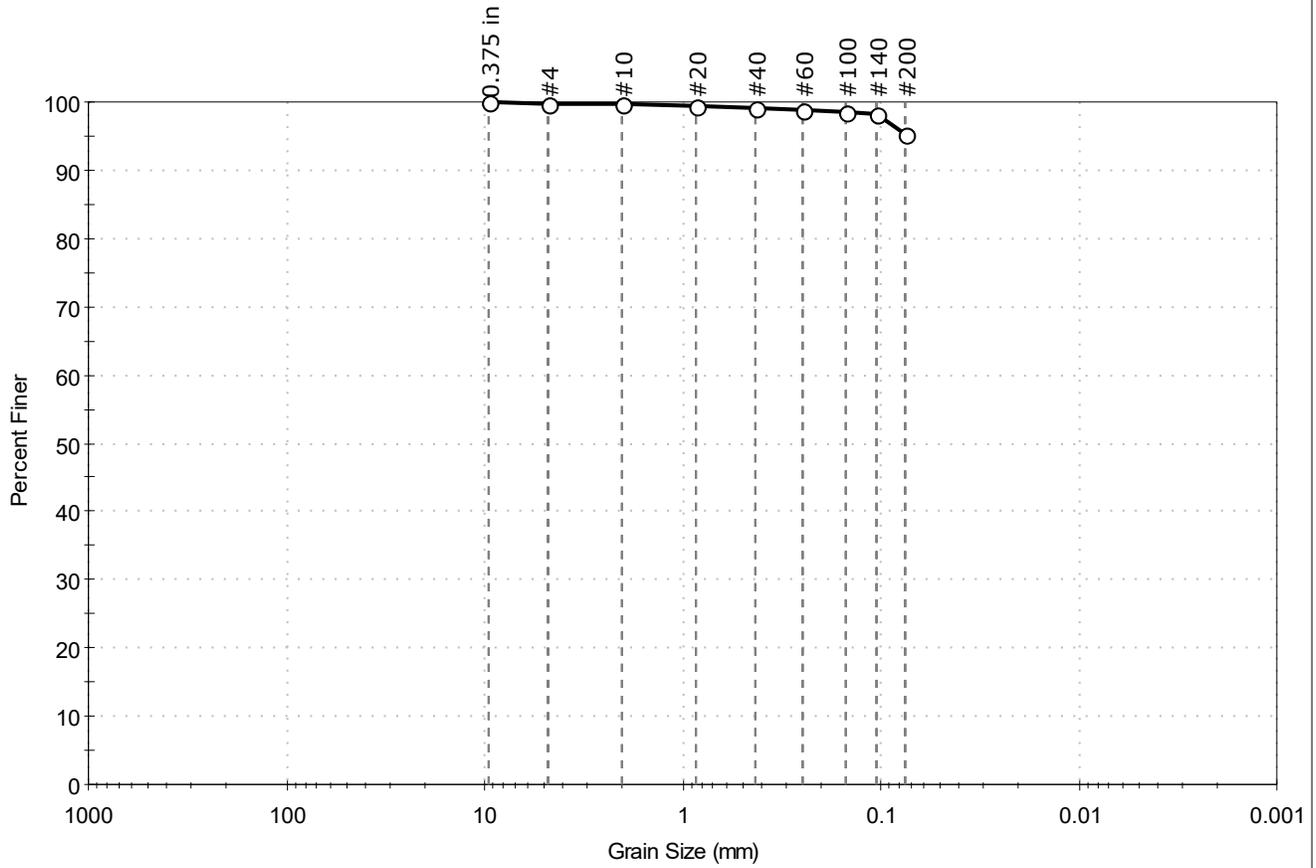
Classification	
ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (16))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-1	Test Date: 06/22/20	Test Id: 560373	
Depth: 12-14			
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	4.5	95.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#140	0.11	98		
#200	0.075	95		

<u>Coefficients</u>	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

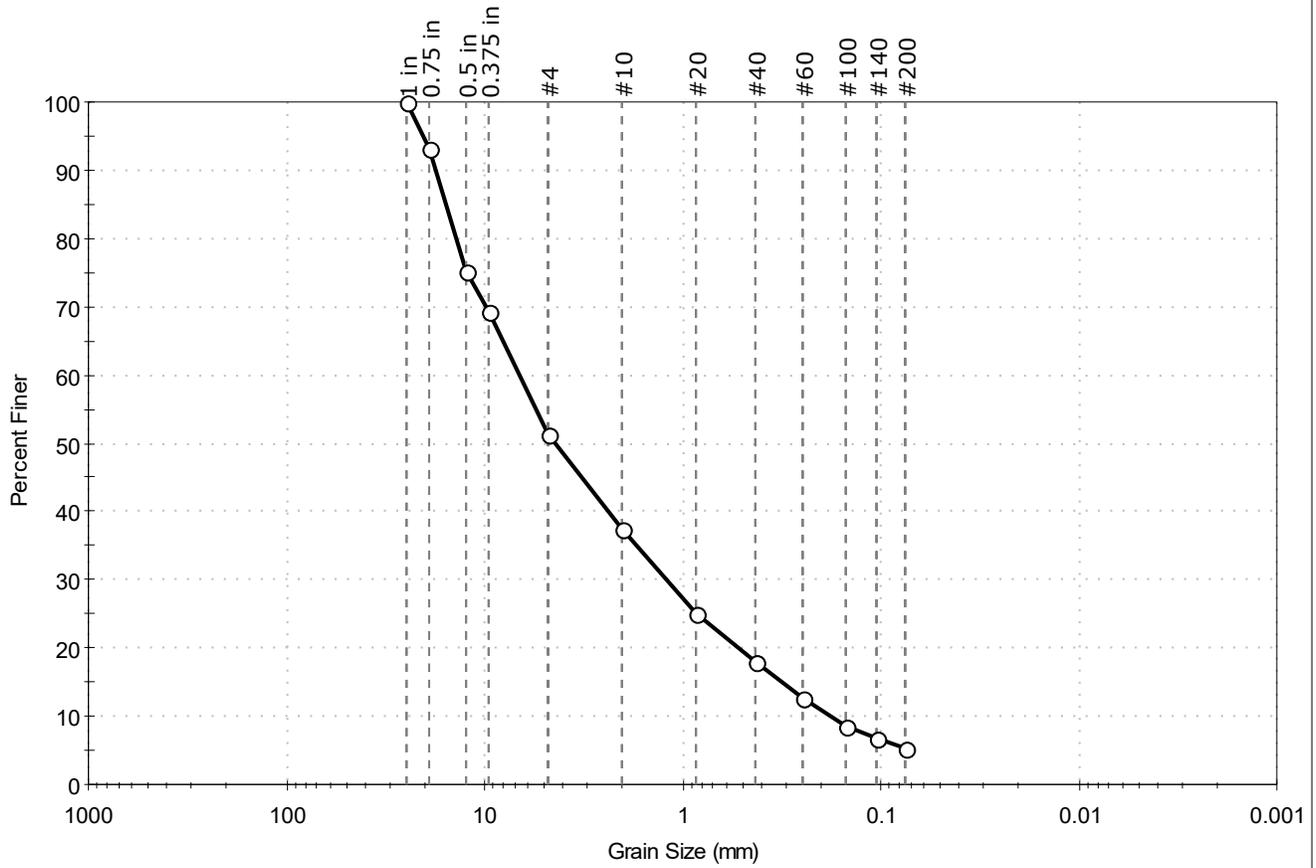
<u>Classification</u>	
ASTM	Lean CLAY (CL)
AASHTO	Clayey Soils (A-7-6 (28))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-2	Test Date: 06/22/20	Test Id: 560372	
Depth: 2-4			
Test Comment: ---	Visual Description: Moist, very dark gray gravel with silt and sand		
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	48.8	45.9	5.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	93		
0.5 in	12.50	75		
0.375 in	9.50	69		
#4	4.75	51		
#10	2.00	38		
#20	0.85	25		
#40	0.42	18		
#60	0.25	13		
#100	0.15	9		
#140	0.11	7		
#200	0.075	5.3		

Coefficients	
D ₈₅ = 15.6729 mm	D ₃₀ = 1.1851 mm
D ₆₀ = 6.6584 mm	D ₁₅ = 0.3167 mm
D ₅₀ = 4.3896 mm	D ₁₀ = 0.1800 mm
C _u = 36.991	C _c = 1.172

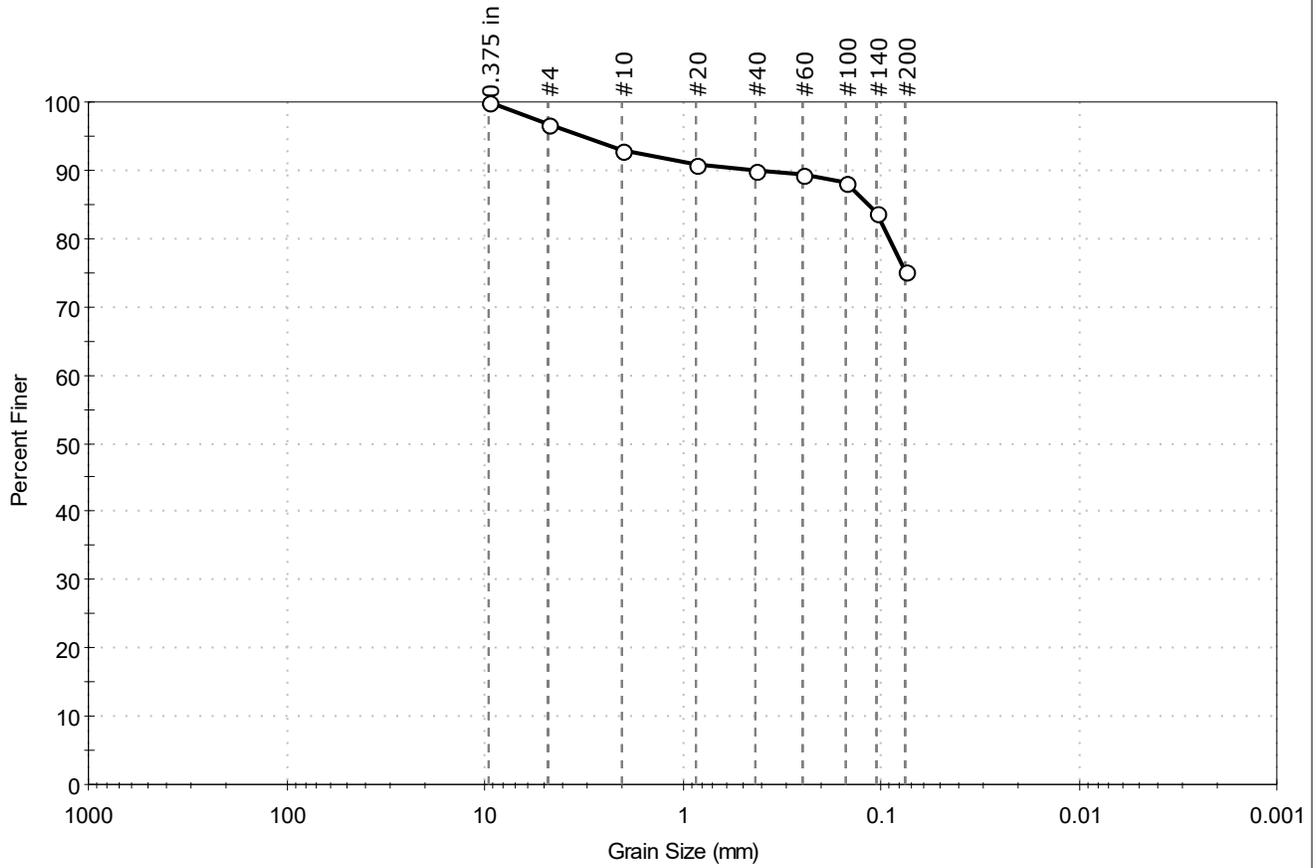
Classification	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-a (1))

Sample/Test Description
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-2	Test Date: 06/23/20	Test Id: 560371	
Depth: 8-10			
Test Comment: ---			
Visual Description: Wet, very dark gray silt with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.2	21.6	75.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	93		
#20	0.85	91		
#40	0.42	90		
#60	0.25	89		
#100	0.15	88		
#140	0.11	84		
#200	0.075	75		

Coefficients	
D ₈₅ = 0.1163 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

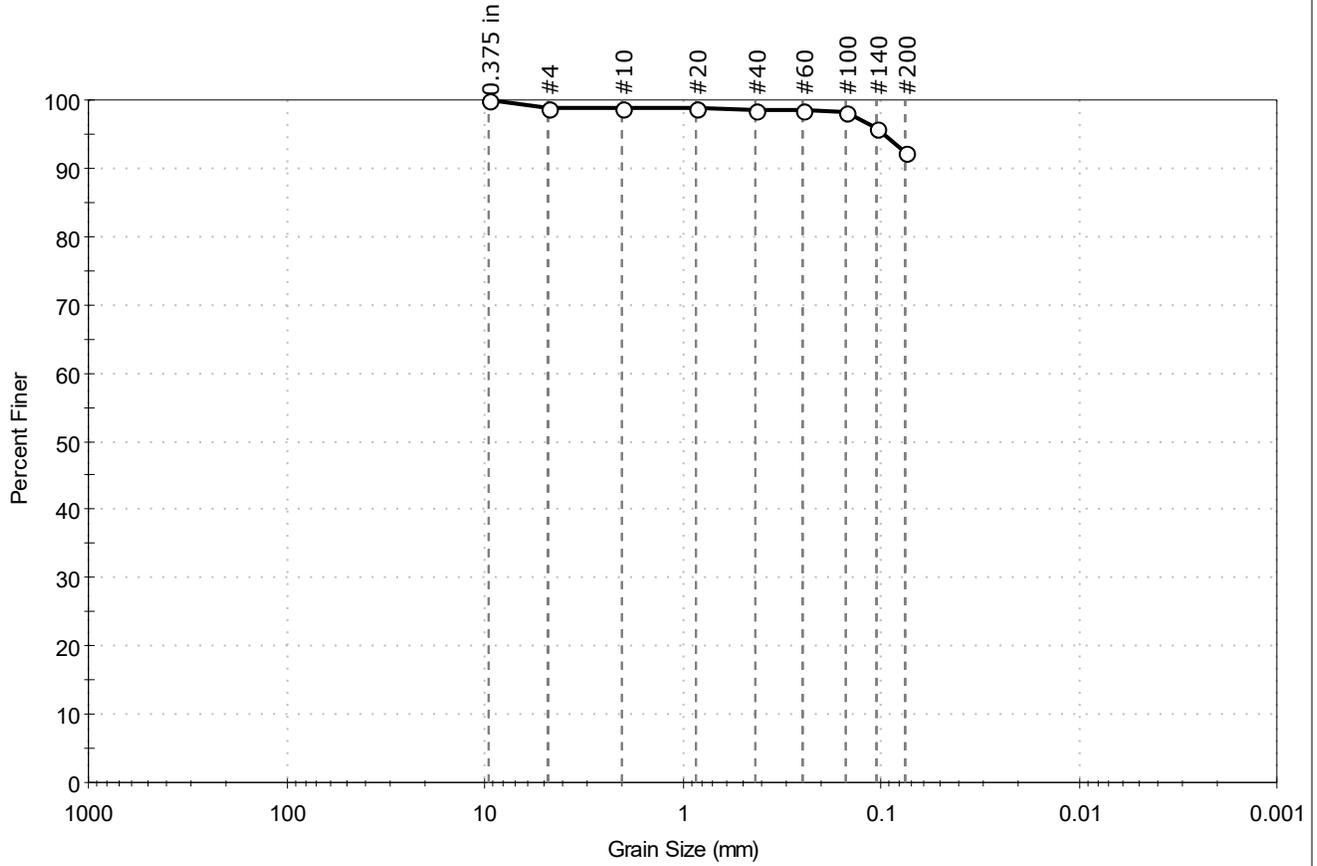
Classification	
<u>ASTM</u>	SILT with Sand (ML)
<u>AASHTO</u>	Clayey Soils (A-7-6 (12))

Sample/Test Description
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-2	Test Date: 06/23/20	Test Id: 560370	
Depth: 12-14			
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.1	6.6	92.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	92		

Coefficients	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

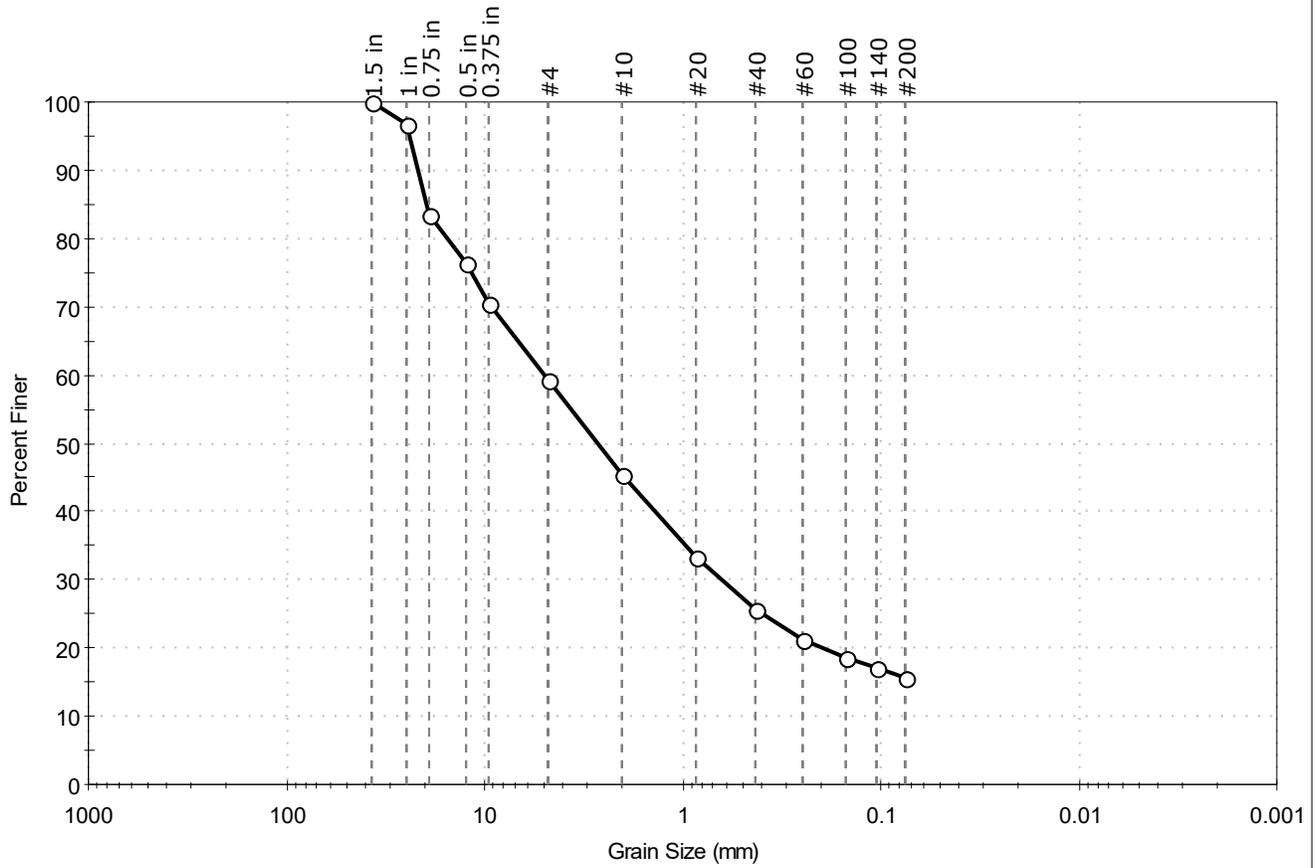
Classification	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-6 (33))

Sample/Test Description	
Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-3	Test Date: 06/22/20	Test Id: 560369	
Depth: 2-4			
Test Comment: ---			
Visual Description: Moist, very dark gray silty sand with gravel			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	40.7	43.5	15.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	97		
0.75 in	19.00	83		
0.5 in	12.50	76		
0.375 in	9.50	71		
#4	4.75	59		
#10	2.00	45		
#20	0.85	33		
#40	0.42	26		
#60	0.25	21		
#100	0.15	19		
#140	0.11	17		
#200	0.075	16		

<u>Coefficients</u>	
D ₈₅ = 19.6519 mm	D ₃₀ = 0.6269 mm
D ₆₀ = 4.9560 mm	D ₁₅ = N/A
D ₅₀ = 2.6708 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

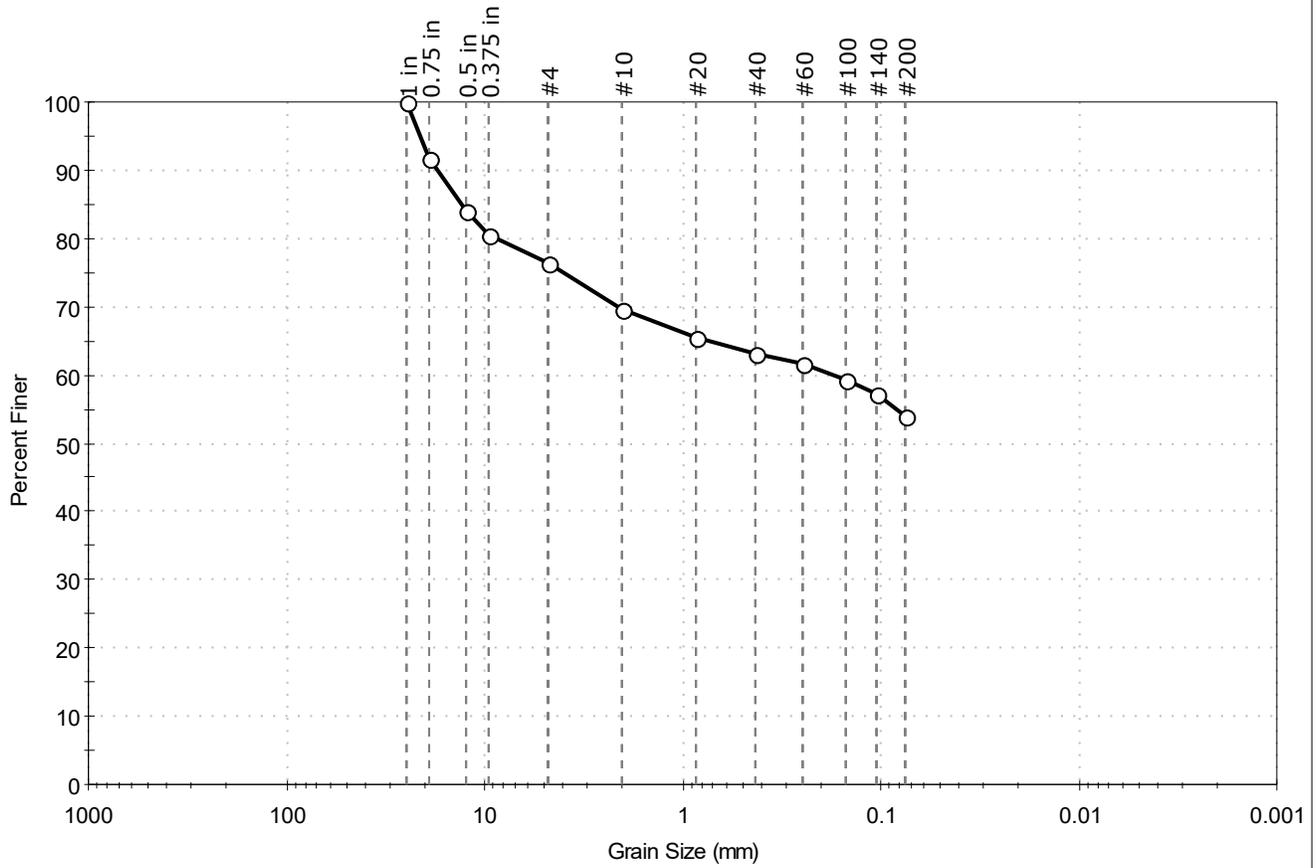
<u>Classification</u>	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	
Sample ID: PSB-3	Test Date: 06/22/20	Checked By: bfs	
Depth: 6-8	Test Id: 560368		
Test Comment: ---			
Visual Description: Moist, very dark gray gravelly clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	23.5	22.4	54.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	84		
0.375 in	9.50	81		
#4	4.75	76		
#10	2.00	70		
#20	0.85	66		
#40	0.42	63		
#60	0.25	62		
#100	0.15	59		
#140	0.11	57		
#200	0.075	54		

Coefficients	
D ₈₅ = 13.1572 mm	D ₃₀ = N/A
D ₆₀ = 0.1776 mm	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

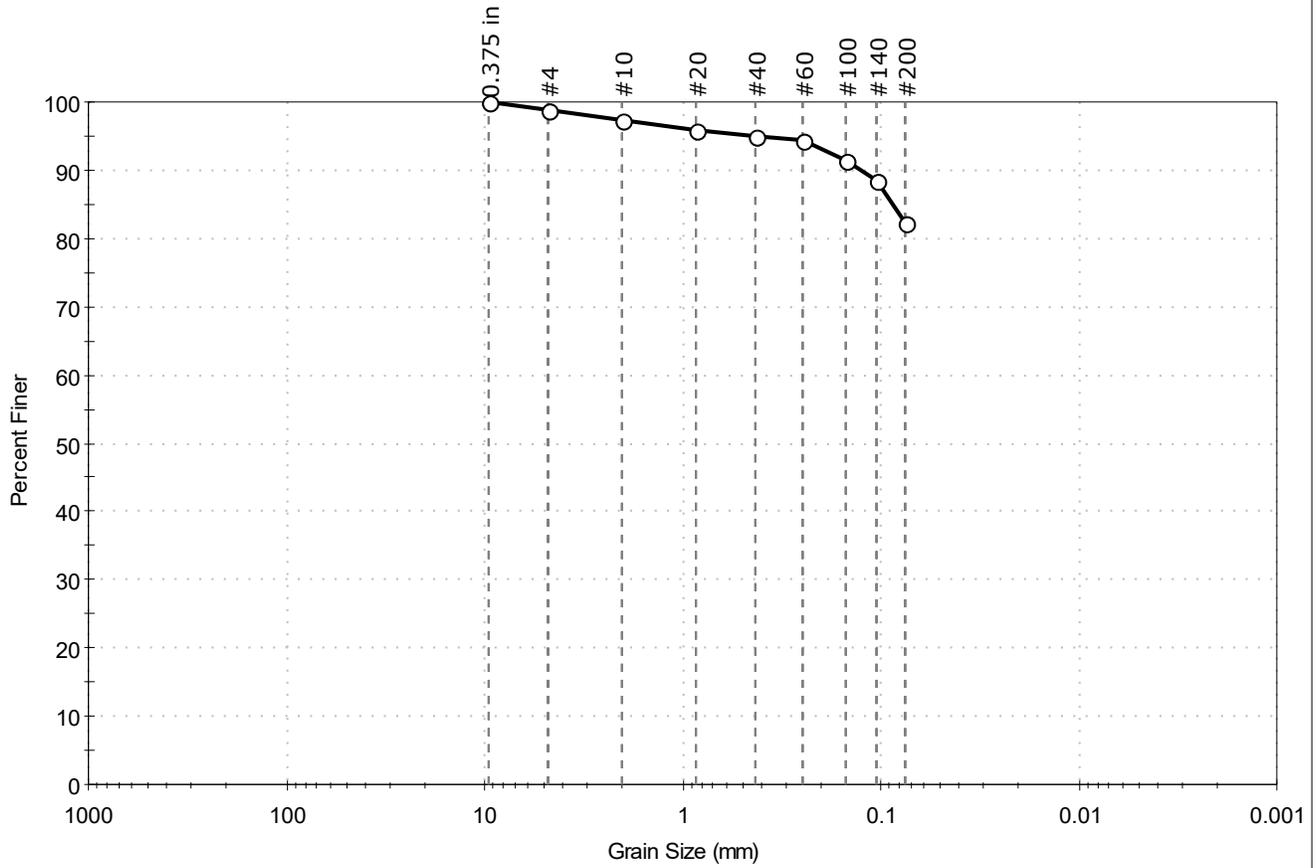
Classification	
ASTM	Gravelly Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (10))

Sample/Test Description	
Sand/Gravel Particle Shape : ANGULAR	
Sand/Gravel Hardness : HARD	



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-4	Test Date: 06/22/20	Test Id: 560367	
Depth: 4-6			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.3	16.3	82.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	97		
#20	0.85	96		
#40	0.42	95		
#60	0.25	94		
#100	0.15	91		
#140	0.11	88		
#200	0.075	82		

Coefficients	
D ₈₅ = 0.0871 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

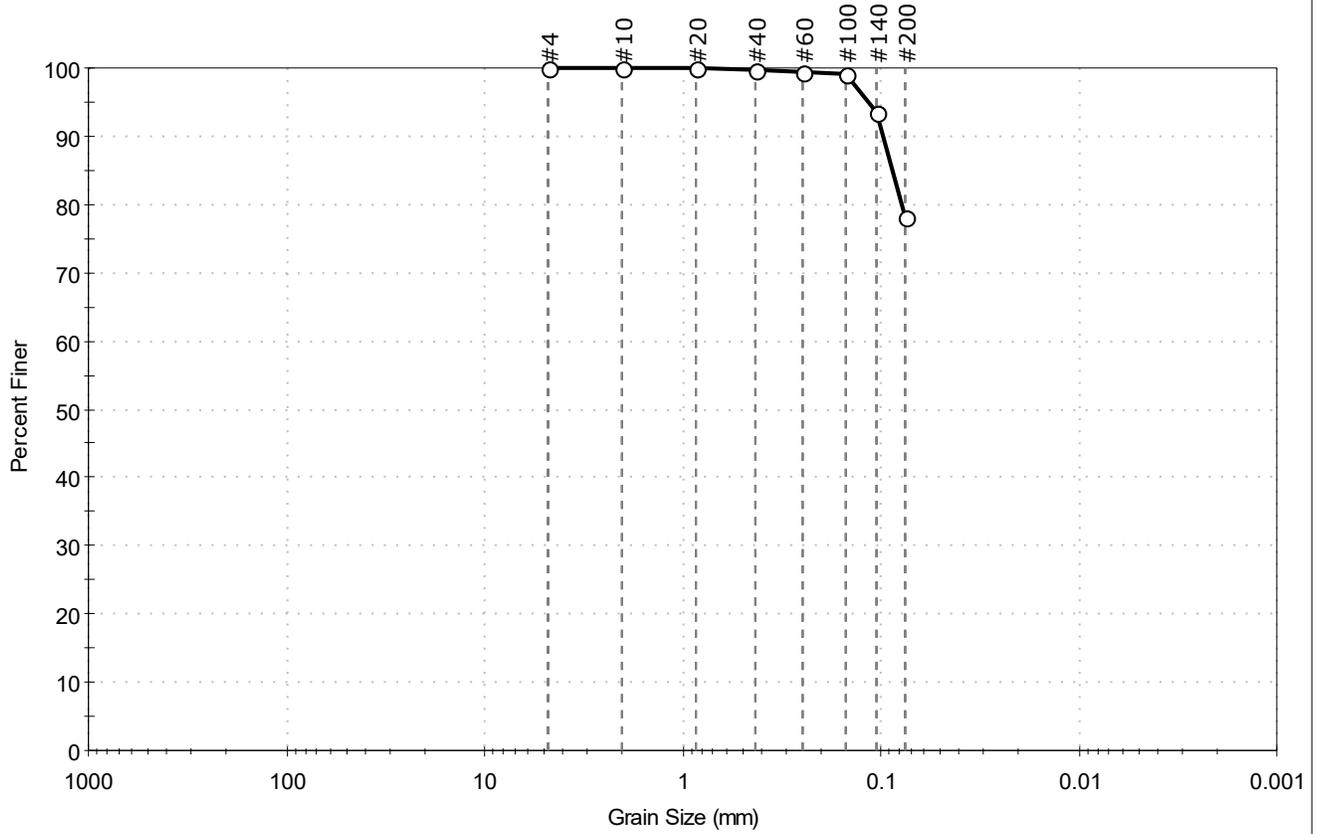
Classification	
ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-6 (15))

Sample/Test Description	
Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-4	Test Date: 06/23/20	Test Id: 560366	
Depth: 10-12			
Test Comment: ---	Visual Description: Wet, very dark gray clay with sand		
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	21.7	78.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	99		
#140	0.11	94		
#200	0.075	78		

<u>Coefficients</u>	
D ₈₅ = 0.0874 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

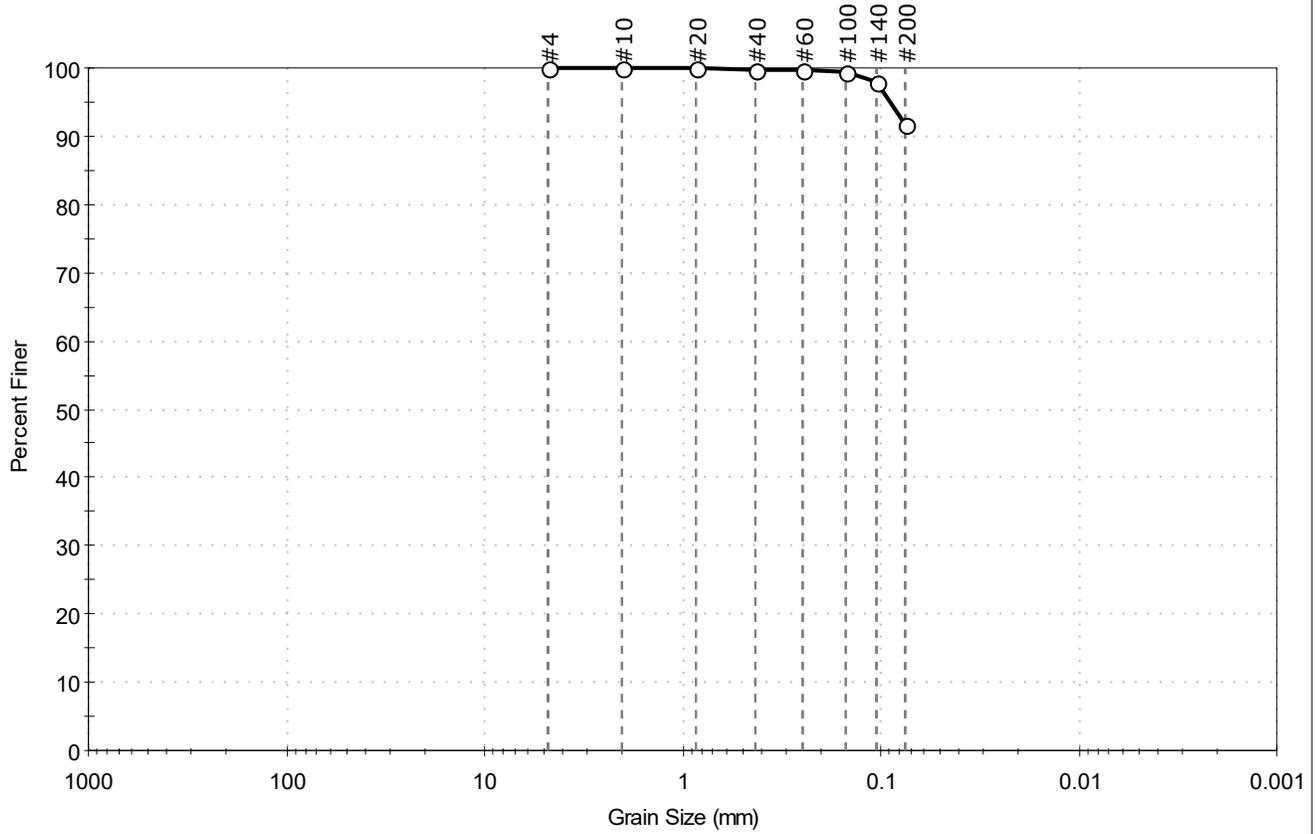
<u>Classification</u>	
<u>ASTM</u>	Lean CLAY with Sand (CL)
<u>AASHTO</u>	Clayey Soils (A-7-6 (15))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-4	Test Date: 06/22/20	Test Id: 560365	
Depth: 12-14			
Test Comment: ---	Visual Description: Wet, very dark gray clay	Sample Comment: ---	

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	8.1	91.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#140	0.11	98		
#200	0.075	92		

Coefficients	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

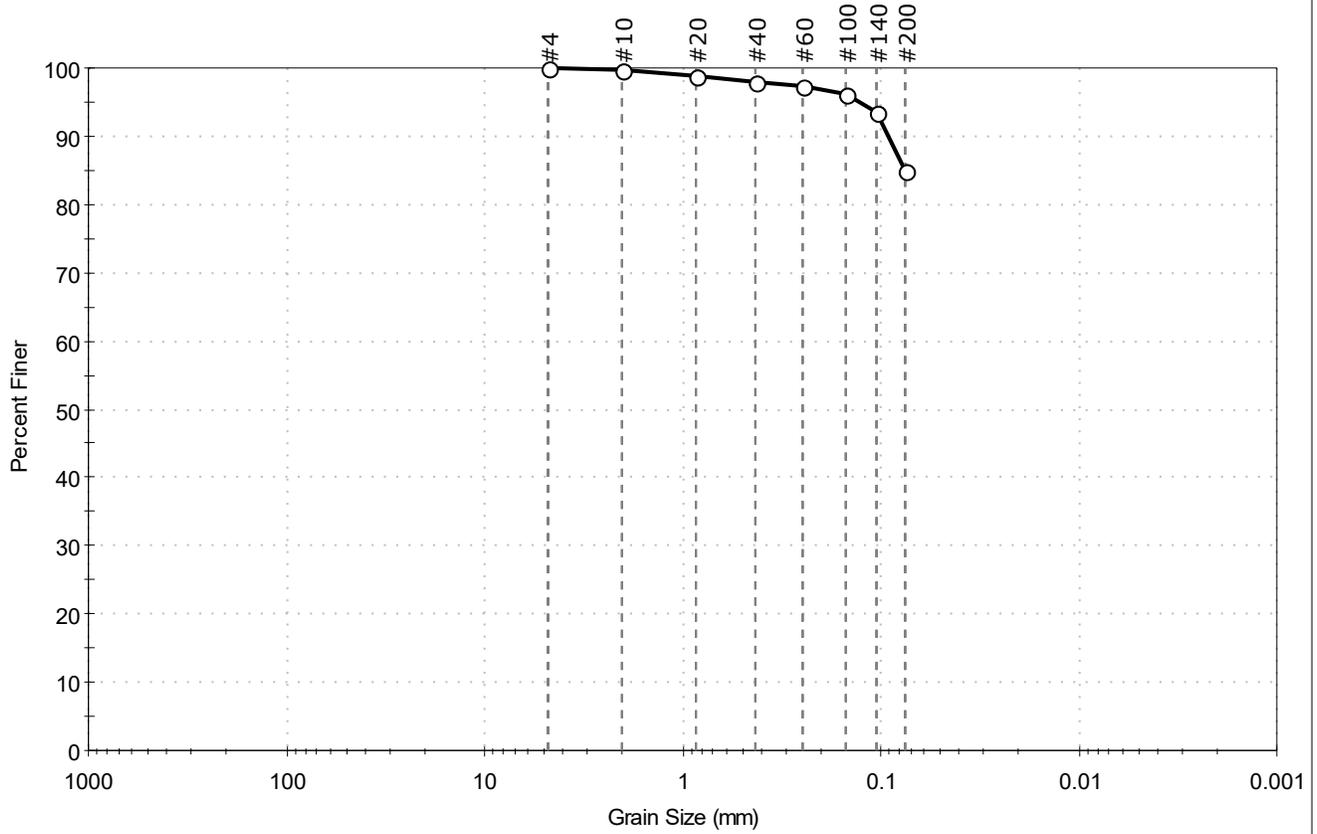
Classification	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-6 (29))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-5	Test Date: 06/22/20	Test Id: 560364	
Depth: 0-2			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	15.1	84.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	96		
#140	0.11	93		
#200	0.075	85		

<u>Coefficients</u>	
D ₈₅ = 0.0752 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

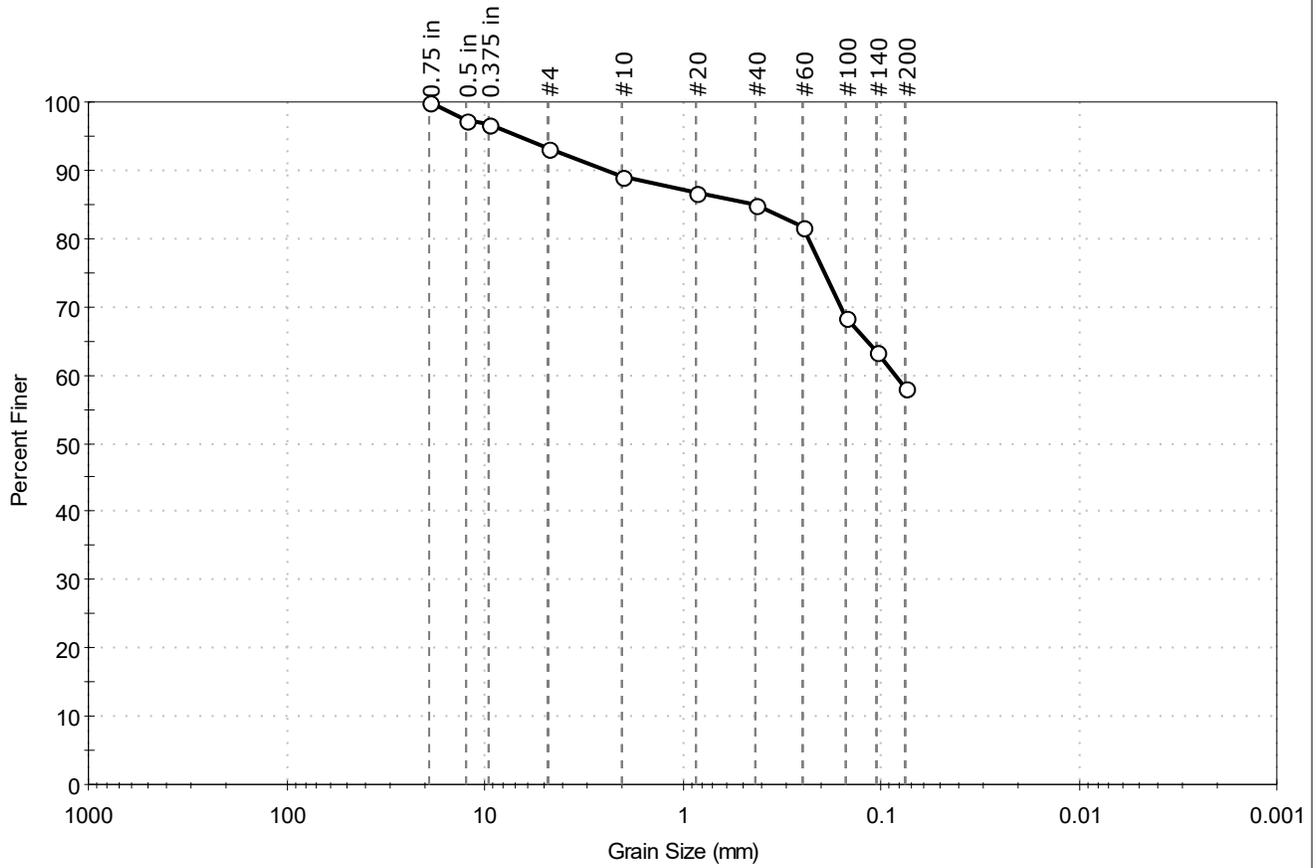
<u>Classification</u>	
<u>ASTM</u>	Fat CLAY with Sand (CH)
<u>AASHTO</u>	Clayey Soils (A-7-6 (28))

<u>Sample/Test Description</u>	
Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-5	Test Date: 06/22/20	Test Id: 560363	
Depth: 2-4			
Test Comment: ---			
Visual Description: Wet, very dark gray sandy clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	6.7	35.0	58.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	97		
#4	4.75	93		
#10	2.00	89		
#20	0.85	87		
#40	0.42	85		
#60	0.25	82		
#100	0.15	68		
#140	0.11	63		
#200	0.075	58		

Coefficients	
D ₈₅ = 0.4449 mm	D ₃₀ = N/A
D ₆₀ = 0.0845 mm	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

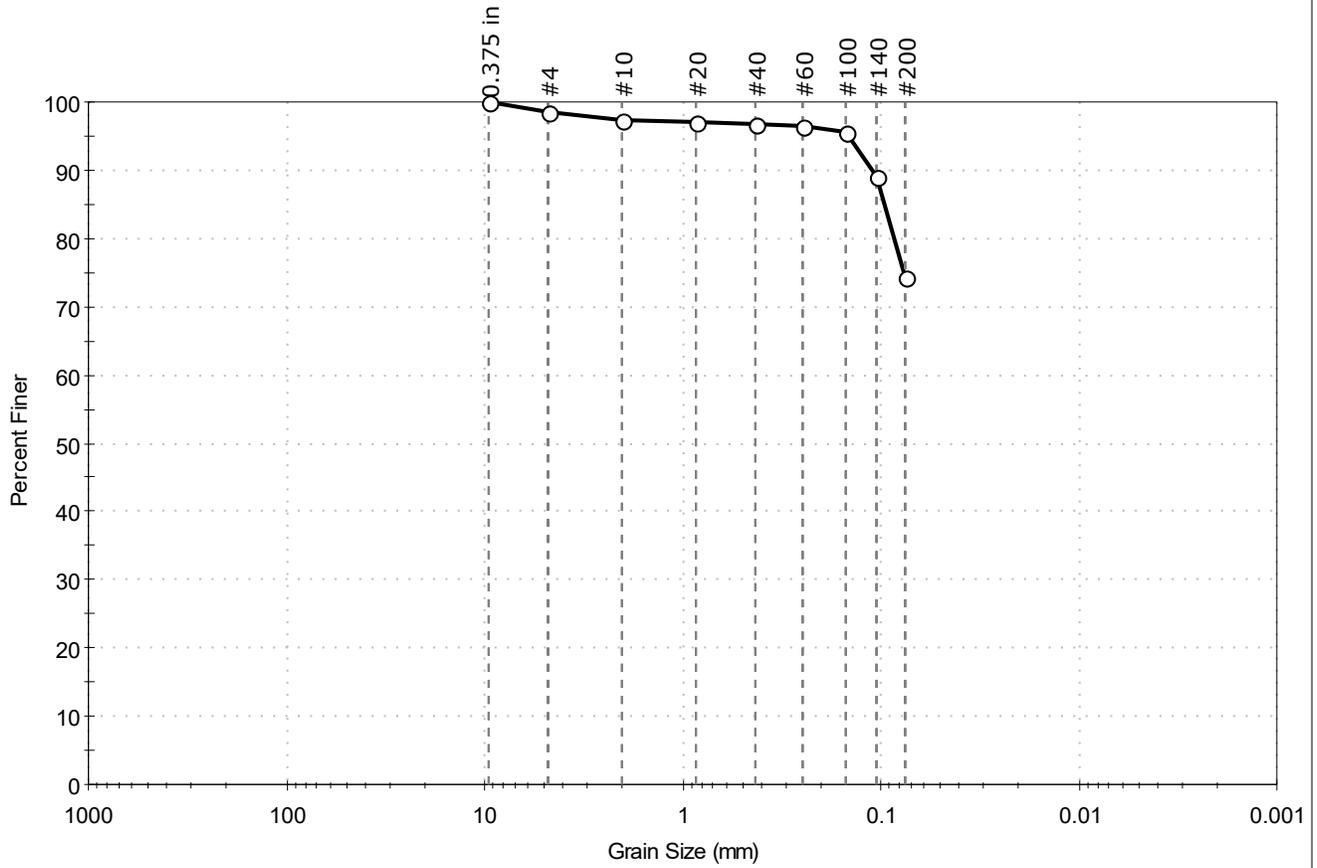
Classification	
ASTM	Sandy Lean CLAY (CL)
AASHTO	Clayey Soils (A-7-6 (10))

Sample/Test Description	
Sand/Gravel Particle Shape : ANGULAR	
Sand/Gravel Hardness : HARD	



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-5	Test Date: 06/22/20	Test Id: 560362	
Depth: 8-10			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.4	24.2	74.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	97		
#20	0.85	97		
#40	0.42	97		
#60	0.25	96		
#100	0.15	96		
#140	0.11	89		
#200	0.075	74		

Coefficients	
D ₈₅ = 0.0963 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

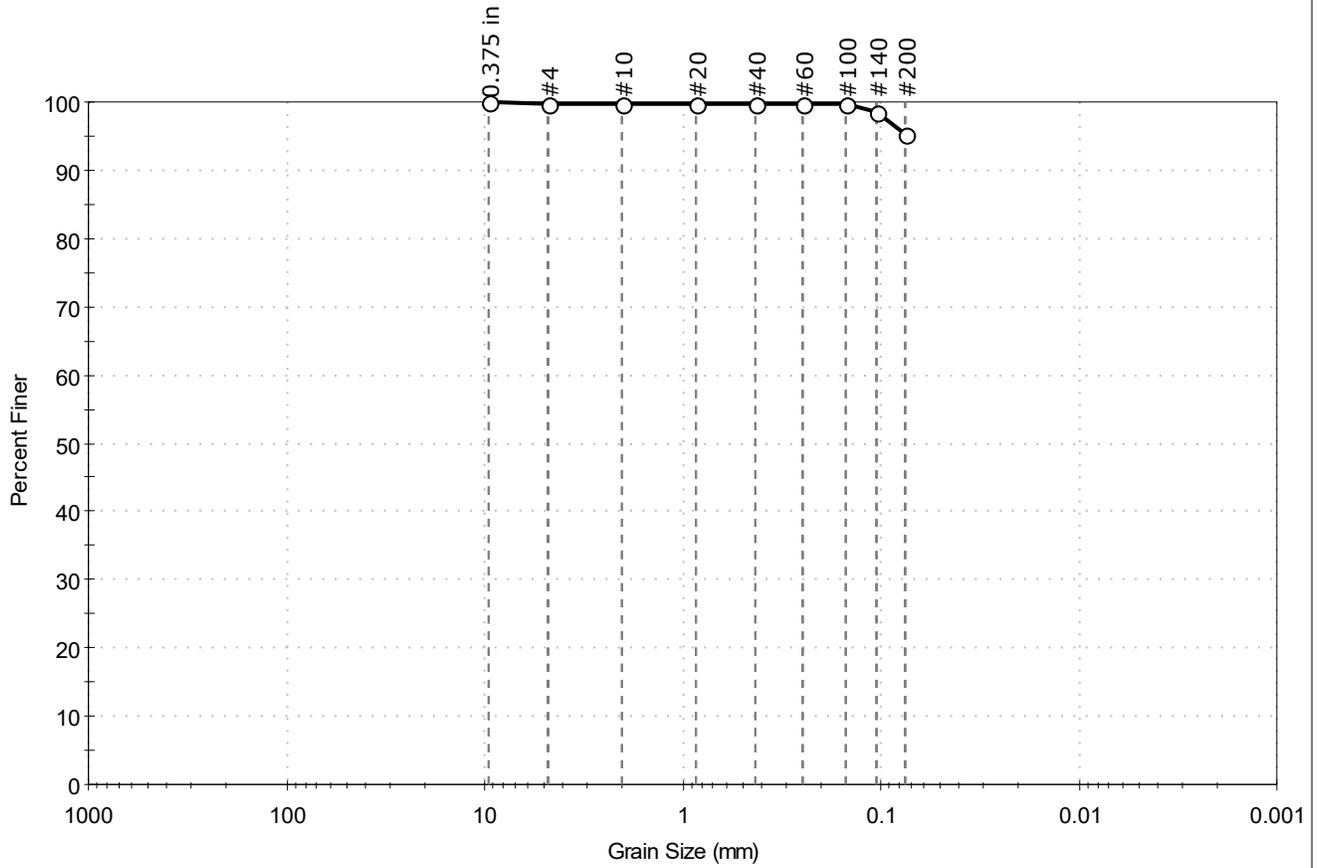
Classification	
ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (12))

Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-5	Test Date: 06/23/20	Test Id: 560361	
Depth: 10-12			
Test Comment: ---	Visual Description: Wet, very dark gray clay	Sample Comment: ---	

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	4.7	95.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	99		
#200	0.075	95		

Coefficients	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

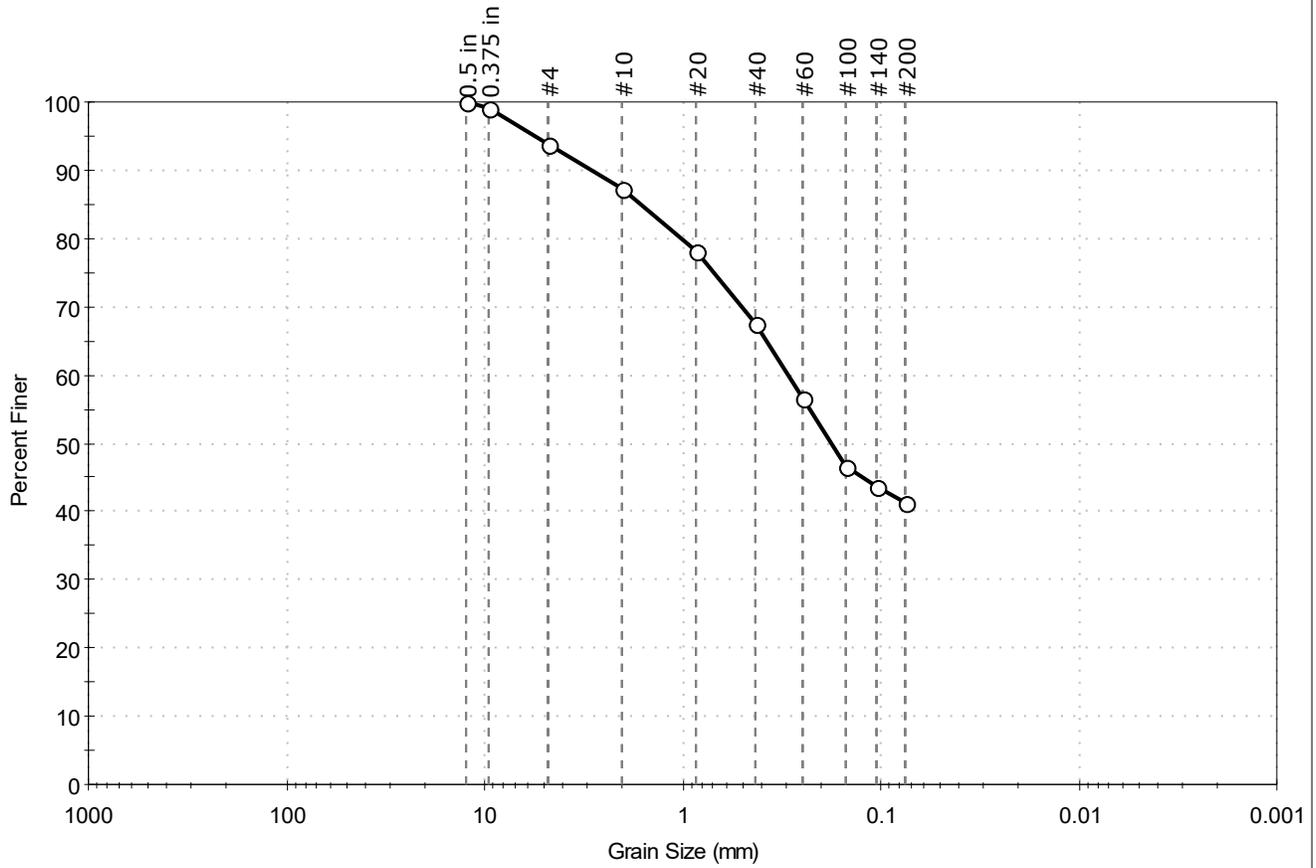
Classification	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-6 (29))

Sample/Test Description	
Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-7	Test Date: 06/23/20	Test Id: 560360	
Depth: 2-4			
Test Comment: ---			
Visual Description: Wet, very dark gray clayey sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	6.3	52.4	41.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	94		
#10	2.00	87		
#20	0.85	78		
#40	0.42	68		
#60	0.25	57		
#100	0.15	46		
#140	0.11	44		
#200	0.075	41		

<u>Coefficients</u>	
D ₈₅ = 1.6020 mm	D ₃₀ = N/A
D ₆₀ = 0.2938 mm	D ₁₅ = N/A
D ₅₀ = 0.1789 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

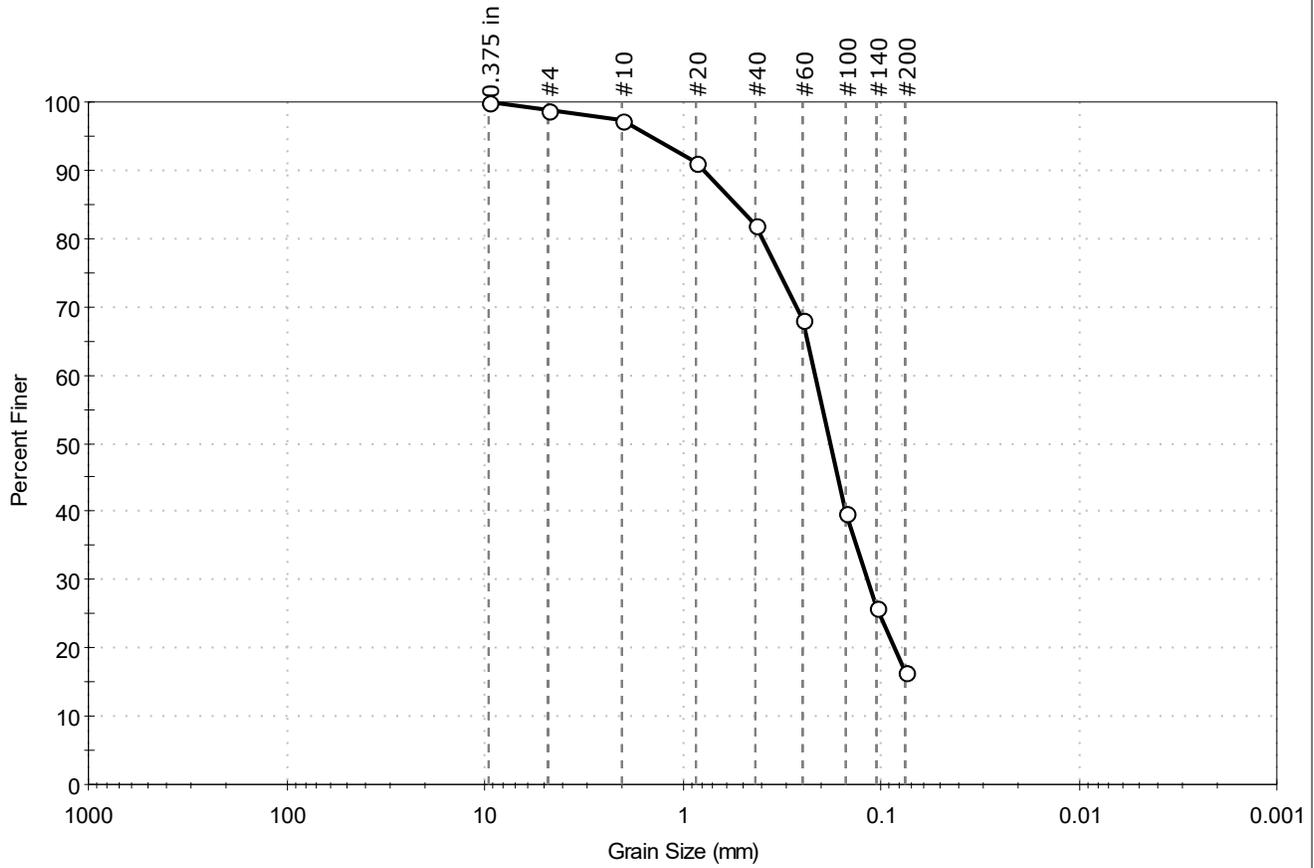
<u>Classification</u>	
<u>ASTM</u>	Clayey SAND (SC)
<u>AASHTO</u>	Clayey Soils (A-7-6 (7))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-7	Test Date: 06/23/20	Test Id: 560359	
Depth: 4-6			
Test Comment: ---			
Visual Description: Moist, very dark gray silty sand			
Sample Comment: ----			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.1	82.3	16.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	97		
#20	0.85	91		
#40	0.42	82		
#60	0.25	68		
#100	0.15	40		
#140	0.11	26		
#200	0.075	17		

<u>Coefficients</u>	
D ₈₅ = 0.5327 mm	D ₃₀ = 0.1173 mm
D ₆₀ = 0.2158 mm	D ₁₅ = N/A
D ₅₀ = 0.1801 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

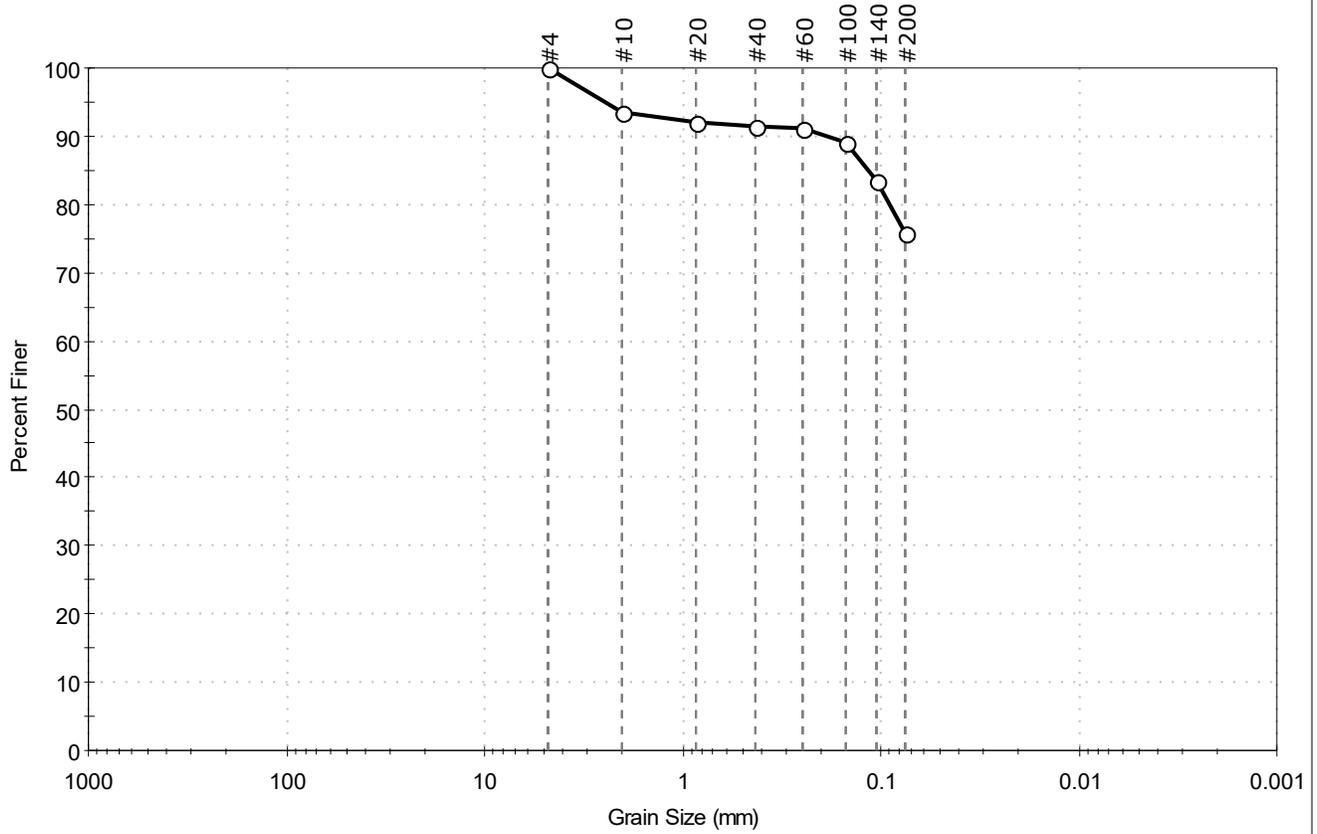
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-7	Test Date: 06/22/20	Test Id: 560358	
Depth: 6-8			
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	24.1	75.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	93		
#20	0.85	92		
#40	0.42	92		
#60	0.25	91		
#100	0.15	89		
#140	0.11	84		
#200	0.075	76		

<u>Coefficients</u>	
D ₈₅ = 0.1163 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

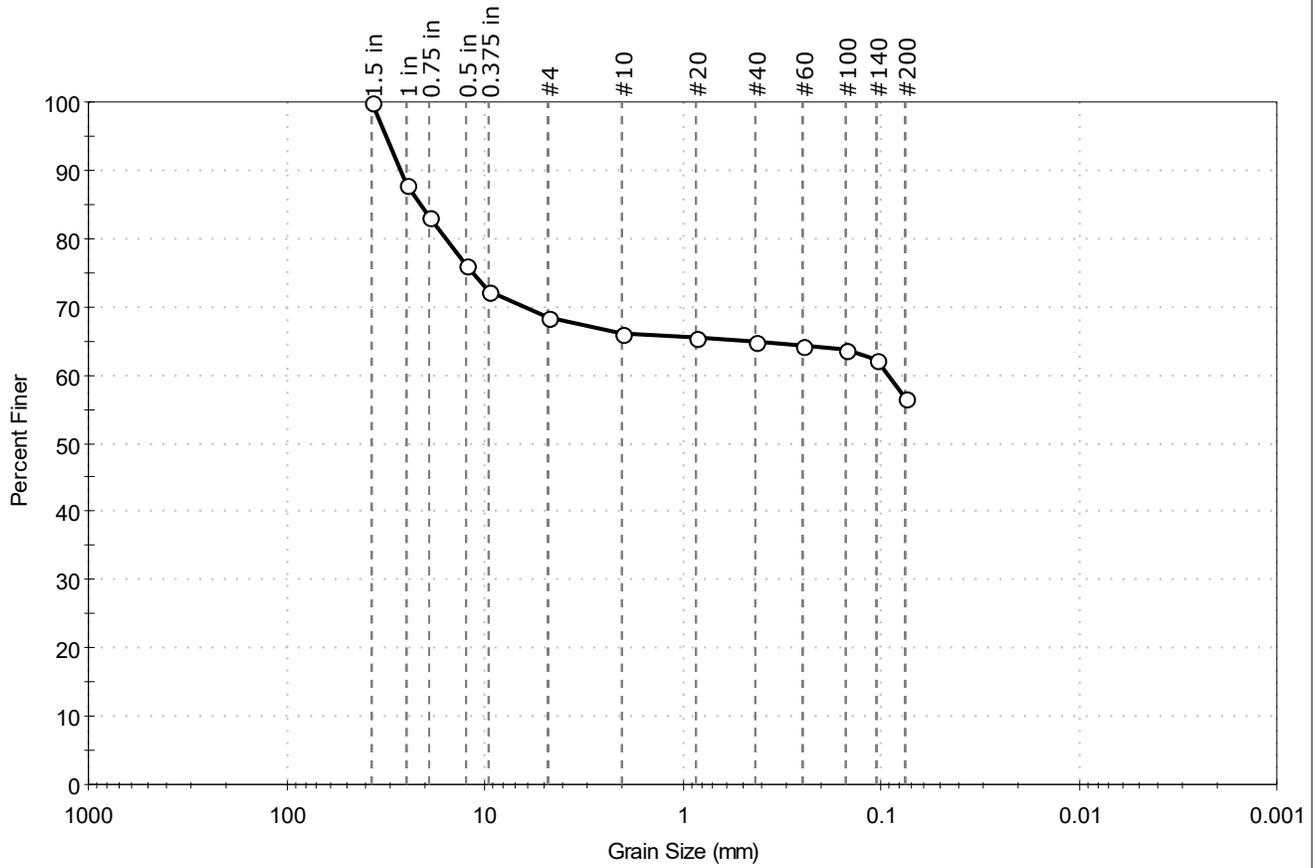
<u>Classification</u>	
ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (15))

<u>Sample/Test Description</u>	
Sand/Gravel Particle Shape : ANGULAR	
Sand/Gravel Hardness : HARD	



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-7	Test Date: 06/23/20	Test Id: 560357	
Depth: 10-12			
Test Comment: ---			
Visual Description: Moist, very dark gray gravelly clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	31.6	11.9	56.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	88		
0.75 in	19.00	83		
0.5 in	12.50	76		
0.375 in	9.50	72		
#4	4.75	68		
#10	2.00	66		
#20	0.85	65		
#40	0.42	65		
#60	0.25	64		
#100	0.15	64		
#140	0.11	62		
#200	0.075	57		

Coefficients	
D ₈₅ = 21.1906 mm	D ₃₀ = N/A
D ₆₀ = 0.0930 mm	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

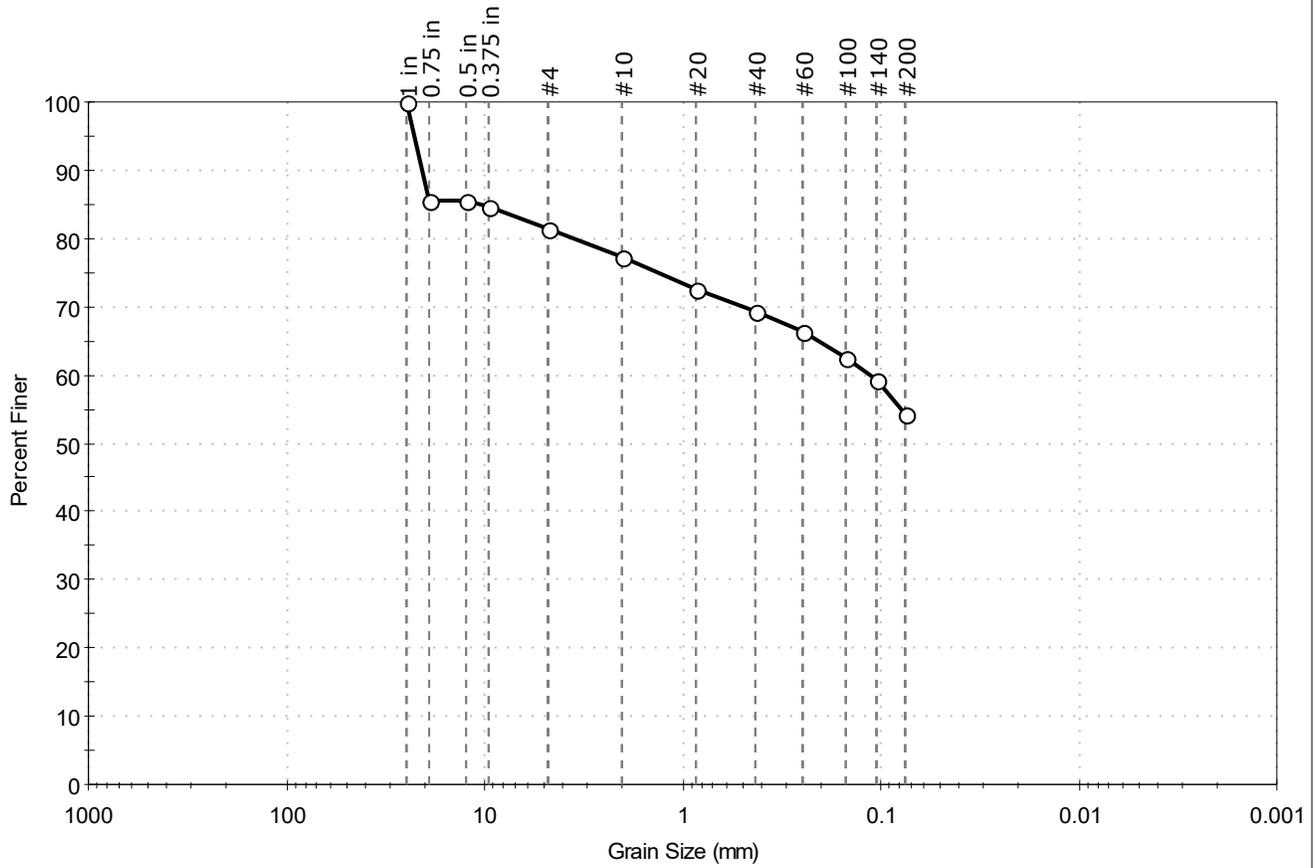
Classification	
ASTM	Gravelly Lean CLAY (CL)
AASHTO	Clayey Soils (A-6 (5))

Sample/Test Description	
Sand/Gravel Particle Shape :	ANGULAR
Sand/Gravel Hardness :	HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-8	Test Date: 06/24/20	Test Id: 560356	
Depth: 4-6			
Test Comment: ---	Visual Description: Moist, very dark gray sandy silt with gravel		
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	18.5	27.3	54.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	86		
0.5 in	12.50	86		
0.375 in	9.50	85		
#4	4.75	81		
#10	2.00	77		
#20	0.85	72		
#40	0.42	69		
#60	0.25	66		
#100	0.15	63		
#140	0.11	59		
#200	0.075	54		

Coefficients	
D ₈₅ = 10.3794 mm	D ₃₀ = N/A
D ₆₀ = 0.1154 mm	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

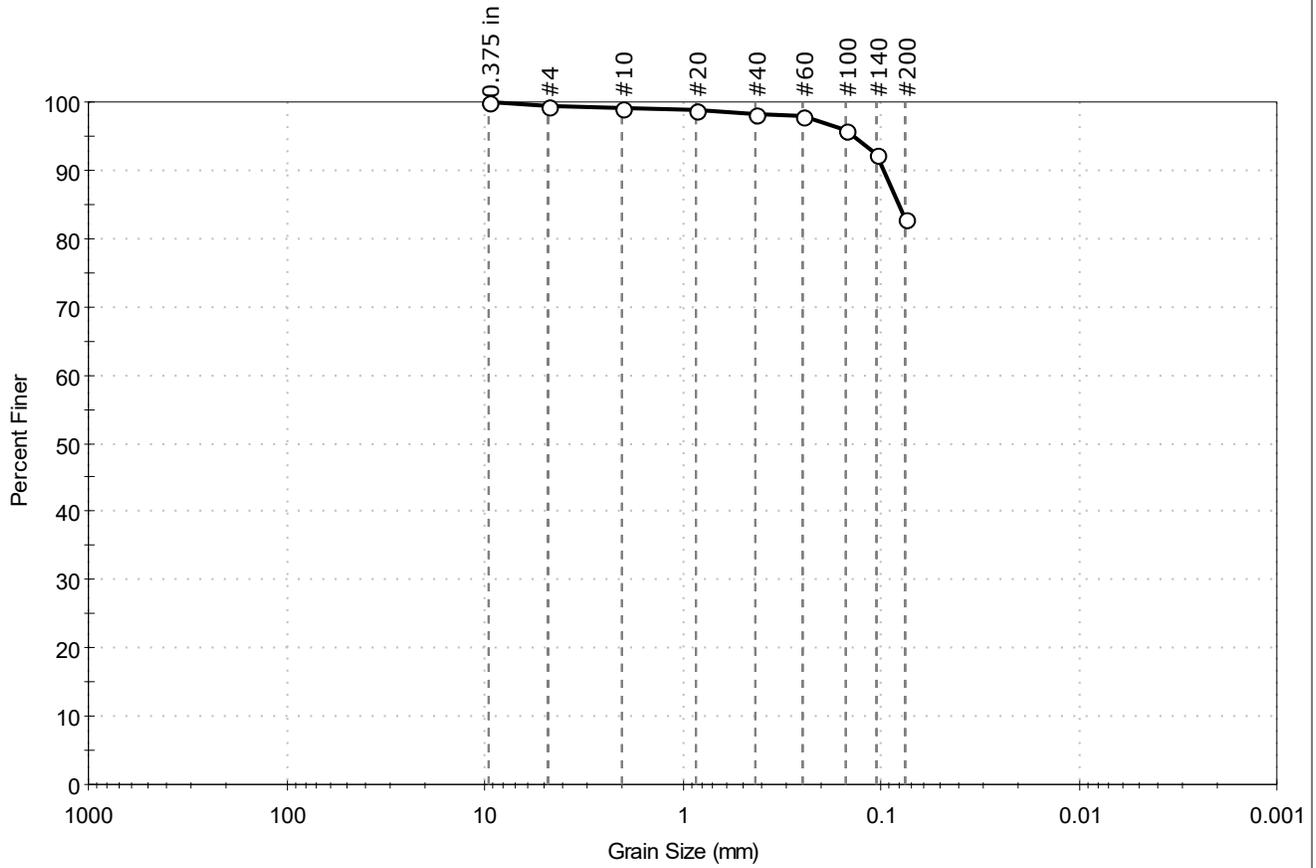
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

Sample/Test Description
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-8	Test Date: 06/23/20	Depth: 6-8	Test Id: 560355
Test Comment: ---	Visual Description: Moist, very dark gray clay with sand	Sample Comment: ---	

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.6	16.4	83.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	96		
#140	0.11	92		
#200	0.075	83		

Coefficients

D ₈₅ = 0.0809 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

Classification

ASTM	Lean CLAY with Sand (CL)
AASHTO	Clayey Soils (A-7-6 (16))

Sample/Test Description

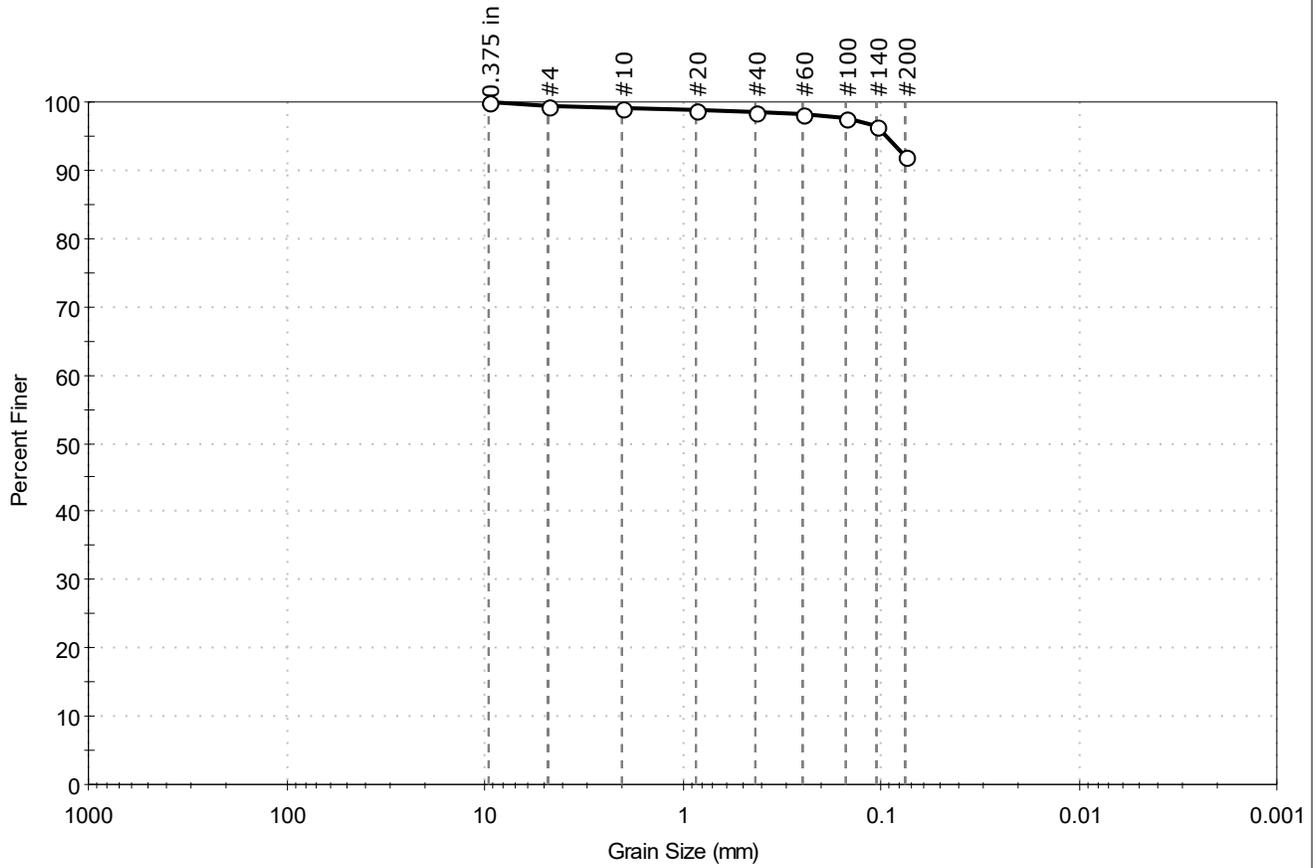
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-8	Test Date: 06/22/20	Test Id: 560354	
Depth: 10-12			
Test Comment: ---	Visual Description: Wet, very dark gray clay	Sample Comment: ---	

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.6	7.3	92.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	92		

<u>Coefficients</u>	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

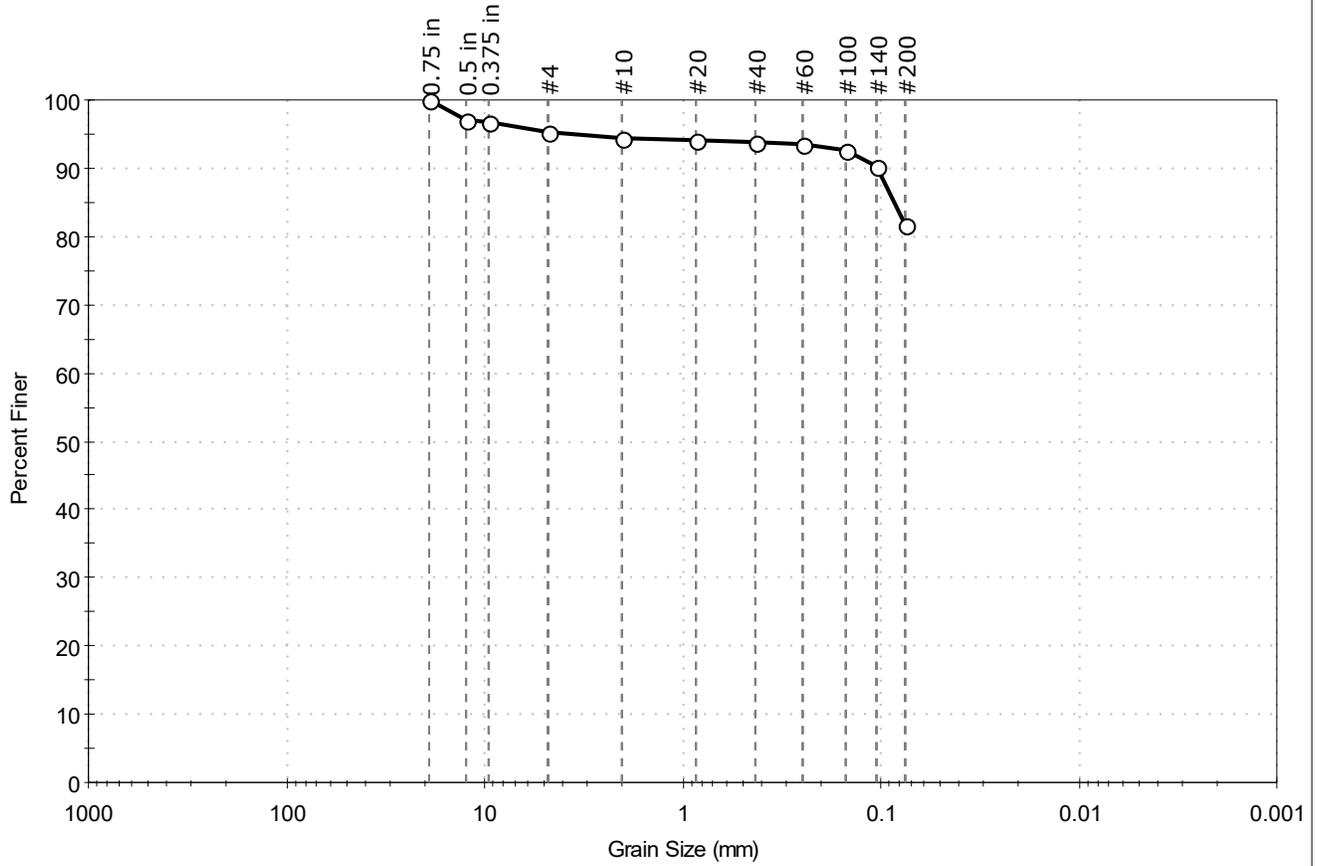
<u>Classification</u>	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-6 (32))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PSB-8	Test Date: 06/22/20	Test Id: 560353	
Depth: 12-14			
Test Comment: ---			
Visual Description: Moist, very dark gray clay with sand			
Sample Comment: ---			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.7	13.7	81.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	97		
#4	4.75	95		
#10	2.00	94		
#20	0.85	94		
#40	0.42	94		
#60	0.25	93		
#100	0.15	93		
#140	0.11	90		
#200	0.075	82		

Coefficients	
D ₈₅ = 0.0860 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

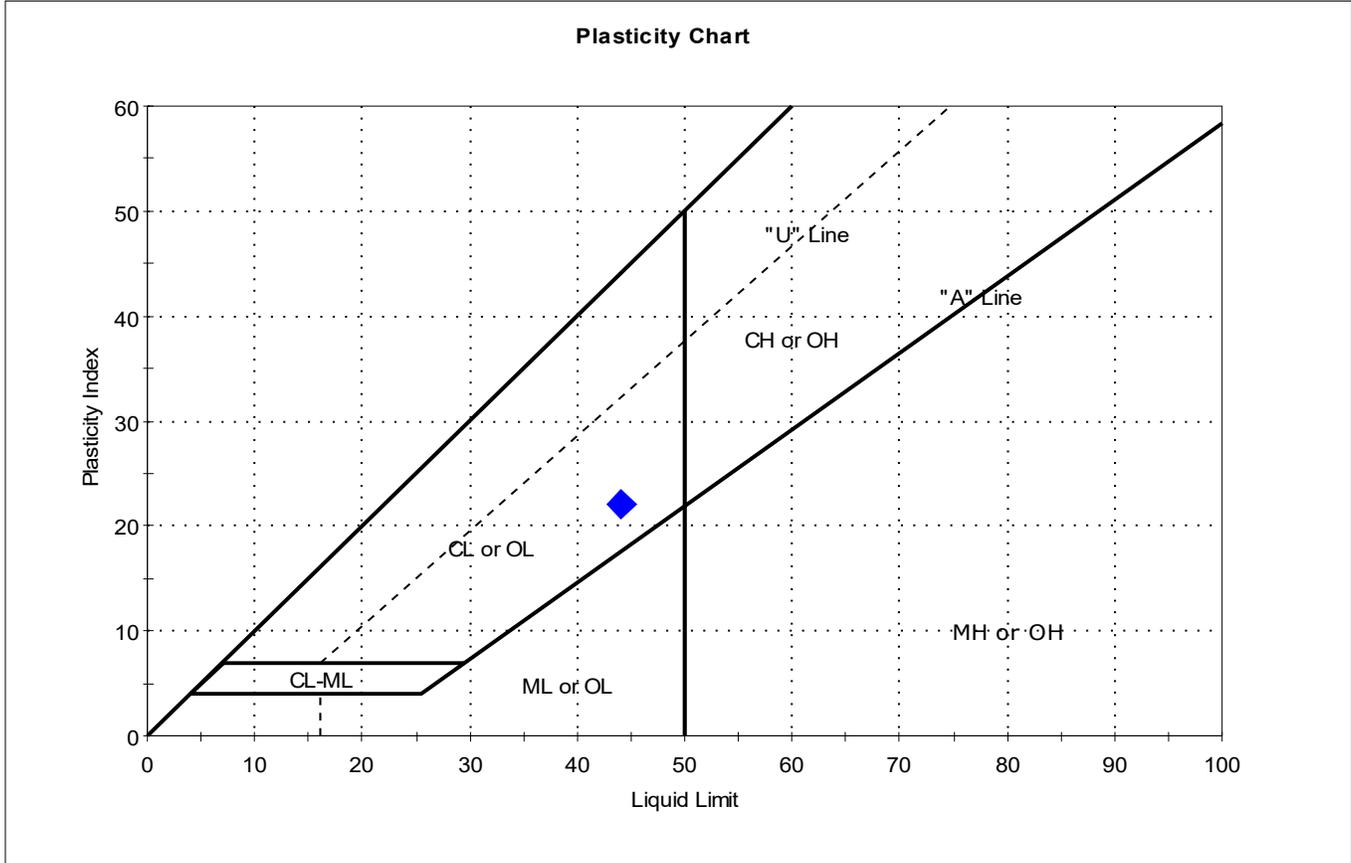
Classification	
ASTM	Fat CLAY with Sand (CH)
AASHTO	Clayey Soils (A-7-6 (29))

Sample/Test Description	
Sand/Gravel Particle Shape : ANGULAR	
Sand/Gravel Hardness : HARD	



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-1	Test Date: 06/22/20	Checked By: bfs	
Depth: 0-2	Test Id: 560400		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



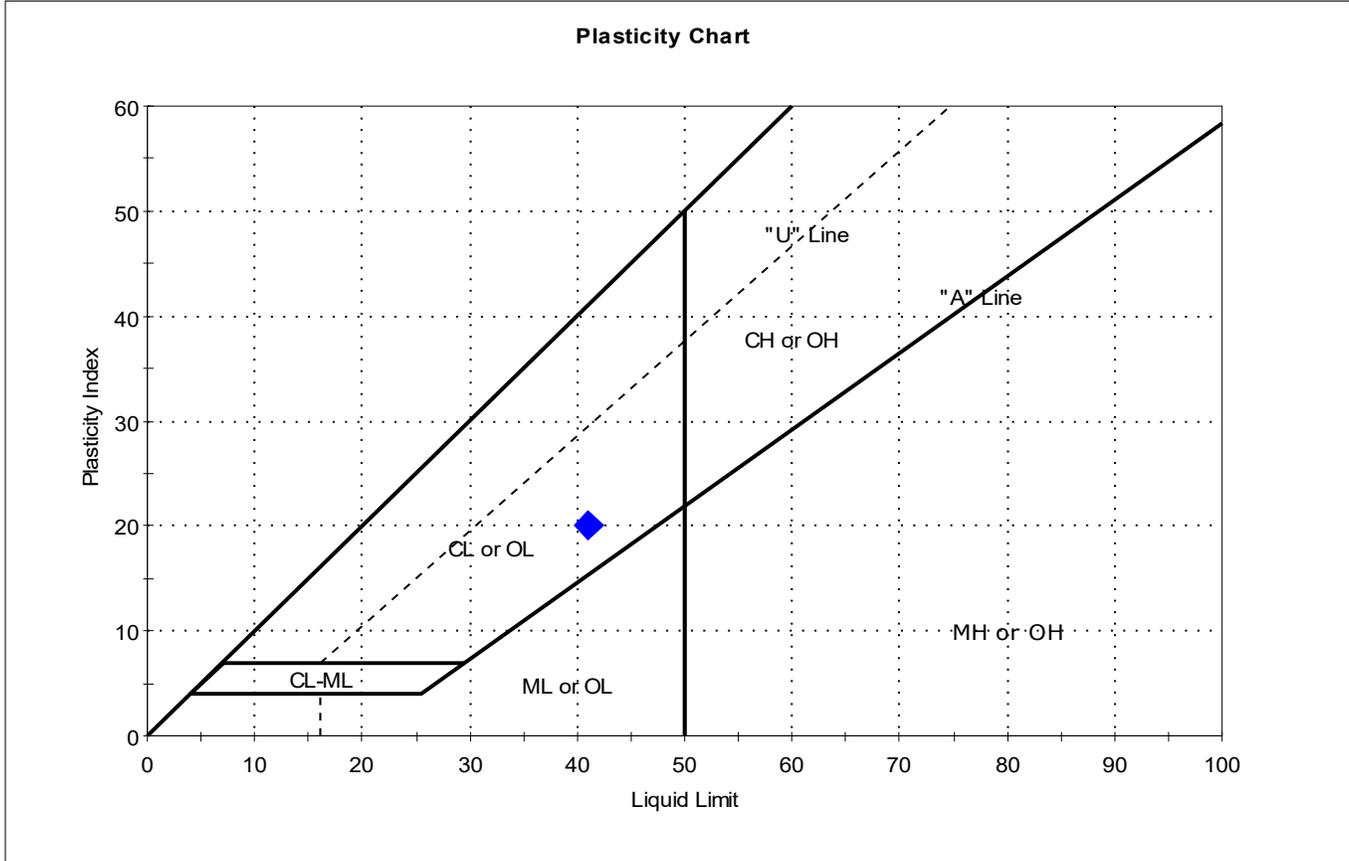
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-1	---	0-2	65	44	22	22	1.9	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 5% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-1	Test Date: 06/24/20	Checked By: bfs	
Depth: 2-4	Test Id: 560399		
Test Comment: ---			
Visual Description: Moist, very dark gray sandy clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



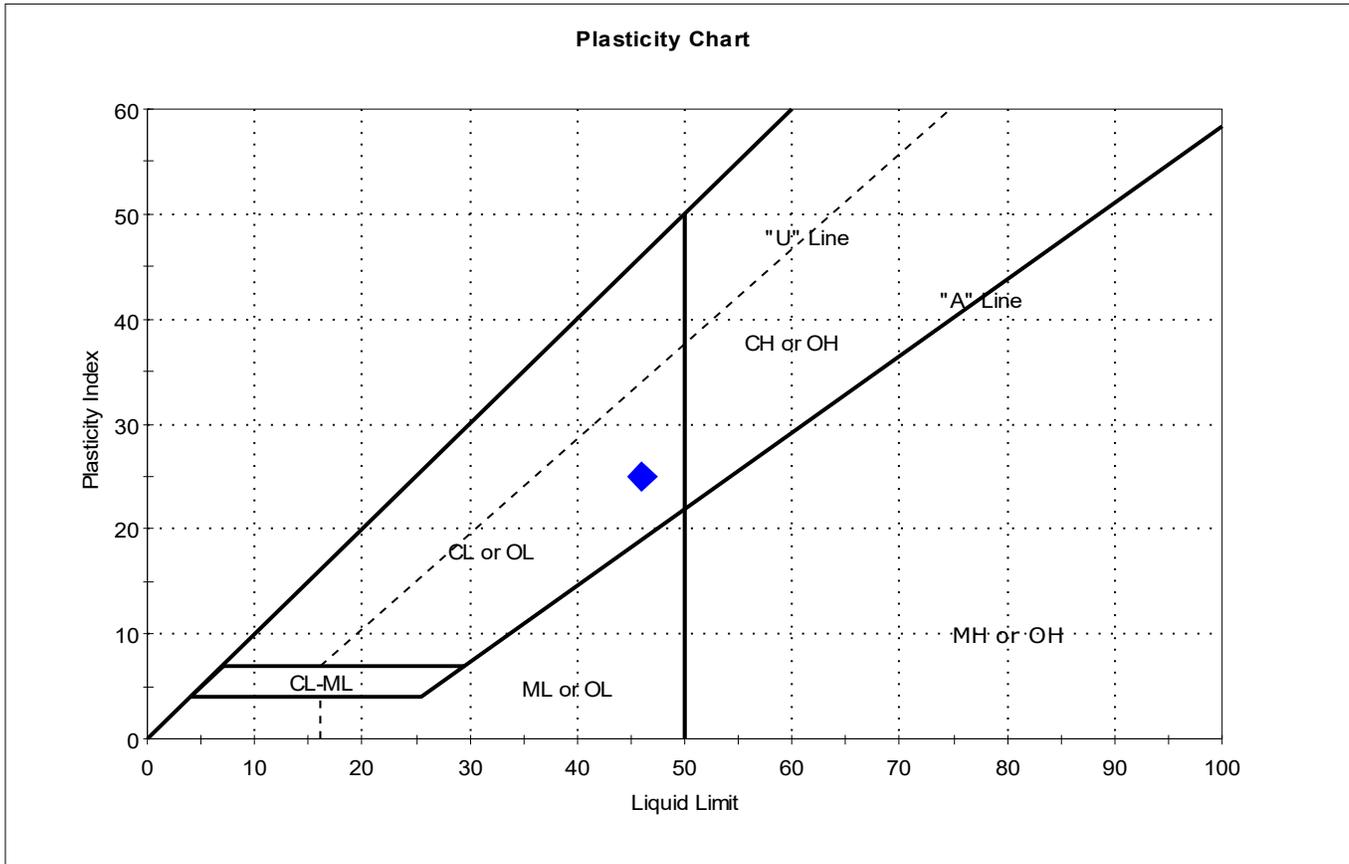
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-1	---	2-4	41	41	21	20	1	Sandy Lean CLAY (CL)

Sample Prepared using the WET method
 12% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-1	Test Date: 06/24/20	Checked By: bfs	
Depth: 6-8	Test Id: 560398		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



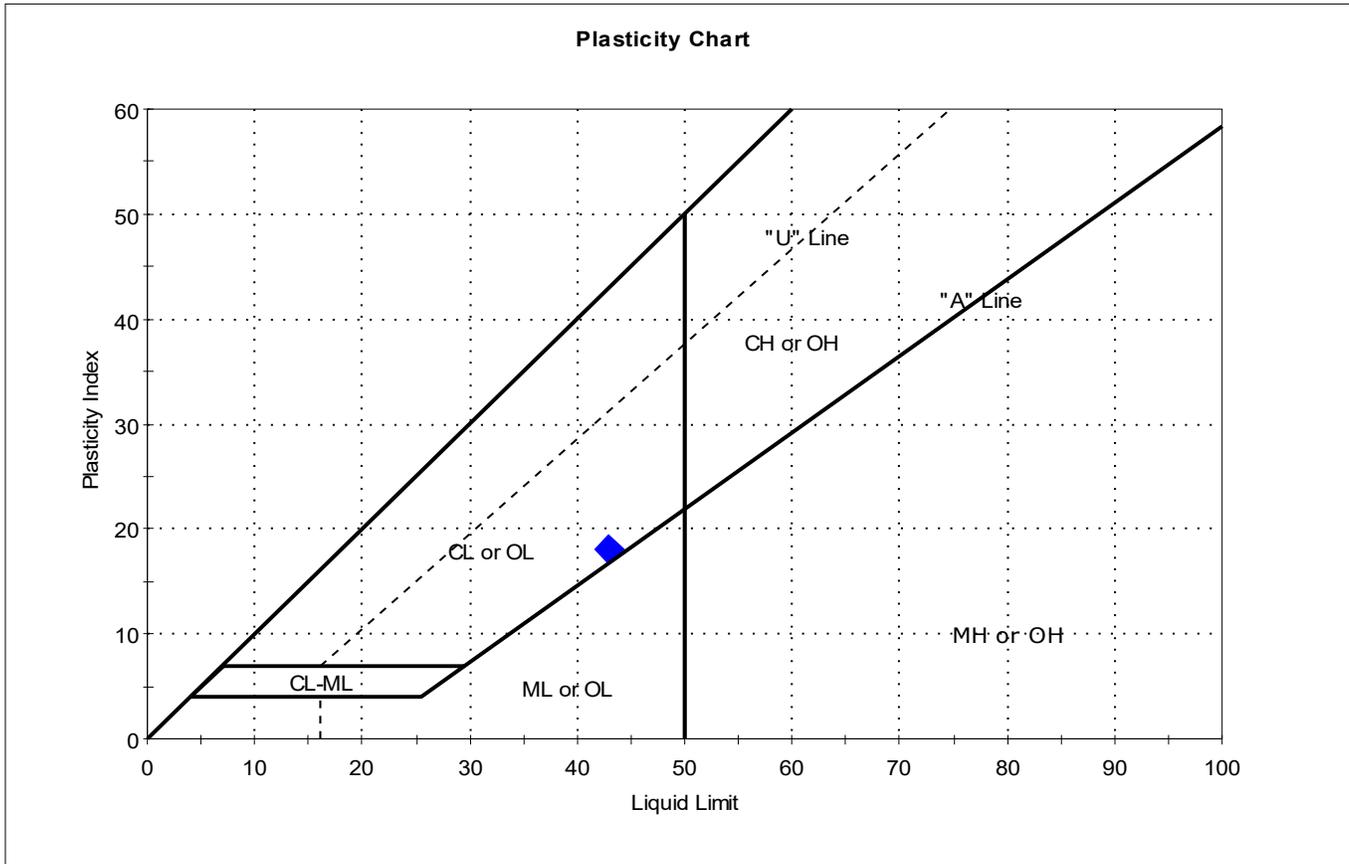
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-1	---	6-8	52	46	21	25	1.3	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 1% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-1	Test Date: 06/23/20	Checked By: bfs	
Depth: 8-10	Test Id: 560397		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



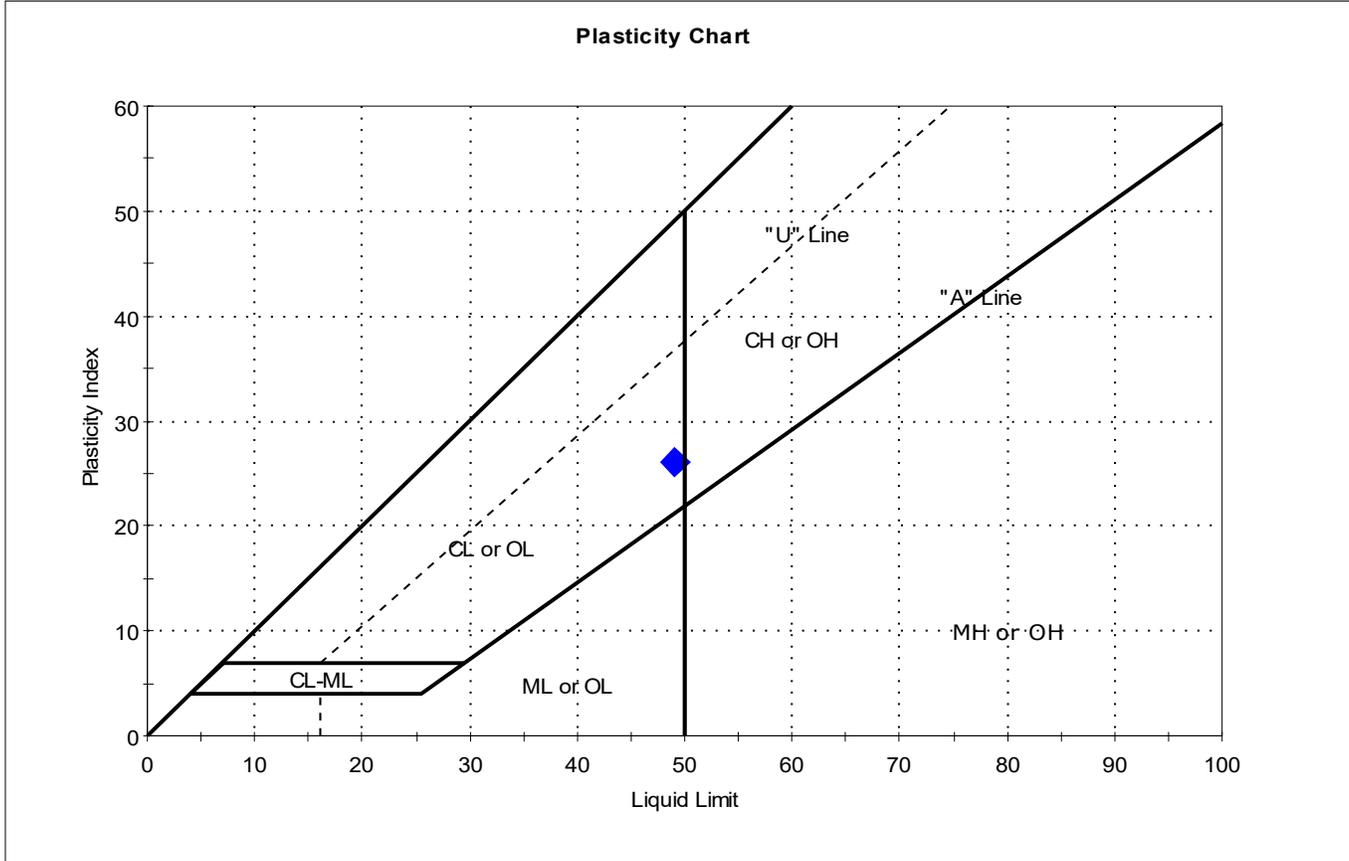
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-1	---	8-10	59	43	25	18	1.9	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 1% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-1	Test Date: 06/23/20	Checked By: bfs	
Depth: 12-14	Test Id: 560396		
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



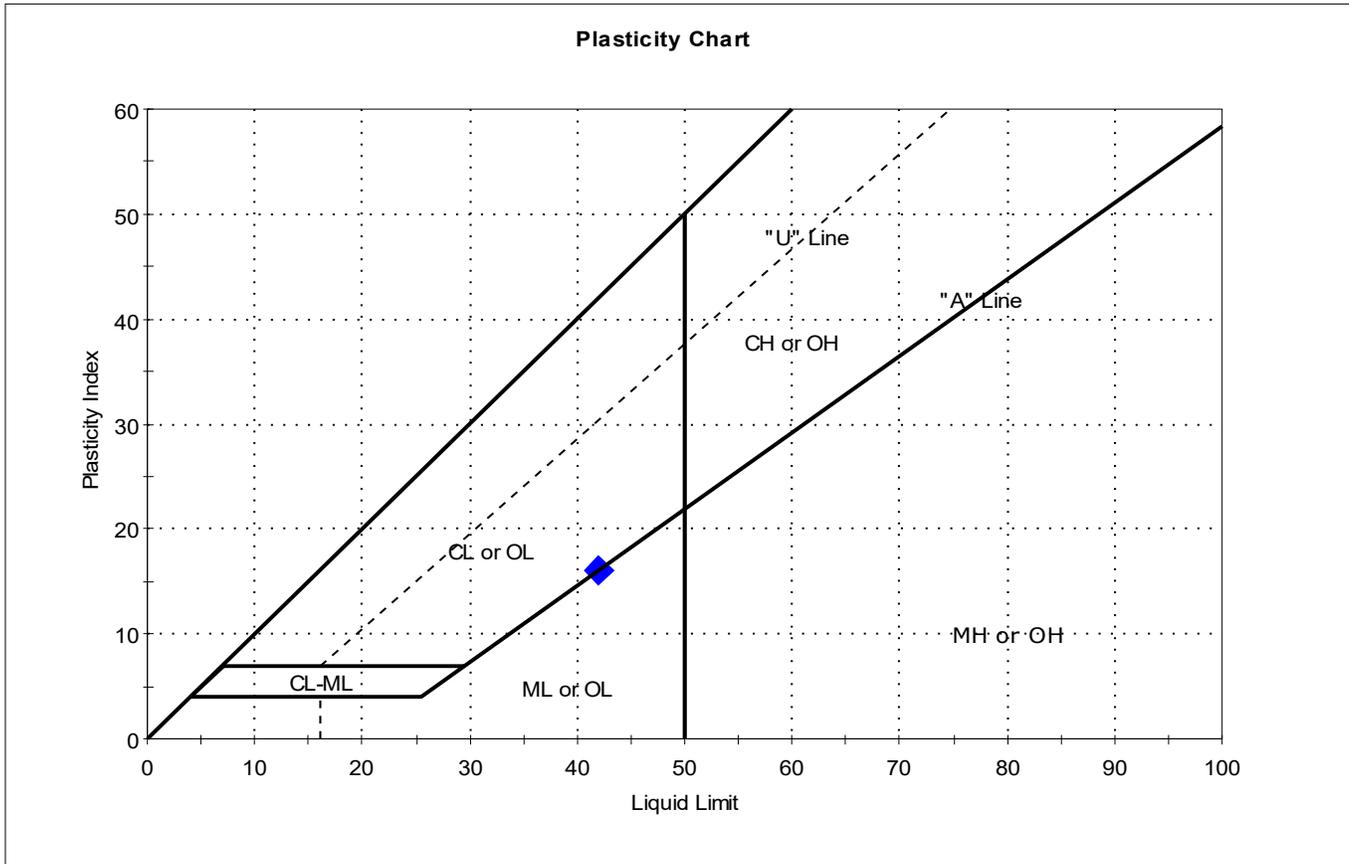
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-1	---	12-14	60	49	23	26	1.4	Lean CLAY (CL)

Sample Prepared using the WET method
 1% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-2	Test Date: 06/24/20	Checked By: bfs	
Depth: 8-10	Test Id: 560395		
Test Comment: ---			
Visual Description: Wet, very dark gray silt with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



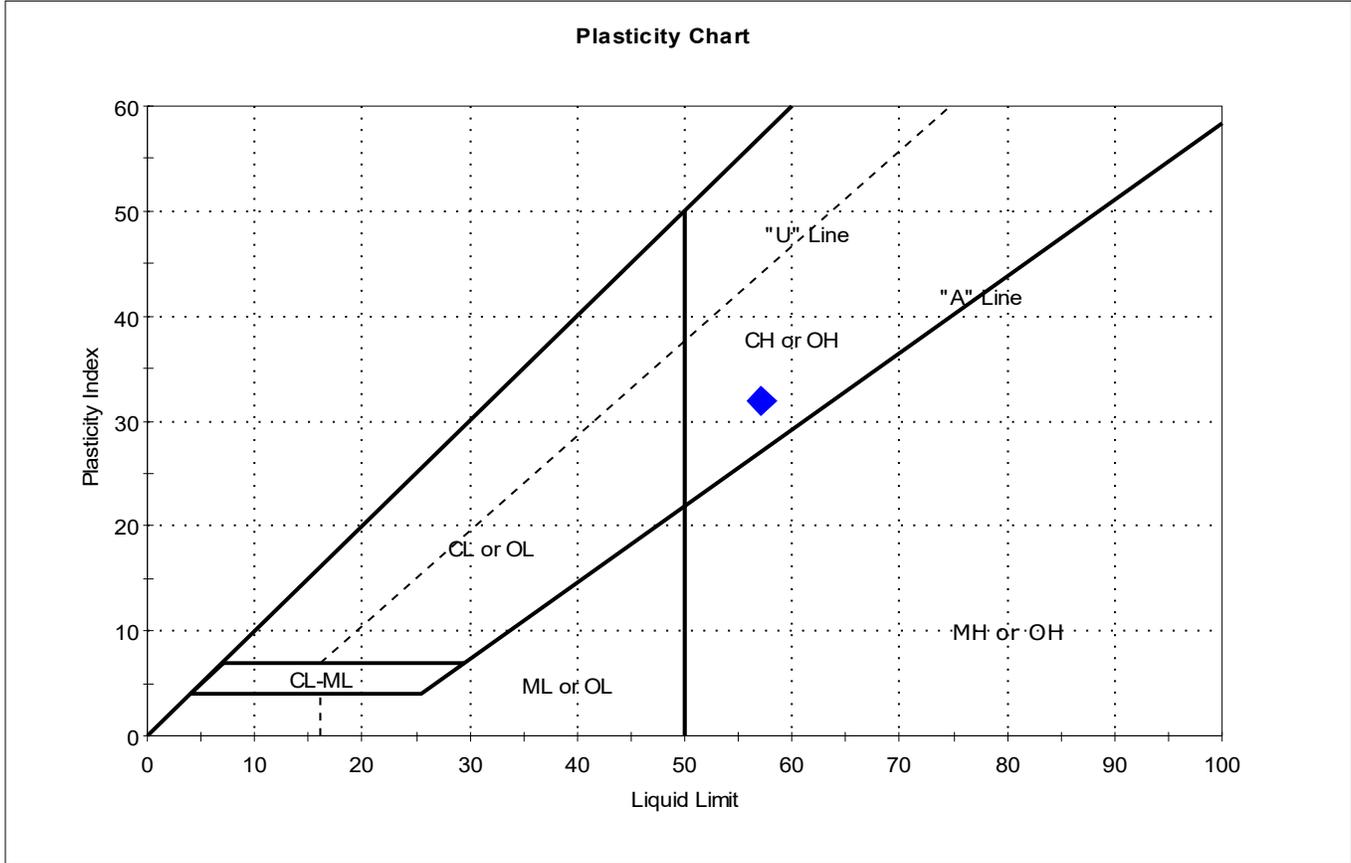
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-2	---	8-10	62	42	26	16	2.2	SILT with Sand (ML)

Sample Prepared using the WET method
 10% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-2	Test Date: 06/23/20	Checked By: bfs	
Depth: 12-14	Test Id: 560394		
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



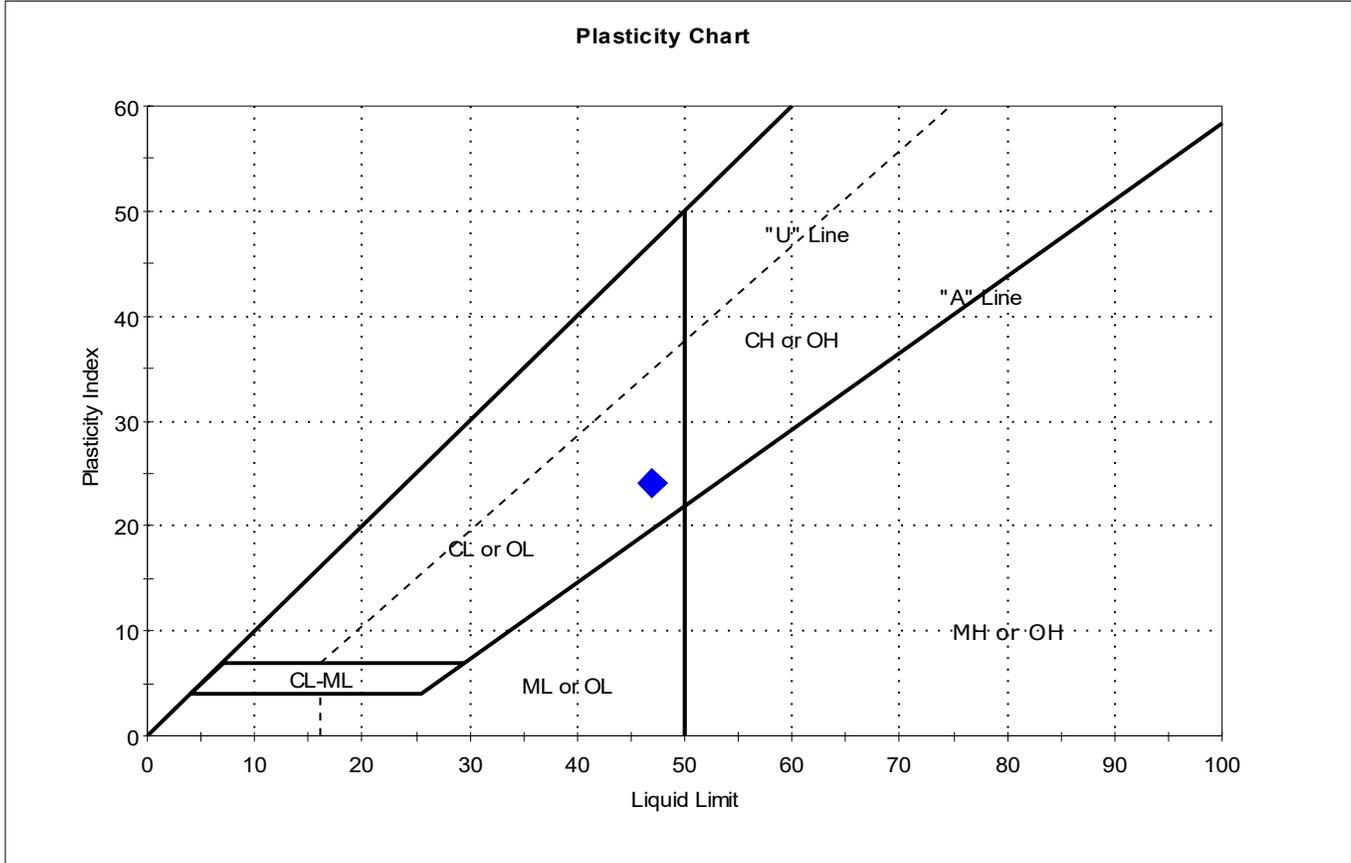
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-2	---	12-14	64	57	25	32	1.2	Fat CLAY (CH)

Sample Prepared using the WET method
 1% Retained on #40 Sieve
 Dry Strength: HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-3	Test Date: 06/23/20	Checked By: bfs	
Depth: 6-8	Test Id: 560393		
Test Comment: ---			
Visual Description: Moist, very dark gray gravelly clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



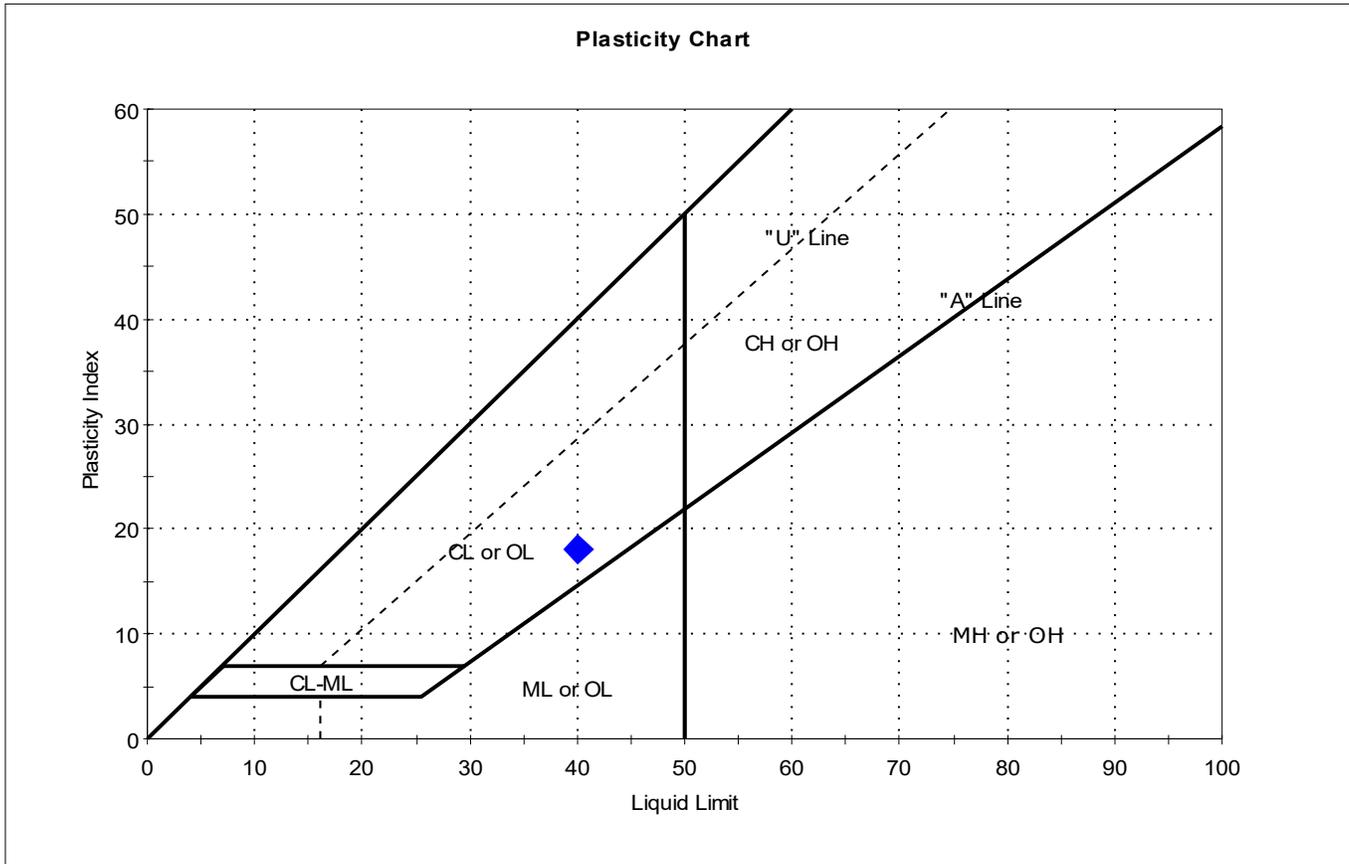
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-3	---	6-8	38	47	23	24	0.6	Gravelly Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 37% Retained on #40 Sieve
 Dry Strength: HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-4	Test Date: 06/23/20	Checked By: bfs	
Depth: 4-6	Test Id: 560392		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



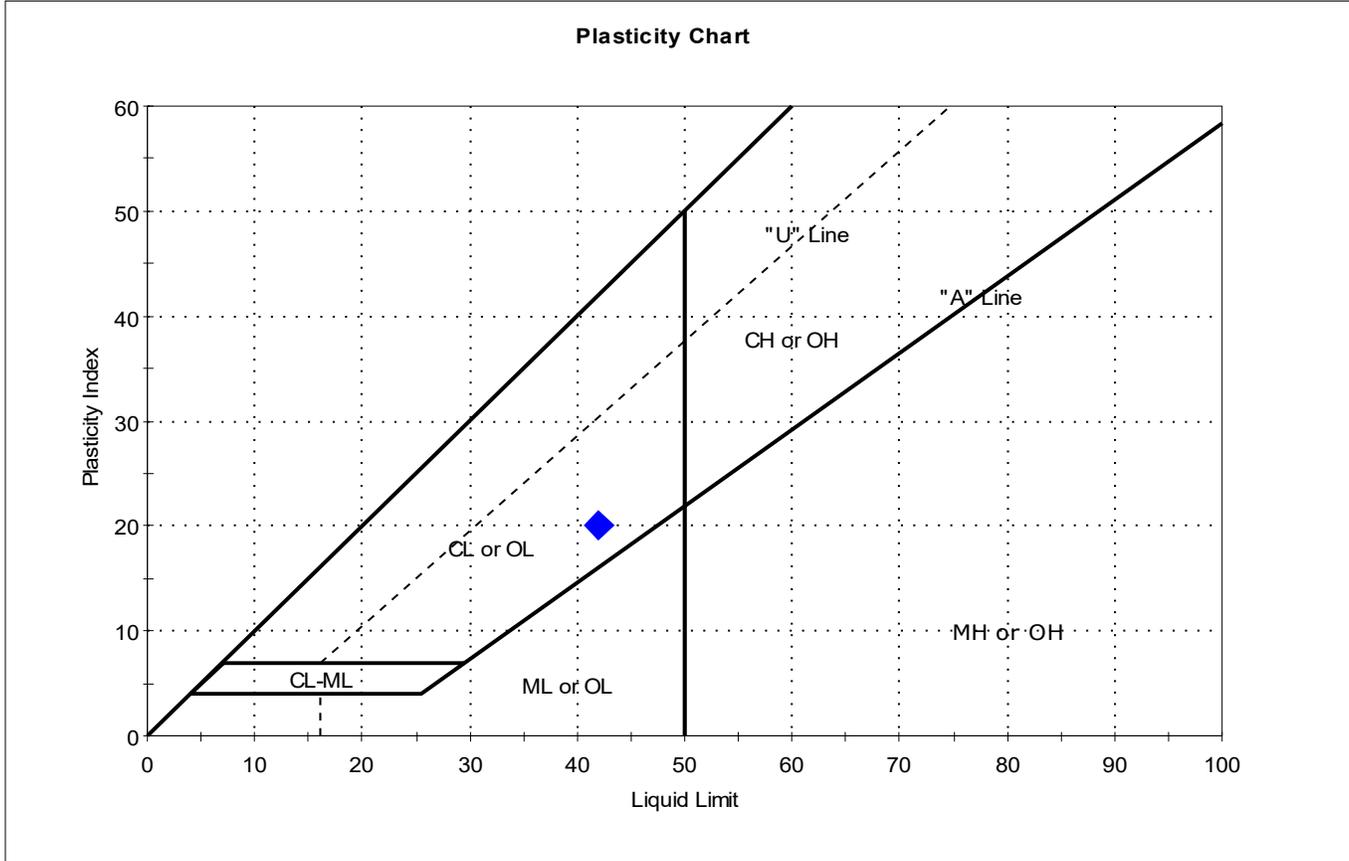
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-4	---	4-6	67	40	22	18	2.5	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 5% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-4	Test Date: 06/23/20	Checked By: bfs	
Depth: 10-12	Test Id: 560391		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



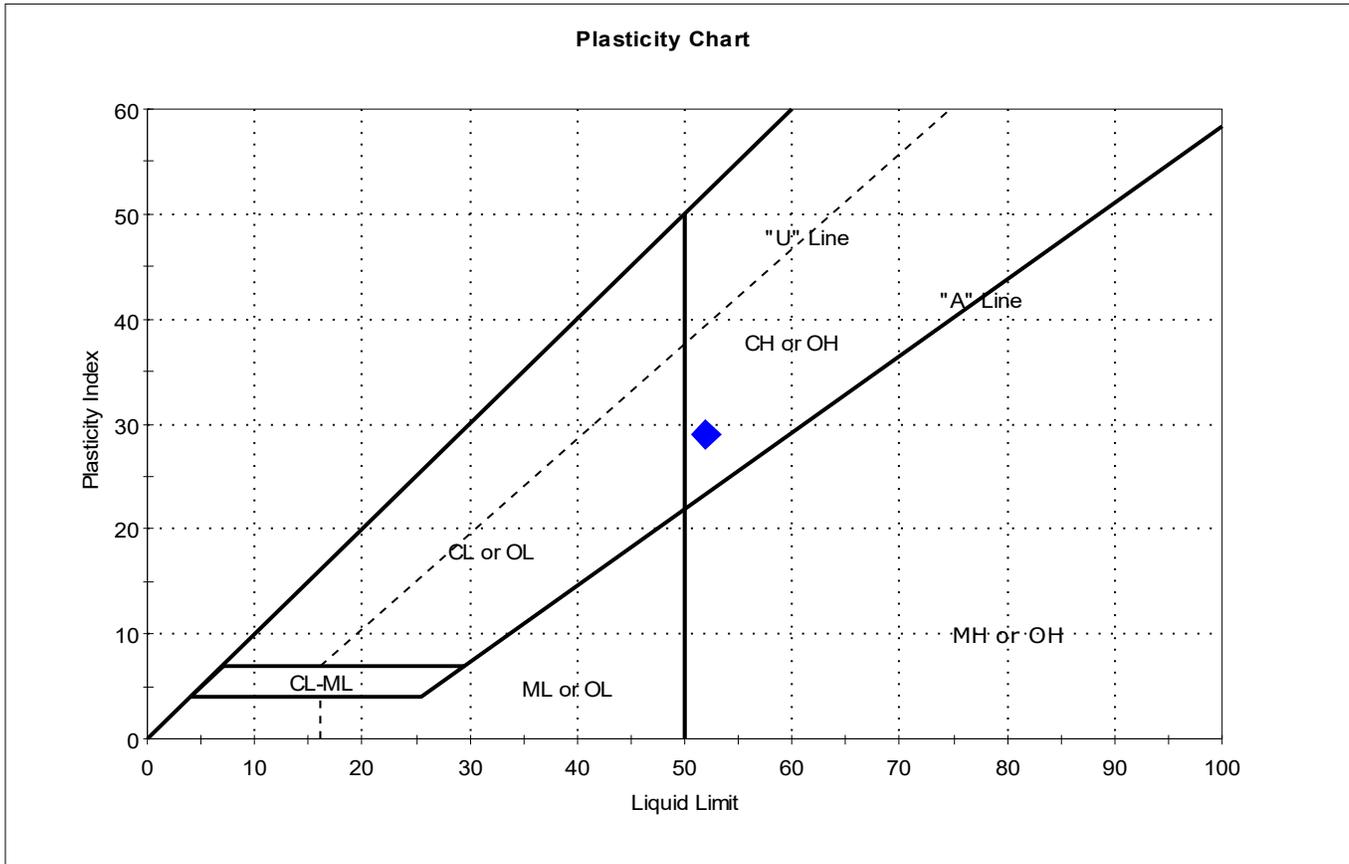
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-4	---	10-12	54	42	22	20	1.6	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 0% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-4	Test Date: 06/23/20	Checked By: bfs	
Depth: 12-14	Test Id: 560390		
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



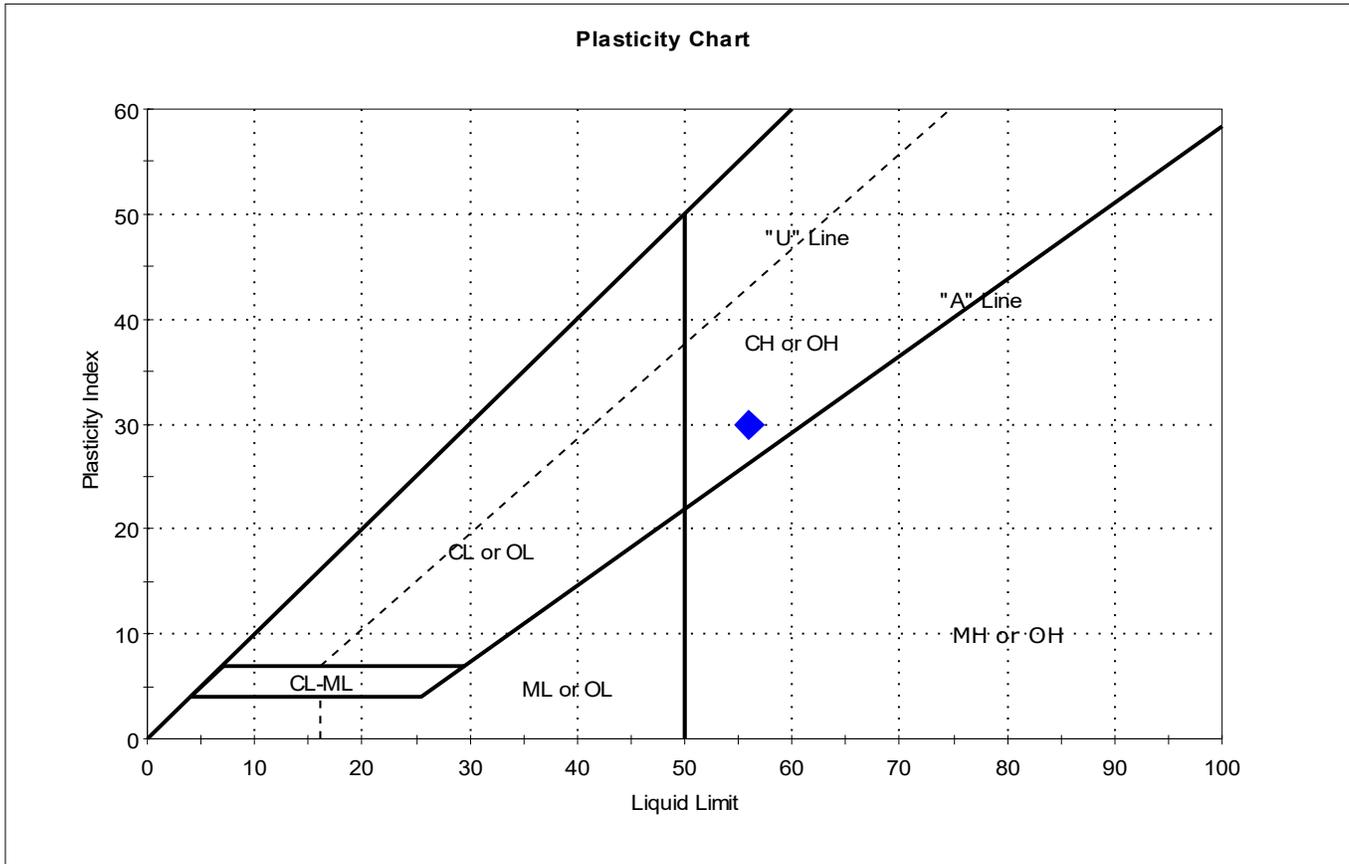
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-4	---	12-14	59	52	23	29	1.2	Fat CLAY (CH)

Sample Prepared using the WET method
 0% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-5	Test Date: 06/24/20	Checked By: bfs	
Depth: 0-2	Test Id: 560389		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



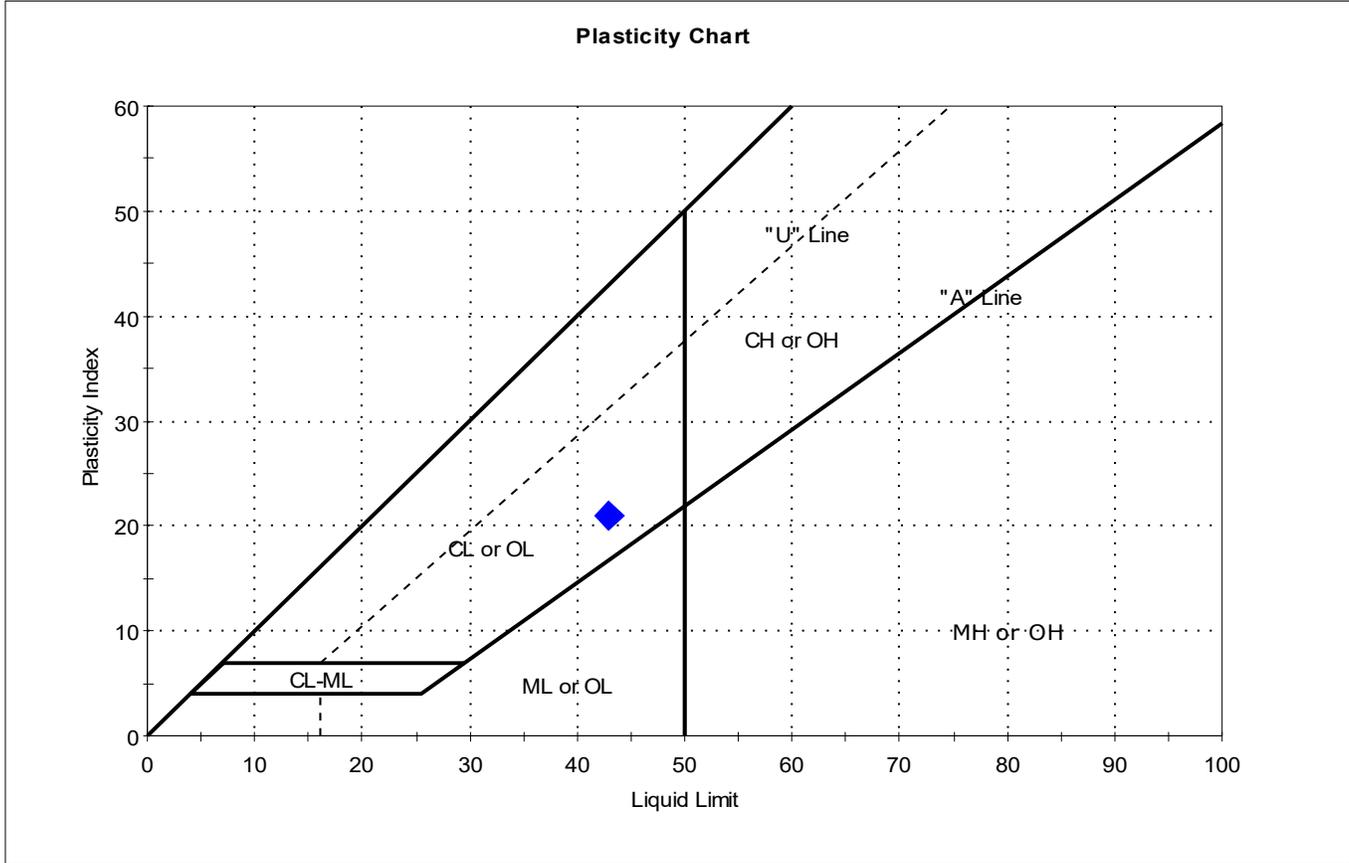
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-5	---	0-2	81	56	26	30	1.8	Fat CLAY with Sand (CH)

Sample Prepared using the WET method
 2% Retained on #40 Sieve
 Dry Strength: HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-5	Test Date: 06/23/20	Checked By: bfs	
Depth: 2-4	Test Id: 560388		
Test Comment: ---			
Visual Description: Wet, very dark gray sandy clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



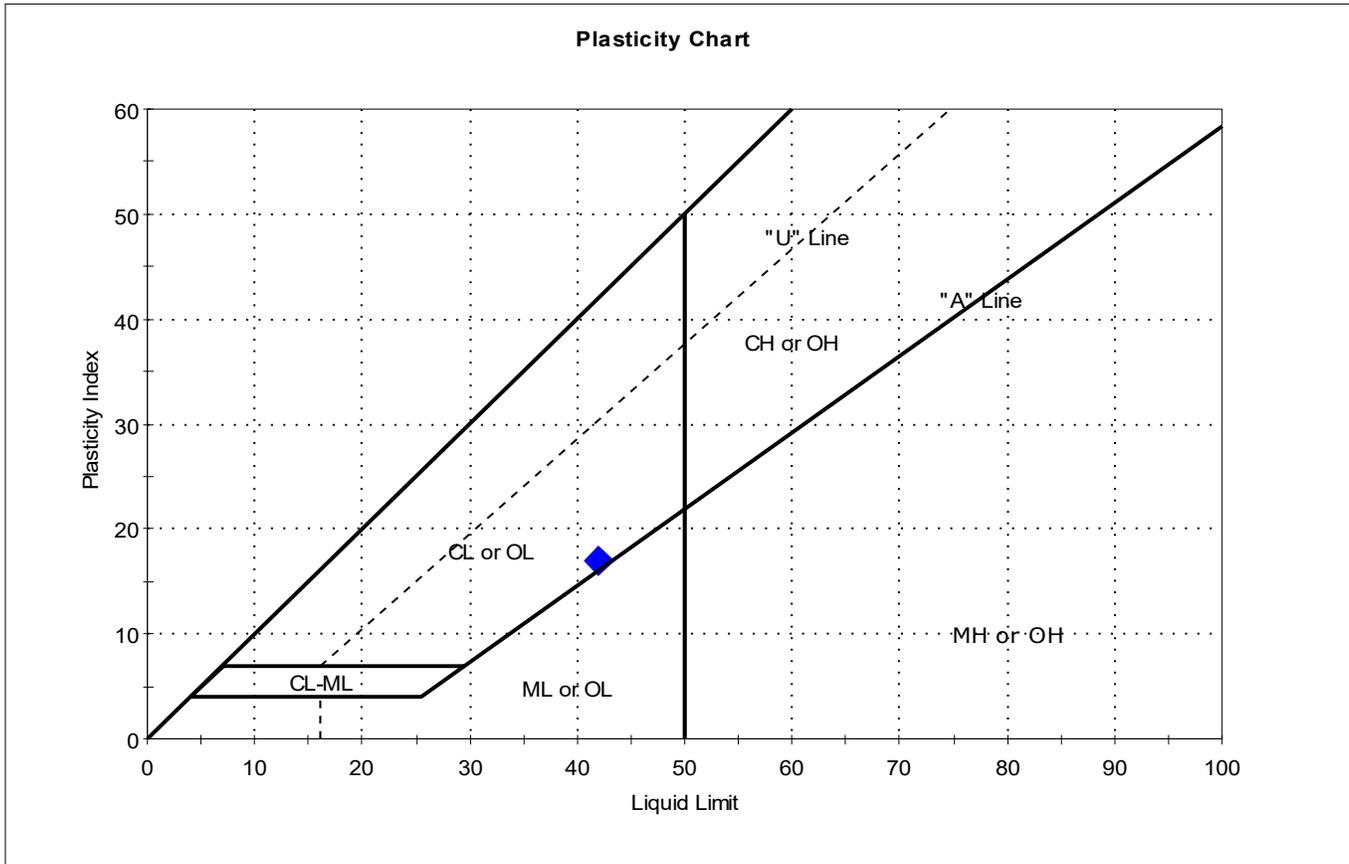
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-5	---	2-4	54	43	22	21	1.5	Sandy Lean CLAY (CL)

Sample Prepared using the WET method
 15% Retained on #40 Sieve
 Dry Strength: HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-5	Test Date: 06/23/20	Checked By: bfs	
Depth: 8-10	Test Id: 560387		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



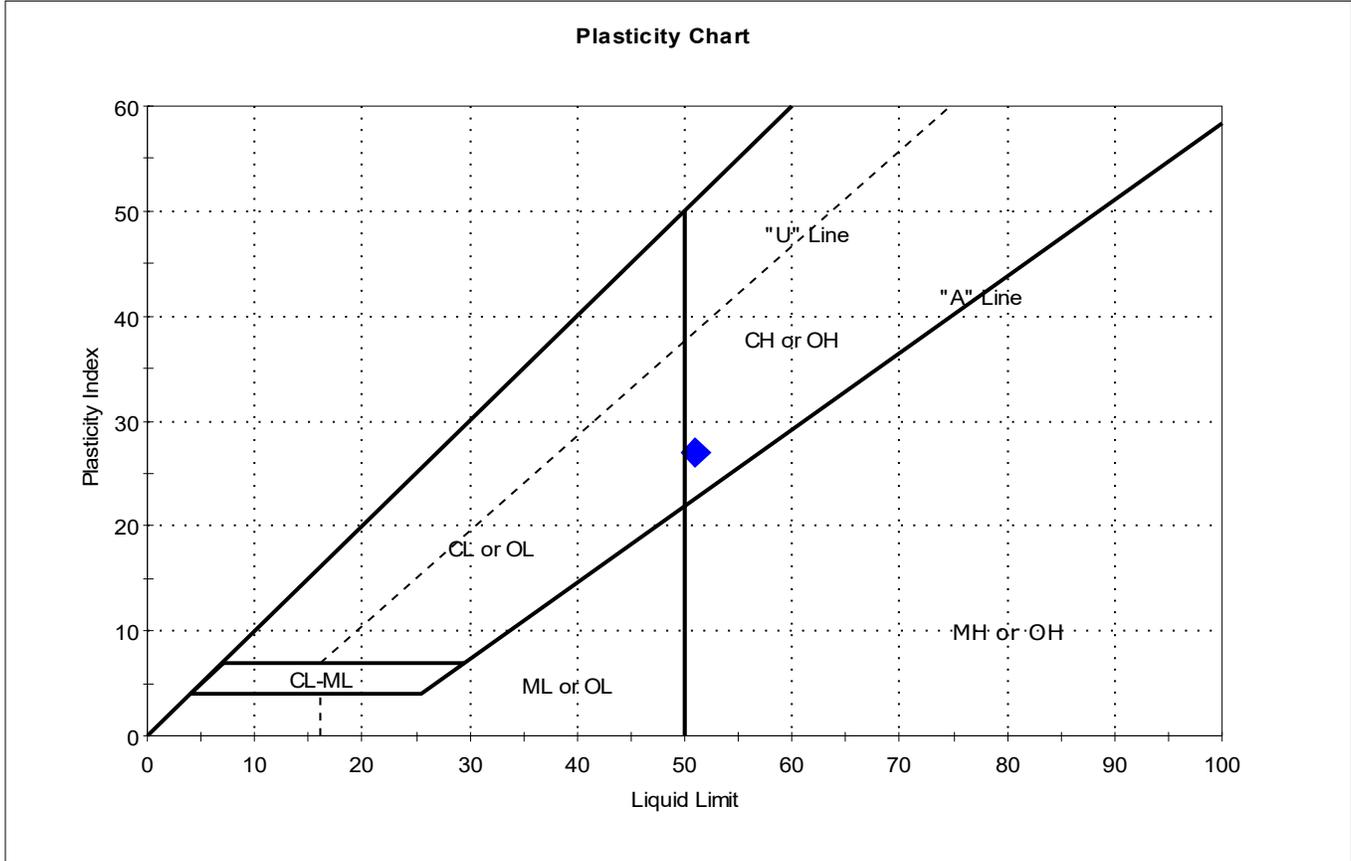
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-5	---	8-10	53	42	25	17	1.6	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 3% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-5	Test Date: 06/24/20	Checked By: bfs	
Depth: 10-12	Test Id: 560386		
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



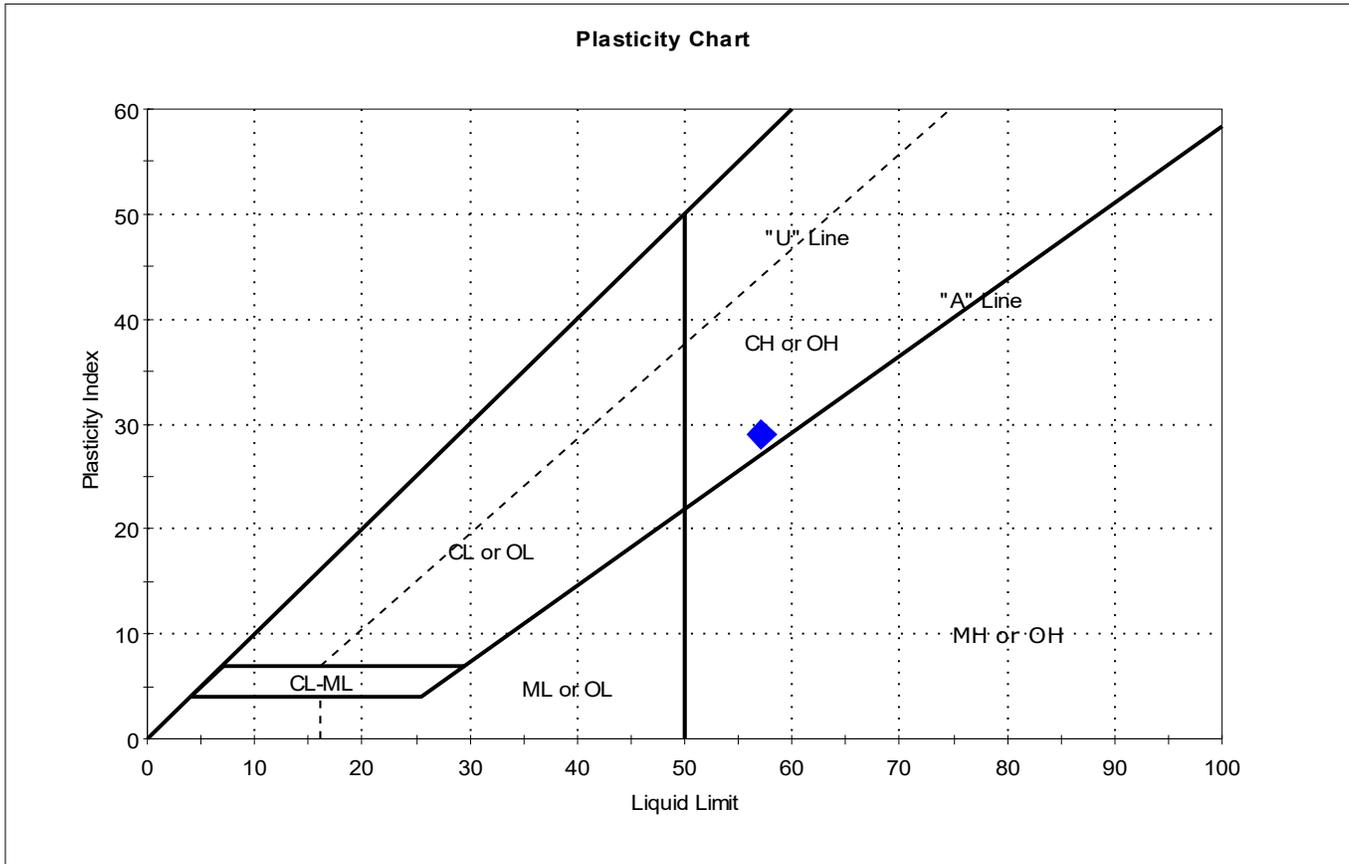
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-5	---	10-12	62	51	24	27	1.4	Fat CLAY (CH)

Sample Prepared using the WET method
 0% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-7	Test Date: 06/24/20	Checked By: bfs	
Depth: 2-4	Test Id: 560385		
Test Comment: ---			
Visual Description: Wet, very dark gray clayey sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-7	---	2-4	65	57	28	29	1.3	Clayey SAND (SC)

Sample Prepared using the WET method
 32% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client:	AECOM		
Project:	CHGE NWS		
Location:	Poughkeepsie, NY	Project No:	GTX-311893
Boring ID:	---	Sample Type:	bag
Sample ID:	PSB-7	Test Date:	06/22/20
Depth :	4-6	Checked By:	bfs
		Test Id:	560384
Test Comment:	---		
Visual Description:	Moist, very dark gray silty sand		
Sample Comment:	----		

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

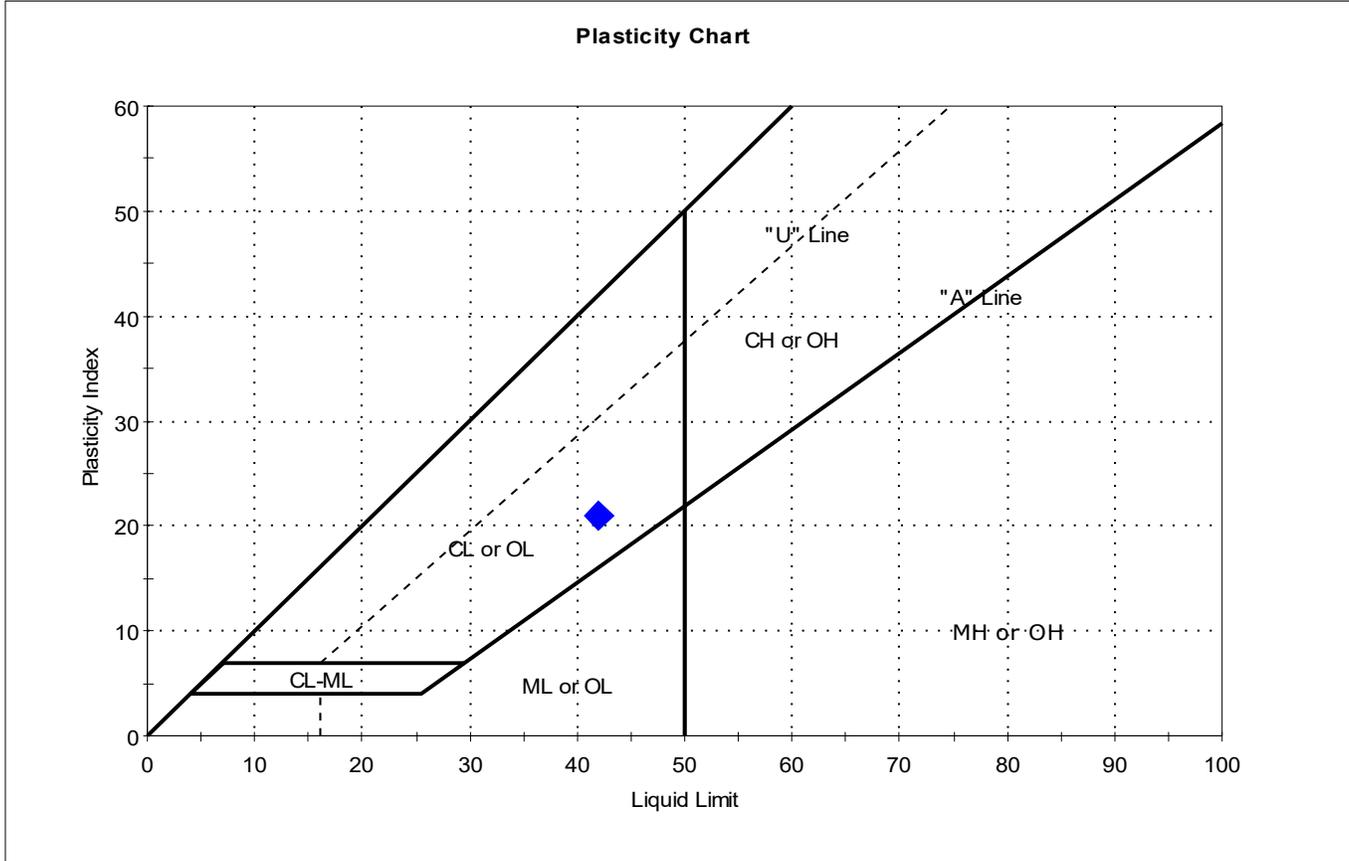
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-7	---	4-6	58	n/a	n/a	n/a	n/a	Silty SAND (SM)

18% Retained on #40 Sieve
 Dry Strength: LOW
 Dilatancy: RAPID
 Toughness: n/a
 The sample was determined to be Non-Plastic



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-7	Test Date: 06/24/20	Checked By: bfs	
Depth: 6-8	Test Id: 560383		
Test Comment: ---			
Visual Description: Wet, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



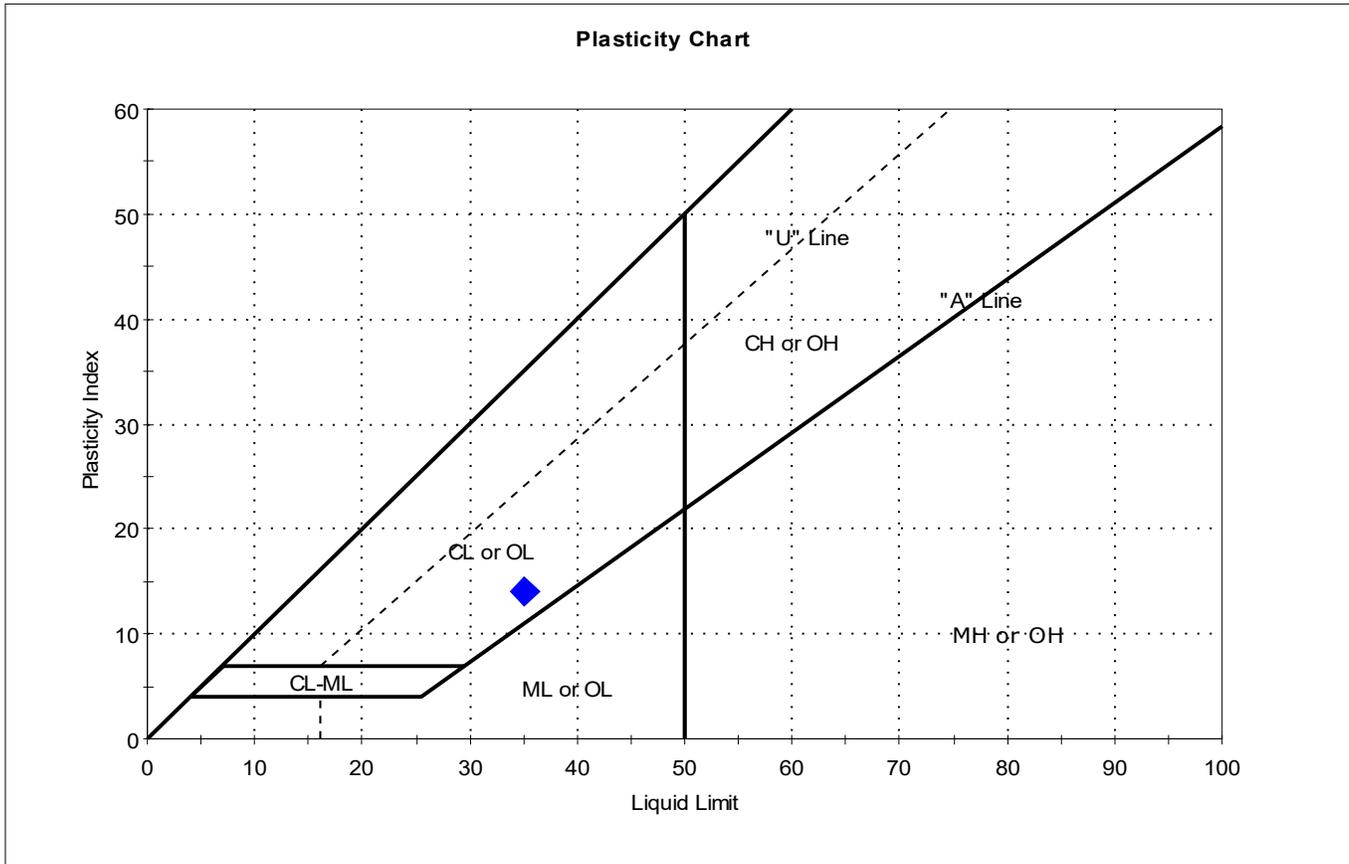
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-7	---	6-8	50	42	21	21	1.4	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 8% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-7	Test Date: 06/24/20	Checked By: bfs	
Depth: 10-12	Test Id: 560382		
Test Comment: ---			
Visual Description: Moist, very dark gray gravelly clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



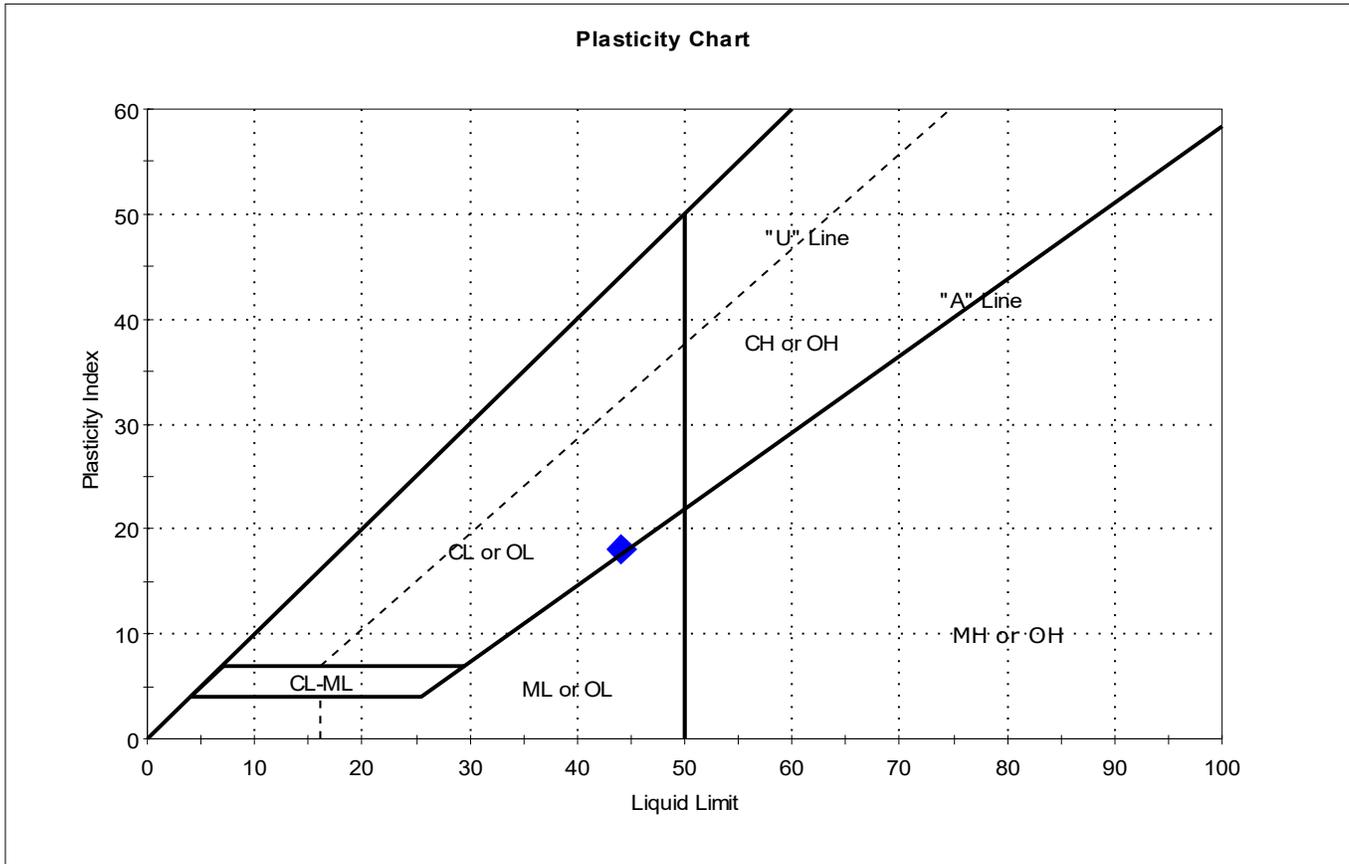
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-7	---	10-12	43	35	21	14	1.6	Gravelly Lean CLAY (CL)

Sample Prepared using the WET method
 35% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-8	Test Date: 06/24/20	Checked By: bfs	
Depth: 6-8	Test Id: 560380		
Test Comment: ---			
Visual Description: Moist, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



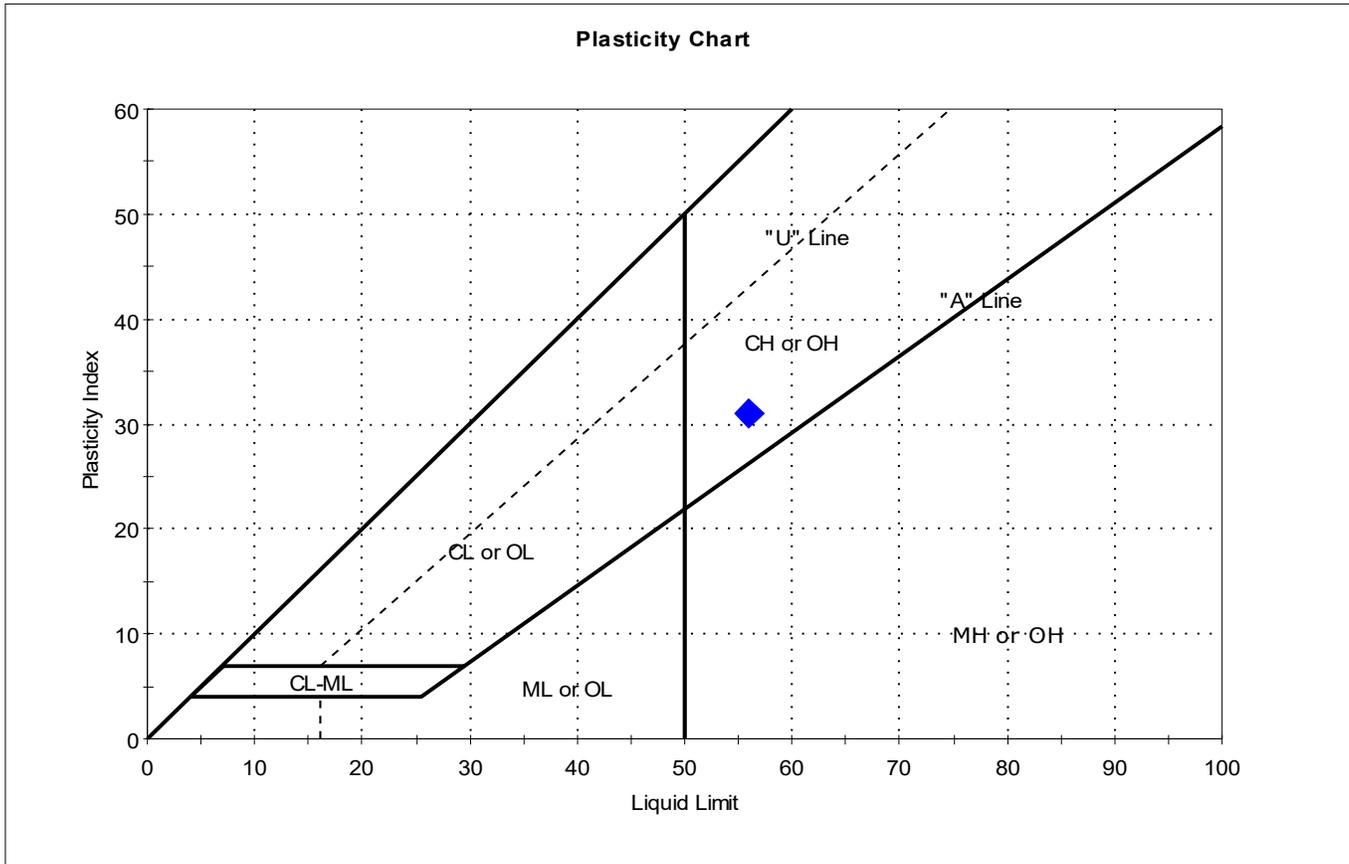
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-8	---	6-8	58	44	26	18	1.8	Lean CLAY with Sand (CL)

Sample Prepared using the WET method
 2% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-8	Test Date: 06/24/20	Checked By: bfs	
Depth: 10-12	Test Id: 560379		
Test Comment: ---			
Visual Description: Wet, very dark gray clay			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



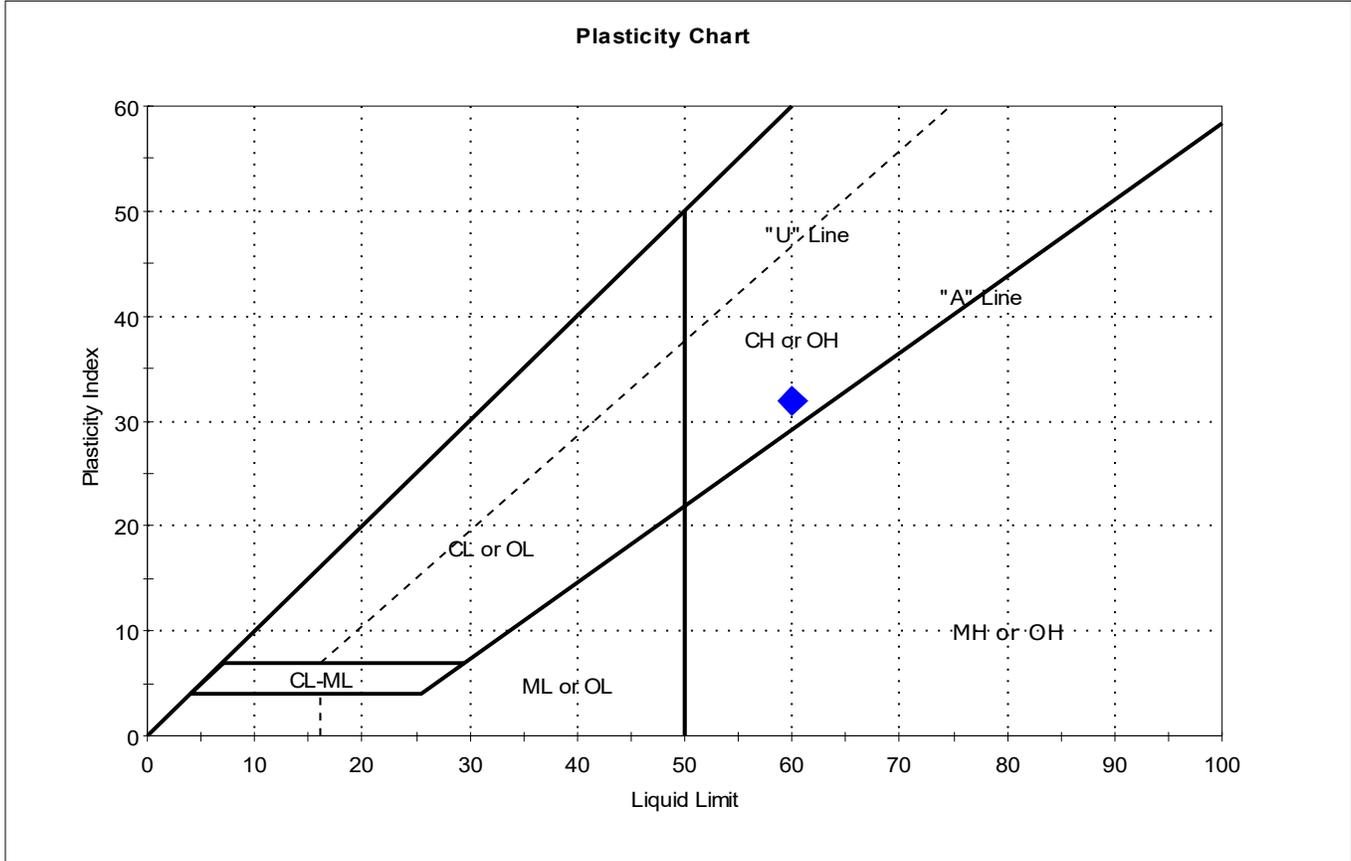
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-8	---	10-12	62	56	25	31	1.2	Fat CLAY (CH)

Sample Prepared using the WET method
 1% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



Client: AECOM	Project: CHGE NWS	Location: Poughkeepsie, NY	Project No: GTX-311893
Boring ID: ---	Sample Type: bag	Tested By: cam	
Sample ID: PSB-8	Test Date: 06/24/20	Checked By: bfs	
Depth: 12-14	Test Id: 560378		
Test Comment: ---			
Visual Description: Moist, very dark gray clay with sand			
Sample Comment: ---			

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PSB-8	---	12-14	59	60	28	32	1	Fat CLAY with Sand (CH)

Sample Prepared using the WET method
 6% Retained on #40 Sieve
 Dry Strength: VERY HIGH
 Dilatancy: SLOW
 Toughness: LOW



CHAIN OF CUSTODY

1 of 3

GeoTesting Express, Inc.
 125 Nagog Park
 Acton, MA 01720
 800-434-1062 Toll Free
 978-635-0424 Phone
 978-635-0266 Fax

Sales Order No.:

GTX No.:

Company Name: <u>AECOM</u>					Analysis								
Address: <u>2 DUTCHESS AVE, POUGHKEEPSIE, NY</u>					Sample Type	Container Type			<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">MOISTURE CONTENT</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">SIEVE ANALYSIS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">ATTERBERG</div> </div>			Comments	
Contact: <u>GEORGE LEAHY</u> e-mail: <u>GEORGE.LEAHY@AECOM.COM</u> Phone Number: <u>845 337 5886</u> Fax Number: <u>-</u>					1. Soil	1. Bucket	2. Bag	3. Jar					4. Tube
Project Name: <u>CHGE NWS</u> Project Number: <u>60543645</u> Project Location: <u>POUGHKEEPSIE, NY</u>					2. Geosynthetic	3. Rock	4. Concrete	5. Other					
Sample Identification	Container Size	Type	Sampling Date	Time	Sample Type								
PSB-1 (0-2)	1gal	2	6/2	1300	5	x	x	x					
PSB-1 (2-4)	1gal	2	6/2	1315	5	x	x	x					
PSB-1 (6-8)	1gal	2	6/2	1330	5	x	x	x					
PSB-1 (8-10)	1gal	2	6/2	1400	5	x	x	x					
PSB-1 (12-14)	1gal	2	6/2	1430	5	x	x	x					
PSB-2 (2-4)	1gal	2	6/3	1230	5	x	x					SANDY - NO ATTERBERG	
PSB-2 (8-10)	1gal	2	6/3	1315	5	x	x	x					
PSB-2 (12-14)	1gal	2	6/3	1400	5	x	x	x					
PSB-3 (2-4)	1gal	2	6/8	1645	5	x	x					SANDY - NO ATTERBERG	
Relinquished By: <u>J. Christopher AECOM</u>					Date: <u>6/12/2020</u>	Received By: <u>FedEx</u>			Date:	Turn-Around Time Requested:			
					Time: <u>1500</u>				Time:	No. of Business Days: <u>10</u>			
Relinquished By:					Date:	Received By: <u>[Signature]</u>			Date: <u>6/15/20</u>				
					Time:				Time: <u>11:15</u>				
Relinquished By:					Date:	Received By:			Date:	Special Instructions:			
					Time:				Time:	Verify Analyses with:			
SHIPPED VIA:													GEORGE.LEAHY@AECOM.COM



CHAIN OF CUSTODY

2 of 3

GeoTesting Express, Inc.
 125 Nagog Park
 Acton, MA 01720
 800-434-1062 Toll Free
 978-635-0424 Phone
 978-635-0266 Fax

Sales Order No.:
 GTX No.:

Company Name: AECOM					Analysis																
Address: 2 DUTCHESS AVE, Poughkeepsie, NY					Sample Type	Container Type															
Contact: GEORGE LEAHY e-mail: GEORGE.LEAHY@AECOM.COM Phone Number: 845 337 5886 Fax Number: —					1. Soil	1. Bucket															
Project Name: CHGE NWS Project Number: 605 43645 Project Location: Poughkeepsie, NY					2. Geosynthetic	2. Bag															
					3. Rock	3. Jar															
					4. Concrete	4. Tube															
					5. Other SEDIMENT	5. Roll															
					MOISTURE CONTENT			SIEVE ANALYSIS			ATTERBERG										
Sample Identification	Container Size	Type	Sampling Date	Time	Sample Type																
PSB-3 (6-8)	1gal	2	6/8	1715	5	X	X	X													
PSB-4 (4-6)	1gal	2	6/5	900	5	X	X	X													
PSB-4 (10-12)	1gal	2	6/5	1015	5	X	X	X													
PSB-4 (12-14)	1gal	2	6/5	1030	5	X	X	X													
PSB-5 (0-2)	1gal	2	6/4	915	5	X	X	X													
PSB-5 (2-4)	1gal	2	6/4	930	5	X	X	X													
PSB-5 (8-10)	1gal	2	6/4	1500	5	X	X	X													
PSB-5 (10-12)	1gal	2	6/4	1515	5	X	X	X													
PSB-7 (2-4)	1gal	2	6/4	1415	5	X	X	X													
Relinquished By: J. Christopher AECOM					Date: 6/2/2020	Received By: Fedex					Date:	Turn-Around Time Requested:									
					Time: 1500						Time:	No. of Business Days: 10									
Relinquished By:					Date:	Received By: [Signature]					Date: 6/15/20										
					Time:						Time: 11:15										
Relinquished By:					Date:	Received By:					Date:	Special Instructions:									
					Time:						Time:	Verify Analyses with: George Leahy @ AECOM.com									
SHIPPED VIA:																					



CHAIN OF CUSTODY

3 of 3

GeoTesting Express, Inc.
 125 Nagog Park
 Acton, MA 01720
 800-434-1062 Toll Free
 978-635-0424 Phone
 978-635-0266 Fax

Sales Order No.:
 GTX No.:

Company Name: AECOM					Analysis								
Address: 2 Dutchess Ave, Poughkeepsie Ave					Sample Type	Container Type			MOISTURE CONTENT SIEVE ANALYSIS ATTERBERG				
Contact: George Leahy					1. Soil	1. Bucket							
e-mail: George-Leahy@AECOM.com					2. Geosynthetic	2. Bag							
Phone Number: 845-337-5886					3. Rock	3. Jar							
Project Name: CHGE NWS					4. Concrete	4. Tube			Comments				
Project Number: 60543645					5. Roll	5. Roll							
Project Location: Poughkeepsie, NY					<input checked="" type="checkbox"/> Other								
Fax Number: -					SEDIMENT								
Sample Identification	Container Size	Type	Sampling Date	Time	Sample Type								
PSB-7 (4-6)	1gal	2	6/9	1430	5	x	x	x					
PSB-7 (6-8)	1gal	2	6/9	1445	5	x	x	x					
PSB-7 (10-12)	1gal	2	6/9	1515	5	x	x	x					
PSB-8 (4-6)	1gal	2	6/9	1100	5	x	x	x					
PSB-8 (6-8)	1gal	2	6/9	1130	5	x	x	x					
PSB-8 (10-12)	1gal	2	6/9	1200	5	x	x	x					
PSB-8 (12-14)	1gal	2	6/9	1230	5	x	x	x					
Relinquished By: S. Christopher AECOM					Date: 6/12/2020	Received By: Fedex			Date:	Turn-Around Time Requested:			
					Time: 1500				Time:	No. of Business Days: 10			
Relinquished By:					Date:	Received By:			Date: 6/15/20	Special Instructions: Verify Analyses with: George.Leahy@AECOM.com			
					Time:				Time: 1615				
Relinquished By:					Date:	Received By:			Date:				
					Time:				Time:				
SHIPPED VIA:													

WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

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Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$	S_r	Post cyclic undrained shear strength
B	pore pressure parameter for $\Delta\sigma_3$	T	temperature
CAI	CERCHAR Abrasiveness Index	t	time
CIU	isotropically consolidated undrained triaxial shear test	U, UC	unconfined compression test
CR	compression ratio for one dimensional consolidation	UU, Q	unconsolidated undrained triaxial test
CSR	cyclic stress ratio	u_a	pore gas pressure
C_c	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$	u_e	excess pore water pressure
C_u	coefficient of uniformity, D_{60}/D_{10}	u, u_w	pore water pressure
C_c	compression index for one dimensional consolidation	V	total volume
C_a	coefficient of secondary compression	V_g	volume of gas
c_v	coefficient of consolidation	V_s	volume of solids
c	cohesion intercept for total stresses	V_s	shear wave velocity
c'	cohesion intercept for effective stresses	V_v	volume of voids
D	diameter of specimen	V_w	volume of water
D	damping ratio	V_o	initial volume
D_{10}	diameter at which 10% of soil is finer	v	velocity
D_{15}	diameter at which 15% of soil is finer	W	total weight
D_{30}	diameter at which 30% of soil is finer	W_s	weight of solids
D_{50}	diameter at which 50% of soil is finer	W_w	weight of water
D_{60}	diameter at which 60% of soil is finer	w	water content
D_{85}	diameter at which 85% of soil is finer	w_c	water content at consolidation
d_{50}	displacement for 50% consolidation	w_f	final water content
d_{90}	displacement for 90% consolidation	w_l	liquid limit
d_{100}	displacement for 100% consolidation	w_n	natural water content
E	Young's modulus	w_p	plastic limit
e	void ratio	w_s	shrinkage limit
e_c	void ratio after consolidation	w_o, w_i	initial water content
e_o	initial void ratio	α	slope of q_f versus p_f
G	shear modulus	α'	slope of q_f versus p_f'
G_s	specific gravity of soil particles	γ_t	total unit weight
H	height of specimen	γ_d	dry unit weight
H_R	Rebound Hardness number	γ_s	unit weight of solids
i	gradient	γ_w	unit weight of water
I_S	Uncorrected point load strength	ϵ	strain
$I_{S(50)}$	Size corrected point load strength index	ϵ_{vol}	volume strain
H_A	Modified Taber Abrasion	ϵ_h, ϵ_v	horizontal strain, vertical strain
H_T	Total hardness	μ	Poisson's ratio, also viscosity
K_o	lateral stress ratio for one dimensional strain	σ	normal stress
k	permeability	σ'	effective normal stress
LI	Liquidity Index	σ_c, σ'_c	consolidation stress in isotropic stress system
m_v	coefficient of volume change	σ_h, σ'_h	horizontal normal stress
n	porosity	σ_v, σ'_v	vertical normal stress
PI	plasticity index	σ'_{vc}	Effective vertical consolidation stress
P_c	preconsolidation pressure	σ_1	major principal stress
p	$(\sigma_1 + \sigma_3) / 2, (\sigma_v + \sigma_h) / 2$	σ_2	intermediate principal stress
p'	$(\sigma'_1 + \sigma'_3) / 2, (\sigma'_v + \sigma'_h) / 2$	σ_3	minor principal stress
p'_c	p' at consolidation	τ	shear stress
Q	quantity of flow	ϕ	friction angle based on total stresses
q	$(\sigma_1 - \sigma_3) / 2$	ϕ'	friction angle based on effective stresses
q_f	q at failure	ϕ'_r	residual friction angle
q_o, q_i	initial q	ϕ_{ult}	ϕ for ultimate strength
q_c	q at consolidation		

Appendix C Treatability Study Results



Waste Stream Technology, Inc.
 2701 Lockport Road
 Niagara Falls, NY 14305
 Phone (716) 282-2469
 Fax (716) 282-2481

Waste Stream Technology Central Hudson Gas & Electric Treatability Study Report

1.0 Scope of Work

The goal of this treatability study is to determine the efficacy of dewatering technologies in samples obtained in the Geotechnical Investigation task from Central Hudson Gas & Electric (CHGE, Poughkeepsie, NY). Specifically, samples will be tested utilizing high pressure Plate Frame Filter Press technology, Gravity Drainage Geo-tubes, and reagent-mediated solidification. Reagents tested included Type I Portland Cement and Super-absorbent Polymer (SAP, supplied by BASF).

All research was conducted at the Waste Stream Technology (a wholly-owned subsidiary of Severson Environmental Services) Treatability Laboratory in Niagara Falls, NY(EPA ID NYR000185033).

2.0 Treatability Study

2.1 “As Received” Sample Testing

Four buckets of sediment and four buckets of river water were received at the treatability laboratory on June 9th, 2020. Upon receipt, the sediment samples were logged, weighed, mixed to apparent homogeneity, and subsampled for initial characterization. Sediment was analyzed for percent solids, specific gravity, percent oil, pH, paint filter test, and particle size analysis >75 micrometers (#200 sieve). The methods employed in the characterization of the “as received material” are listed in Table 1.

River water samples were used as diluent in filter press and geobag experiments.

Table 1.
CHGE Treatability Study
Methods for “As Received” Sediment Testing

Analysis	Method
Percent Solids	Standard Method 2540G
Specific Gravity	Standard Method 2710F
Percentage Oil	Bariod Retort Test Kit
Paint Filter	EPA SW 846 Method 9095
pH	EPA SW 846 Method 9045C
Particle Size >75 μm	Modified ASTM D-422

The results of “as received” testing are summarized in Table 2, and show that the B-9 samples were greyish, thick and clay-like, whereas the B-6 samples were dark, thinner, and oily. B-9 Samples had 54.36-67.92 percent solids, 6.66-6.73 pH, specific gravity between 1.51-1.65, and 25.33-22.4% retained on a #200 sieve. Retort was not performed because there was no noticeable oil. B-6 Samples had 50.15-64.3 percent solids, 6.26-6.55 pH, specific gravity between 1.31-1.57, and 48.54-48.76% retained on a #200 sieve. Retort measured the oil in both samples at 2%.

Table 2.
CHGE Treatability Study
Results for “As Received” Sediment Testing

Sample	% Solids	pH	Specific Gravity	% Retained on Sieve (200#)	% Oil	Description
B-9A	67.92	6.73	1.65	22.4		Greyish sample, viscous, clay-like, some wood
B-9B	54.39	6.66	1.51	25.33		
B-6A	50.15	6.26	1.31	48.76	2%	Black and very oily sample, more pourable than Sample B-9
B-6B	64.3	6.55	1.57	48.54	2%	

“As received” samples were then de-sanded by wet sieving sample through a #200 sieve and washing through material with tap water. Sample that passed through the sieve was collected and analyzed for solids concentration. Sieved sample was then diluted to 5-10% solids with site water and used for polymer screening, plate frame filter press experiments, and geotube testing.

2.2 Polymer Screening

Sediment samples were diluted to 5-10% solids with site water, and 100 ml aliquots were added to 250 ml tri-pour beakers and used for study. Polymer was then added incrementally to sediment, and samples were mixed thoroughly by pouring between two beakers after addition of each dose. While mixing, sediment was carefully evaluated for any coagulation formation or generation of sediment flocculent. Appropriate polymer and dose for both dewatering modalities was selected based on observations made during this screening process. For example, small pin flocs are good for filter pressing, whereas larger, coagulants and aggregates are appropriate for gravity drainage.

Due to the oily nature of the B6 samples, this sediment had to be pre-conditioned with a solution of 50% ferric sulfate and 25% sodium hydroxide before treated with polymer.

Polymers tested included Dixie Polymers 757, 824/848, 843, 850, and 853, Hex Flocc Polymers SB-101, 320L, and 139H, and Hexagon Polymer 798x. Based on the results of this testing, 200-500 ppm Dixie Polymer Dixie Polymer 757 and 626 were selected for the plate frame filter press experiments, and 250 ppm Hexagon Polymer 798x was selected for gravity drainage/geobag filtration.

2.3 Plate Frame Filter Press

The equipment utilized for this study was a JWI bench scale filter press unit with custom mixer assembly and Crosible 85x/5 filter cloth (4-6CFM). A 1L aliquot of polymer treated feed slurry was placed into the feed vessel, which was then sealed and the mixing unit energized. The test cycle began when compressed nitrogen gas was initially applied to the sealed feed vessel. Pressure was increased from 0 psi at the start of the test cycle up to the target pressure of either 125 or 150 psi over a period of 3 minutes. Filtrate collected prior to reaching target pressure was discarded from analysis. The test cycle is complete after the allotted time (between 45 and 75 minutes) had elapsed from initial pressurization. At this time, pressure was relieved from the system, the unit is disassembled, observations made, and samples collected for analyses.

Data recorded includes Feed Solids and Volume, Polymer and Dosage, Filter Press Pressure and Press Time, Filtrate Quality and Volume, Filter Cloth Quality, and Filter Cake Quality, Specific Gravity, and Percent Solids.

Results of the plate frame filter press studies are summarized in Table 3 (Sample B-9) and Table 4 (B-6).

For sample B-9, 200 ppm of either polymer 757 or 626, followed by pressing for 1 hour at 150 psi, yielded an excellent cake with a solids concentration > 72% and an SG of ~1.8, with a good release from the cloth. The associated filtrate were clear after a slight initial discharge (typical and unremarkable).

For sample B-6, conditioning with ferric sulfate and sodium hydroxide, followed sequentially by treatment with 500 ppm polymer 626 and by filter pressing for 1 hour at 125 psi, yielded an excellent cake that released well from the cloth with 74.78 solids and an SG of 1.55. Resultant filtrate was clear, with a pH of 6.43. Polymer 757 yielded a similar cake, but filtrate had a yellow discoloring.

Photos of sample B-6 filter pressing are shown below.



Sample B-6, 500 ppm polymer 626, 1 hour @ 125psi Filter Cake and filter cloth (above) and filtrate (left).



Table 3.
CHGE Treatability Study
Sample B-9 Results for Plate Frame Filter Press

Sample	%Feed (Sieved)	Feed Vol	Polymer & Dose	Time / Pressure	Filtrate Vol	Filtrate Comments	Cloth Comments	Cake Comments	%sol	Cake SG
B-9	~10	1 L	untreated	1 hr/ 150 psi	225 mL	slight ISD, then clear, yellowish tinge	slightly sticky release	incomplete, good cake, missing top portion - solids based on partial	70.91	1.74
B-9	~10	1 L	200 ppm 757	1 hr/ 125 psi	320	slight ISD, then clear	good release	slightly soft top, good cake	69.68	1.66
B-9	~10	1 L	200 ppm 757	1 hr/ 150 psi	360 mL	slight ISD, then clear	good release	excellent cake, slightly soft top	72.85	1.81
B-9	~10	1 L	400 ppm 757	1 hr/ 150 psi	380 mL	very slight ISD, then clear	good release	excellent cake	72.21	1.73
B-9	~10	1 L	200 ppm 626	45 minutes/ 125 psi	360	slight ISD, then clear	good release	soft top, good cake	71.9	1.79
B-9	~10	1 L	200 ppm 626	1 hr/ 125 psi	340	slight ISD, then clear	good release	slightly soft top, good cake	69.69	1.79
B-9	~10	1 L	200 ppm 626	75 minutes/125 psi	450	ISD then clear	good release	excellent cake	75.05	1.78
B-9	~10	1 L	200 ppm 626	1 hr/ 150 psi	340 mL	slight ISD, then clear	good release	excellent cake, slightly soft top	74.12	1.82
B-9	~10	1 L	400 ppm 626	1 hr/ 150 psi	400 mL	very slight ISD, then clear	good release	excellent cake	72.29	1.77

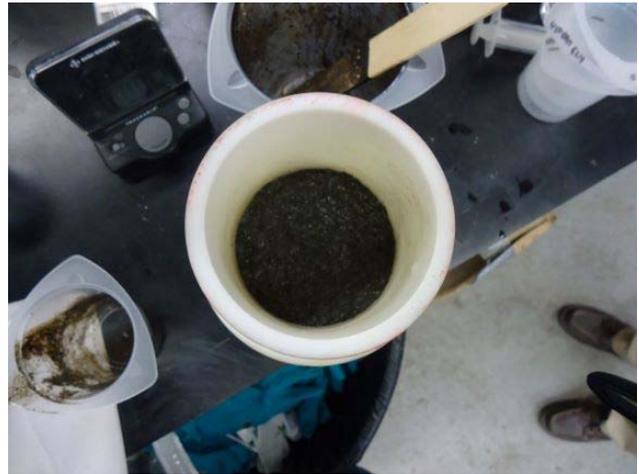
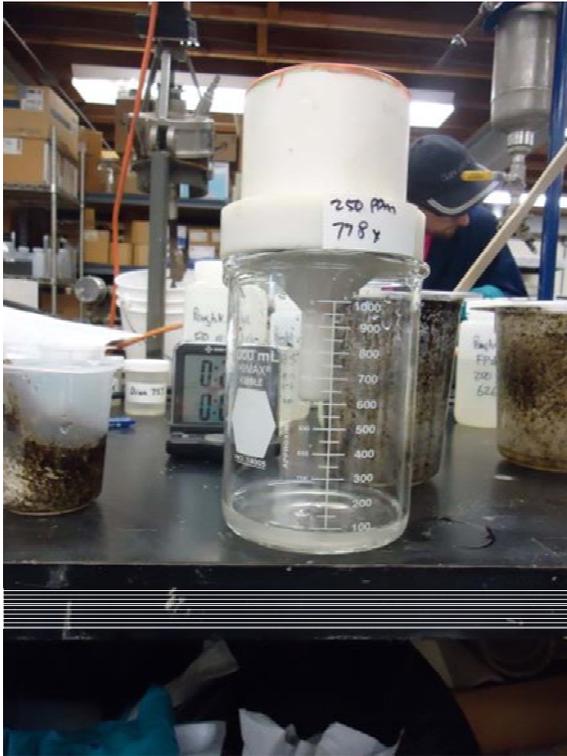
**Table 4.
CHGE Treatability Study
Sample B-6 Results for Plate Frame Filter Press**

Sample	%Feed (Sieved)	Feed Vol	Polymer & Dose	Time / Presure	Filtrate Vol	Filtrate Comments	Cloth Comments	Cake Comments	%sol	Cake SG	Filtrate pH
B-6	~7	1 L	500 ppm 626 plus ferric and NaOH	1 hr/ 125 psi	585	clear	good release	excellent cake	74.78	1.55	6.43
B-6	~7	1 L	500 ppm 626 plus ferric	1 hr/ 125 psi	700	ISD then clear	stain, possible blind, good release	good cake	68.36	1.69	before pressing: 5.70 after pressing: 6.10
B-6	~7	1 L	500 ppm 626 plus NaOH	1 hr/ 125 psi	800	ISD then clear	stain, possible blind, good release	soft cake	67.59	1.53	before pressing 9.33 after pressing: 8.85
B-6	~7	1 L	500 ppm 626 plus ferric and NaOH	1 hr/ 125 psi	775	ISD then clear	re-used cloth from FP 10	excellent cake	66.68	1.72	7.24
B-6	~7	1 L	500 ppm 757 plus ferric and NaOH	1 hr/ 125 psi	480	yellowish tinge ISD	stain, possible blind, good release	excellent cake	70.15	1.48	6.46

2.4 Rapid Drainage Test (RDT) and Geotube Filtration

RDT. Based on discussion with the client during a site visit, only Sample B-6, which presented the worst-case scenario, was investigated. Sediment was diluted to 10% solids with site water and treated with 250 ppm of Hexagon 798x polymer, poured into a cone funnel and allowed to drain. A volume of 190 mL of filtrate was collected within the first minute, and 200 mL of filtrate after 5 minutes. Cake solids concentrations were taken at 5 minutes and 24 hours, and was determined to be 24.16% and 21.79%, respectively.

Photos below illustrate this RDT test.



Sample B-6 Rapid Drainage Test filtrate (left) and filter cake (above).

Geotube Filtration. Again, based on discussion with the client, only Sample B-6 was tested. Sediment was diluted to 10% solids with site water and treated with 250 ppm of Hexagon 798x polymer, poured into an inverted slump cone funnel and allowed to drain. Cake solids concentrations were taken at 24 hours, 3 days, and 7 days, and was determined to be 50.89%, 54.68% and 58.36%, respectively. All samples passed paint filter test.

Photos below illustrate the geotube filtration test.

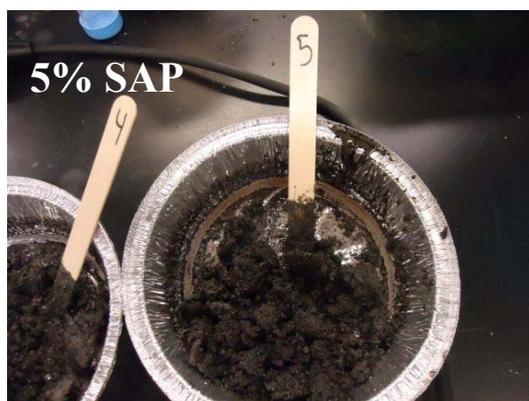
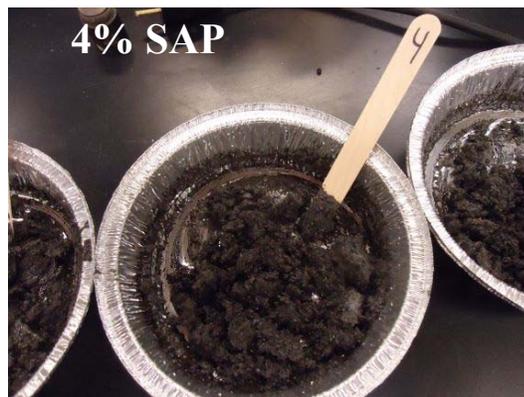
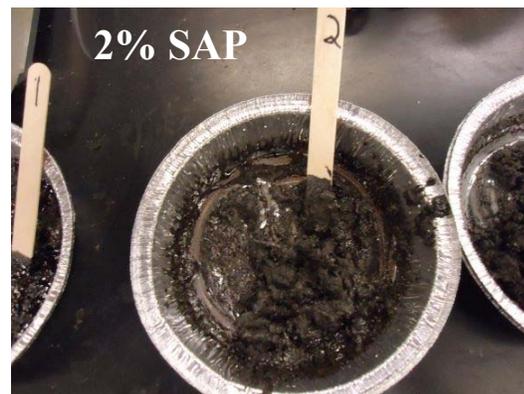


Sample B-6 Geotube Filtration test set-up (left) and 7 day solids (right).

2.5 Solidification

As in the geobag tests, in order to investigate worst-case material, only Sample B-6A was tested for solidification. Using commercially available reagents, 200 gram aliquots of “as received” sample B6A were treated with either 3% (w/w), 5%, or 7% Type I Portland Cement, or 1% (w/w), 2%, 4% or 5% super-absorbent polymer (SAP). Samples were allowed to cure for 24 hours and analyzed for paint filter test and percent solids (Portland Cement only). All Portland-cement amended samples passed paint filter test after 24 hours, and solids were measured to be between 51-57%. A minimum treatment of 2% super absorbent polymer was required to remediate the B6A sediment so that endproduct passed paint filter test.

Photos below illustrate the solidification tests.



2.6 Filtrate Analytical Testing

Filtrate from the B-6 plate frame filter press and geotube filtration experiments were collected and analyzed by Euorphins TestAmerica (Amherst, NY) for the parameters outlined in Table 5.

Table 5.
CHGE Treatability Study
B-6 Filter Press and B-6 Geobag Filtrate Analyses and Methods

PARAMETER	METHOD
VOCs	624
SVOCs	625
pH	9040
TSS, TDS	SM2540
PCBs	608
Oil and Grease	1664
Total Metals (As, Cr, Fe, Pb)	200.7
Dissolved Metals (As, Cr, Fe, Pb)	200.7
Low Level Mercury	1631
Ferrous Iron	SM 3500-Fe
BOD5	SM5210B
CBOD5	SM5210B
COD	410.4
Total Cyanide	335.4
Hexavalent Chromium	218.6
Fluoride	300
Total Phenols	420.4
TCLP VOCs	1311/8260
TCLP SVOCs	1311/8270
TCLP Metals (RCRA 8)	1311/6010
TOC	SM5310

The detected analytes are listed in Table 6 (Filter Press) and Table 7 (Geobag), and the complete analytical report is presented in Appendix A.

Table 6.
CHGE Treatability Study
Analytes Detected in B-6 Filter Press Filtrate Analyses

Analyte	Result	Units	Method
Benzene	73	µg/L	624.1
Ethylbenzene	130	µg/L	624.1
Benzene	50	µg/L	8260C
Acenaphthene	12	µg/L	625.1
Bis(2-ethylhexyl) phthalate	33	µg/L	625.1
Fluorene	11	µg/L	625.1
2-Methylphenol	2.6	µg/L	8270D
Mercury	3.8	ng/L	1631E
Chromium	0.0022	mg/L	200.7 Rev 4.4
Iron	1.3	mg/L	200.7 Rev 4.4
Lead	0.0047	mg/L	200.7 Rev 4.4
Barium	0.034	mg/L	6010C
Chromium	0.0021	mg/L	6010C
Lead	0.0040	mg/L	6010C
Oil & Grease	2.9	mg/L	1664B
Fluoride	0.17	mg/L	300.0
Chemical Oxygen Demand	858	mg/L	410.4
Phenolics, Total Recoverable	0.040	mg/L	420.4
Total Dissolved Solids	387	mg/L	SM 2540C
Total Suspended Solids	16.4	mg/L	SM 2540D
pH	7.5	SU	SM 4500 H+ B
Biochemical Oxygen Demand	99.6	mg/L	SM 5210B
Carbonaceous Biochemical Oxygen Demand	98.8	mg/L	SM 5210B
Total Organic Carbon	183	mg/L	SM 5310C

Table 7.
CHGE Treatability Study
Analytes Detected in B-6 Geobag Filtrate Analyses

Analyte	Result	Units	Method
Benzene	69	µg/L	624.1
Ethylbenzene	330	µg/L	624.1
Toluene	13	µg/L	624.1
Benzene	60	µg/L	8260C
Acenaphthene	250	µg/L	625.1
Anthracene	84	µg/L	625.1
Benzo[a]anthracene	47	µg/L	625.1
Benzo[a]pyrene	51	µg/L	625.1
Benzo[b]fluoranthene	26	µg/L	625.1
Chrysene	41	µg/L	625.1
Fluoranthene	83	µg/L	625.1
Fluorene	99	µg/L	625.1
Naphthalene	820	µg/L	625.1
Phenanthrene	320	µg/L	625.1
Pyrene	160	µg/L	625.1
2-Methylphenol	0.82	µg/L	8270D
3-Methylphenol	6.2	µg/L	8270D
4-Methylphenol	6.2	µg/L	8270D
Mercury	35.1	ng/L	1631E
Arsenic	0.0091	mg/L	200.7 Rev 4.4
Iron	3.6	mg/L	200.7 Rev 4.4
Arsenic	0.0076	mg/L	6010C
Barium	0.048	mg/L	6010C
Oil & Grease	5.3	mg/L	1664B
Fluoride	0.099	mg/L	300.0
Chemical Oxygen Demand	57.8	mg/L	410.4
Phenolics, Total Recoverable	0.044	mg/L	420.4
Total Dissolved Solids	194	mg/L	SM 2540C
Total Suspended Solids	10.8	mg/L	SM 2540D
pH	7.4	SU	SM 4500 H+ B
Biochemical Oxygen Demand	11.9	mg/L	SM 5210B
Carbonaceous Biochemical Oxygen Demand	16.5	mg/L	SM 5210B
Total Organic Carbon	14.5	mg/L	SM 5310C

3.0 Conclusions

The results of this treatability study show that under optimal conditions, recessed chamber filter yielded a cake solids of 66% or greater. Due to its oily nature, B-6 feed solids required pre-conditioning with 0.36 ml/L of 50% ferric sulfate and 0.8 ml/L of 25% sodium hydroxide. Sediment was then treated with 500 ppm polymer 626, followed by filter pressing for 1 hour at 125 psi. Filter cake yields were between 66-75% and had excellent handling properties. Resultant filtrates were clear.

Treatment of sample B-9 with 200 ppm polymer 757 or 626, followed by pressing for 1 hour at 125 psi also yielded a filter cake with ~70% solids and excellent handling properties. Resultant filtrates were clear.

Geotube results show that sediment treated with 250 ppm of Hexagon 798x polymer will yield approximately 54% solids content after 3 days that may require some Portland Cement amendments for stabilization and landfill workability. Pilot tests will prove this out.

Analytical testing of the filter press filtrate and the geobag filtrate showed that both samples had neutral pHs and very low suspended solids. Both samples also had some metals and organics present, indicating secondary water treatment may be required for any process filtrate generated.

As received B-6 sediment required 3% Type I Portland Cement, or 2-4% SAP to remove free liquids so that the remedial endproduct passed the paint filter test.

Appendix A

Central Hudson Gas & Electric Treatability Study

Analytical Results for Geobag and Filter Press Filtrate

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-171773-1

Client Project/Site: Severson Environmental Services, Inc.

For:

Severson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, New York 14305

Attn: James Hyzy



Authorized for release by:
7/7/2020 12:39:06 PM

Alexander Gilbert, Project Management Assistant I
alexander.gilbert@testamericainc.com

Designee for

Brian Fischer, Manager of Project Management
(716)504-9835
brian.fischer@testamericainc.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate recovery exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
b	Result Detected in the Unseeded Control blank (USB).
F3	Duplicate RPD exceeds the control limit
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Eurofins TestAmerica, Buffalo

Definitions/Glossary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Job ID: 480-171773-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative 480-171773-1

Comments

No additional comments.

Receipt

The samples were received on 6/26/2020 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 4.7° C and 5.6° C.

GC/MS VOA

Method 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: GEOBAG FILTRATE (480-171773-1). Elevated reporting limits (RLs) are provided.

Method 624.1: The following sample was diluted due to the abundance of non-target analytes: FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 8260C: The following samples were diluted due to the abundance of non-target analytes: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 8260C: The continuing calibration verification (CCV) associated with batch 480-538566 recovered above the upper control limit for Carbon tetrachloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method 8260C: The following samples were collected in unpreserved vials; however, the test assigned was a preserved test. The samples were analyzed within the 7-day holding time specified for unpreserved samples: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 625.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 480-538584 and analytical batch 480-538685 recovered outside control limits for the following analytes: Benzidine.

Method 625.1: The following samples were diluted due to the nature of the sample matrix: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 625.1: The following sample required a dilution due to the nature of the sample matrix: GEOBAG FILTRATE (480-171773-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8270D: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). These results have been reported and qualified.

Method 8270D: The laboratory control sample (LCS) for preparation batch 480-538762 and analytical batch 480-538875 recovered outside control limits for the following surrogate: 2,4,6-Tribromophenol. This surrogate is biased high and no detections were found for associated analytes in the following affected samples: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Therefore, the data has been reported.

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-538875 recovered outside acceptance criteria, low biased, for Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Case Narrative

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Job ID: 480-171773-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method 8270D: The laboratory control sample (LCS) for preparation batch 480-538762 and analytical batch 480-538875 recovered outside control limits for the following analytes: 2,4,5-Trichlorophenol and 2,4,6-Trichlorophenol. These analytes were biased high in the LCS and were not detected in the associated samples; 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.

HPLC/IC

Method 300.0: The following sample was diluted due to the nature of the sample matrix: FILTER PRESS FILTRATE (480-171773-2). 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 Semi VOA

Method 608.3: Surrogate recovery for the following samples were outside control limits: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 6010C: The interference check standard solution (ICSA) associated with the following samples showed results for Barium at a level greater than 2 times the limit of detection (LOD). It is believed that the solution contains trace impurities of this element and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. GEOBAG FILTRATE (480-171773-1), FILTER PRESS FILTRATE (480-171773-2), (LCS 480-539037/2-A) and (MB 480-539037/1-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 3500 CR D: The following samples were analyzed outside of analytical holding time due to laboratory oversight: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method SM 3500 FE D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Methods 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method 410.4: The method blank for analytical batch 480-538991 contained analyte above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

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.

Detection Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	69		50	6.0	ug/L	10		624.1	Total/NA
Ethylbenzene	330		50	4.6	ug/L	10		624.1	Total/NA
Toluene	13	J	50	4.5	ug/L	10		624.1	Total/NA
Benzene	60		4.0	1.6	ug/L	4		8260C	Total/NA
Acenaphthene	250		100	16	ug/L	20		625.1	Total/NA
Anthracene	84	J	100	28	ug/L	20		625.1	Total/NA
Benzo[a]anthracene	47	J	100	22	ug/L	20		625.1	Total/NA
Benzo[a]pyrene	51	J	100	26	ug/L	20		625.1	Total/NA
Benzo[b]fluoranthene	26	J	100	24	ug/L	20		625.1	Total/NA
Chrysene	41	J	100	20	ug/L	20		625.1	Total/NA
Fluoranthene	83	J	100	32	ug/L	20		625.1	Total/NA
Fluorene	99	J	100	20	ug/L	20		625.1	Total/NA
Naphthalene	820		100	17	ug/L	20		625.1	Total/NA
Phenanthrene	320		100	24	ug/L	20		625.1	Total/NA
Pyrene	160		100	28	ug/L	20		625.1	Total/NA
2-Methylphenol	0.82	J	5.0	0.40	ug/L	1		8270D	Total/NA
3-Methylphenol	6.2	J	10	0.40	ug/L	1		8270D	Total/NA
4-Methylphenol	6.2	J	10	0.36	ug/L	1		8270D	Total/NA
Mercury	35.1		1.0	0.28	ng/L	2		1631E	Total/NA
Arsenic	0.0091	J	0.015	0.0056	mg/L	1		200.7 Rev 4.4	Total/NA
Iron	3.6		0.050	0.019	mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	0.0076	J	0.015	0.0056	mg/L	1		6010C	Total/NA
Barium	0.048	^	0.0020	0.00070	mg/L	1		6010C	Total/NA
Oil & Grease	5.3		4.7	1.3	mg/L	1		1664B	Total/NA
Fluoride	0.099		0.050	0.026	mg/L	1		300.0	Total/NA
Chemical Oxygen Demand	57.8		10.0	5.0	mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.044		0.010	0.0035	mg/L	1		420.4	Total/NA
Total Dissolved Solids	194		10.0	4.0	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10.8		4.0	4.0	mg/L	1		SM 2540D	Total/NA
pH	7.4	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.1	HF	0.001	0.001	Degrees C	1		SM 4500 H+ B	Total/NA
Biochemical Oxygen Demand	11.9	b	6.0	6.0	mg/L	1		SM 5210B	Total/NA
Carbonaceous Biochemical Oxygen Demand	16.5	b	6.0	6.0	mg/L	1		SM 5210B	Total/NA
Total Organic Carbon	14.5		1.0	0.43	mg/L	1		SM 5310C	Total/NA

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	73		50	6.0	ug/L	10		624.1	Total/NA
Ethylbenzene	130		50	4.6	ug/L	10		624.1	Total/NA
Benzene	50		5.0	2.1	ug/L	5		8260C	Total/NA
Acenaphthene	12	J	50	8.1	ug/L	10		625.1	Total/NA
Bis(2-ethylhexyl) phthalate	33	J	100	12	ug/L	10		625.1	Total/NA
Fluorene	11	J	50	10	ug/L	10		625.1	Total/NA
2-Methylphenol	2.6	J	5.0	0.40	ug/L	1		8270D	Total/NA
Mercury	3.8		0.50	0.14	ng/L	1		1631E	Total/NA
Chromium	0.0022	J	0.0040	0.0010	mg/L	1		200.7 Rev 4.4	Total/NA
Iron	1.3		0.050	0.019	mg/L	1		200.7 Rev 4.4	Total/NA
Lead	0.0047	J	0.010	0.0030	mg/L	1		200.7 Rev 4.4	Total/NA
Barium	0.034	^	0.0020	0.00070	mg/L	1		6010C	Total/NA
Chromium	0.0021	J	0.0040	0.0010	mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Detection Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE (Continued)

Lab Sample ID: 480-171773-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0040	J	0.010	0.0030	mg/L	1		6010C	Total/NA
Oil & Grease	2.9	J	4.8	1.3	mg/L	1		1664B	Total/NA
Fluoride	0.17		0.10	0.052	mg/L	2		300.0	Total/NA
Chemical Oxygen Demand	858		100	50.0	mg/L	10		410.4	Total/NA
Phenolics, Total Recoverable	0.040		0.010	0.0035	mg/L	1		420.4	Total/NA
Total Dissolved Solids	387		10.0	4.0	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	16.4		4.0	4.0	mg/L	1		SM 2540D	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.3	HF	0.001	0.001	Degrees C	1		SM 4500 H+ B	Total/NA
Biochemical Oxygen Demand	99.6	b	60.0	60.0	mg/L	1		SM 5210B	Total/NA
Carbonaceous Biochemical Oxygen Demand	98.8	b	24.0	24.0	mg/L	1		SM 5210B	Total/NA
Total Organic Carbon	183		4.0	1.7	mg/L	4		SM 5310C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	3.9	ug/L			06/27/20 20:32	10
1,1,2,2-Tetrachloroethane	ND		50	2.6	ug/L			06/27/20 20:32	10
1,1,2-Trichloroethane	ND		50	4.8	ug/L			06/27/20 20:32	10
1,1-Dichloroethane	ND		50	5.9	ug/L			06/27/20 20:32	10
1,1-Dichloroethene	ND		50	8.5	ug/L			06/27/20 20:32	10
1,2-Dichlorobenzene	ND		50	4.4	ug/L			06/27/20 20:32	10
1,2-Dichloroethane	ND		50	6.0	ug/L			06/27/20 20:32	10
1,2-Dichloroethene, Total	ND		100	32	ug/L			06/27/20 20:32	10
1,2-Dichloropropane	ND		50	6.1	ug/L			06/27/20 20:32	10
1,3-Dichlorobenzene	ND		50	5.4	ug/L			06/27/20 20:32	10
1,4-Dichlorobenzene	ND		50	5.1	ug/L			06/27/20 20:32	10
2-Chloroethyl vinyl ether	ND		250	19	ug/L			06/27/20 20:32	10
Acrolein	ND		1000	170	ug/L			06/27/20 20:32	10
Acrylonitrile	ND		500	19	ug/L			06/27/20 20:32	10
Benzene	69		50	6.0	ug/L			06/27/20 20:32	10
Bromoform	ND		50	4.7	ug/L			06/27/20 20:32	10
Bromomethane	ND		50	12	ug/L			06/27/20 20:32	10
Carbon tetrachloride	ND		50	5.1	ug/L			06/27/20 20:32	10
Chlorobenzene	ND		50	4.8	ug/L			06/27/20 20:32	10
Chlorodibromomethane	ND		50	4.1	ug/L			06/27/20 20:32	10
Chloroethane	ND		50	8.7	ug/L			06/27/20 20:32	10
Chloroform	ND		50	5.4	ug/L			06/27/20 20:32	10
Chloromethane	ND		50	6.4	ug/L			06/27/20 20:32	10
cis-1,3-Dichloropropene	ND		50	3.3	ug/L			06/27/20 20:32	10
Dichlorobromomethane	ND		50	5.4	ug/L			06/27/20 20:32	10
Ethylbenzene	330		50	4.6	ug/L			06/27/20 20:32	10
Methylene Chloride	ND		50	8.1	ug/L			06/27/20 20:32	10
Tetrachloroethene	ND		50	3.4	ug/L			06/27/20 20:32	10
Toluene	13 J		50	4.5	ug/L			06/27/20 20:32	10
trans-1,2-Dichloroethene	ND		50	5.9	ug/L			06/27/20 20:32	10
trans-1,3-Dichloropropene	ND		50	4.4	ug/L			06/27/20 20:32	10
Trichloroethene	ND		50	6.0	ug/L			06/27/20 20:32	10
Vinyl chloride	ND		50	7.5	ug/L			06/27/20 20:32	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		68 - 130		06/27/20 20:32	10
4-Bromofluorobenzene (Surr)	101		76 - 123		06/27/20 20:32	10
Dibromofluoromethane (Surr)	103		75 - 123		06/27/20 20:32	10
Toluene-d8 (Surr)	101		77 - 120		06/27/20 20:32	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		4.0	0.84	ug/L			06/29/20 22:11	4
2-Butanone (MEK)	ND		40	5.3	ug/L			06/29/20 22:11	4
Benzene	60		4.0	1.6	ug/L			06/29/20 22:11	4
Carbon tetrachloride	ND		4.0	1.1	ug/L			06/29/20 22:11	4
Chlorobenzene	ND		4.0	3.0	ug/L			06/29/20 22:11	4
Chloroform	ND		4.0	1.4	ug/L			06/29/20 22:11	4
Tetrachloroethene	ND		4.0	1.4	ug/L			06/29/20 22:11	4
Trichloroethene	ND		4.0	1.8	ug/L			06/29/20 22:11	4

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		4.0	3.6	ug/L			06/29/20 22:11	4
1,1-Dichloroethene	ND		4.0	1.2	ug/L			06/29/20 22:11	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		77 - 120					06/29/20 22:11	4
4-Bromofluorobenzene (Surr)	106		73 - 120					06/29/20 22:11	4
Toluene-d8 (Surr)	94		80 - 120					06/29/20 22:11	4
Dibromofluoromethane (Surr)	108		75 - 123					06/29/20 22:11	4

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		200	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,2-Dichlorobenzene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,2-Diphenylhydrazine	ND		200	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,3-Dichlorobenzene	ND		200	14	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,4-Dichlorobenzene	ND		200	110	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,2'-oxybis[1-chloropropane]	ND		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4,6-Trichlorophenol	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dichlorophenol	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dimethylphenol	ND		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dinitrophenol	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dinitrotoluene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,6-Dinitrotoluene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Chloronaphthalene	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Chlorophenol	ND		100	13	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Nitrophenol	ND		100	14	ug/L		06/29/20 16:29	06/30/20 13:15	20
3,3'-Dichlorobenzidine	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
4,6-Dinitro-2-methylphenol	ND		200	13	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Bromophenyl phenyl ether	ND		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Chloro-3-methylphenol	ND		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Chlorophenyl phenyl ether	ND		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Nitrophenol	ND		300	200	ug/L		06/29/20 16:29	06/30/20 13:15	20
Acenaphthene	250		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
Acenaphthylene	ND		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
Anthracene	84 J		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzidine	ND	*1	1600	700	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[a]anthracene	47 J		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[a]pyrene	51 J		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[b]fluoranthene	26 J		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[g,h,i]perylene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[k]fluoranthene	ND		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-chloroethoxy)methane	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-chloroethyl)ether	ND		100	19	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-ethylhexyl) phthalate	ND		200	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Butyl benzyl phthalate	ND		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
Chrysene	41 J		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Dibenz(a,h)anthracene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Diethyl phthalate	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Dimethyl phthalate	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
Di-n-butyl phthalate	ND		100	32	ug/L		06/29/20 16:29	06/30/20 13:15	20

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Fluoranthene	83	J	100	32	ug/L		06/29/20 16:29	06/30/20 13:15	20
Fluorene	99	J	100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorobenzene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorobutadiene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorocyclopentadiene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachloroethane	ND		100	12	ug/L		06/29/20 16:29	06/30/20 13:15	20
Indeno[1,2,3-cd]pyrene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Isophorone	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
Naphthalene	820		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
Nitrobenzene	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodimethylamine	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodi-n-propylamine	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodiphenylamine	ND		100	7.9	ug/L		06/29/20 16:29	06/30/20 13:15	20
Pentachlorophenol	ND		200	32	ug/L		06/29/20 16:29	06/30/20 13:15	20
Phenanthrene	320		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Phenol	ND		100	7.0	ug/L		06/29/20 16:29	06/30/20 13:15	20
Pyrene	160		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		52 - 151	06/29/20 16:29	06/30/20 13:15	20
2-Fluorobiphenyl	88		44 - 120	06/29/20 16:29	06/30/20 13:15	20
2-Fluorophenol	39		17 - 120	06/29/20 16:29	06/30/20 13:15	20
Nitrobenzene-d5	76		15 - 314	06/29/20 16:29	06/30/20 13:15	20
Phenol-d5	28		8 - 424	06/29/20 16:29	06/30/20 13:15	20
p-Terphenyl-d14 (Surr)	67		22 - 125	06/29/20 16:29	06/30/20 13:15	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4,5-Trichlorophenol	ND	*	5.0	0.48	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4,6-Trichlorophenol	ND	*	5.0	0.61	ug/L		06/30/20 15:20	07/01/20 12:27	1
2-Methylphenol	0.82	J	5.0	0.40	ug/L		06/30/20 15:20	07/01/20 12:27	1
3-Methylphenol	6.2	J	10	0.40	ug/L		06/30/20 15:20	07/01/20 12:27	1
4-Methylphenol	6.2	J	10	0.36	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 12:27	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 12:27	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 12:27	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 12:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	137	X	41 - 120	06/30/20 15:20	07/01/20 12:27	1
2-Fluorobiphenyl	98		48 - 120	06/30/20 15:20	07/01/20 12:27	1
2-Fluorophenol (Surr)	75		35 - 120	06/30/20 15:20	07/01/20 12:27	1
Nitrobenzene-d5 (Surr)	104		46 - 120	06/30/20 15:20	07/01/20 12:27	1
p-Terphenyl-d14 (Surr)	89		60 - 148	06/30/20 15:20	07/01/20 12:27	1
Phenol-d5 (Surr)	53		22 - 120	06/30/20 15:20	07/01/20 12:27	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	20	X	36 - 121	07/01/20 15:48	07/03/20 03:05	1
Tetrachloro-m-xylene (Surr)	42		42 - 135	07/01/20 15:48	07/03/20 03:05	1

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	35.1		1.0	0.28	ng/L		07/01/20 11:00	07/06/20 11:45	2

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0091	J	0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:23	1
Chromium	ND		0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:23	1
Iron	3.6		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:23	1
Lead	ND		0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:23	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:22	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:22	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:22	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:22	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0076	J	0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 20:31	1
Barium	0.048	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 20:31	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 20:31	1
Chromium	ND		0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 20:31	1
Lead	ND		0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 20:31	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 20:31	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 20:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	5.3		4.7	1.3	mg/L		06/29/20 16:43	06/30/20 19:40	1
Fluoride	0.099		0.050	0.026	mg/L			06/30/20 17:37	1
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:45	1
Chemical Oxygen Demand	57.8		10.0	5.0	mg/L			06/28/20 06:50	1
Phenolics, Total Recoverable	0.044		0.010	0.0035	mg/L			07/02/20 15:45	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	194		10.0	4.0	mg/L			06/30/20 14:57	1
Chromium, hexavalent	ND	H	0.010	0.0050	mg/L			06/27/20 11:02	1
Ferrous Iron	ND	HF	0.10	0.075	mg/L			06/27/20 15:55	1
Biochemical Oxygen Demand	11.9	b	6.0	6.0	mg/L			06/27/20 06:33	1
Carbonaceous Biochemical Oxygen Demand	16.5	b	6.0	6.0	mg/L			06/27/20 06:33	1
Total Organic Carbon	14.5		1.0	0.43	mg/L			06/30/20 21:37	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	10.8		4.0	4.0	mg/L			06/27/20 11:05	1
pH	7.4	HF	0.1	0.1	SU			06/30/20 14:00	1
Temperature	19.1	HF	0.001	0.001	Degrees C			06/30/20 14:00	1

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	3.9	ug/L			06/27/20 20:57	10
1,1,2,2-Tetrachloroethane	ND		50	2.6	ug/L			06/27/20 20:57	10
1,1,2-Trichloroethane	ND		50	4.8	ug/L			06/27/20 20:57	10
1,1-Dichloroethane	ND		50	5.9	ug/L			06/27/20 20:57	10
1,1-Dichloroethene	ND		50	8.5	ug/L			06/27/20 20:57	10
1,2-Dichlorobenzene	ND		50	4.4	ug/L			06/27/20 20:57	10
1,2-Dichloroethane	ND		50	6.0	ug/L			06/27/20 20:57	10
1,2-Dichloroethene, Total	ND		100	32	ug/L			06/27/20 20:57	10
1,2-Dichloropropane	ND		50	6.1	ug/L			06/27/20 20:57	10
1,3-Dichlorobenzene	ND		50	5.4	ug/L			06/27/20 20:57	10
1,4-Dichlorobenzene	ND		50	5.1	ug/L			06/27/20 20:57	10
2-Chloroethyl vinyl ether	ND		250	19	ug/L			06/27/20 20:57	10
Acrolein	ND		1000	170	ug/L			06/27/20 20:57	10
Acrylonitrile	ND		500	19	ug/L			06/27/20 20:57	10
Benzene	73		50	6.0	ug/L			06/27/20 20:57	10
Bromoform	ND		50	4.7	ug/L			06/27/20 20:57	10
Bromomethane	ND		50	12	ug/L			06/27/20 20:57	10
Carbon tetrachloride	ND		50	5.1	ug/L			06/27/20 20:57	10
Chlorobenzene	ND		50	4.8	ug/L			06/27/20 20:57	10
Chlorodibromomethane	ND		50	4.1	ug/L			06/27/20 20:57	10
Chloroethane	ND		50	8.7	ug/L			06/27/20 20:57	10
Chloroform	ND		50	5.4	ug/L			06/27/20 20:57	10
Chloromethane	ND		50	6.4	ug/L			06/27/20 20:57	10
cis-1,3-Dichloropropene	ND		50	3.3	ug/L			06/27/20 20:57	10
Dichlorobromomethane	ND		50	5.4	ug/L			06/27/20 20:57	10
Ethylbenzene	130		50	4.6	ug/L			06/27/20 20:57	10
Methylene Chloride	ND		50	8.1	ug/L			06/27/20 20:57	10
Tetrachloroethene	ND		50	3.4	ug/L			06/27/20 20:57	10
Toluene	ND		50	4.5	ug/L			06/27/20 20:57	10
trans-1,2-Dichloroethene	ND		50	5.9	ug/L			06/27/20 20:57	10
trans-1,3-Dichloropropene	ND		50	4.4	ug/L			06/27/20 20:57	10
Trichloroethene	ND		50	6.0	ug/L			06/27/20 20:57	10
Vinyl chloride	ND		50	7.5	ug/L			06/27/20 20:57	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		68 - 130		06/27/20 20:57	10
4-Bromofluorobenzene (Surr)	99		76 - 123		06/27/20 20:57	10
Dibromofluoromethane (Surr)	102		75 - 123		06/27/20 20:57	10
Toluene-d8 (Surr)	96		77 - 120		06/27/20 20:57	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0	1.1	ug/L			06/29/20 22:34	5
2-Butanone (MEK)	ND		50	6.6	ug/L			06/29/20 22:34	5
Benzene	50		5.0	2.1	ug/L			06/29/20 22:34	5
Carbon tetrachloride	ND		5.0	1.4	ug/L			06/29/20 22:34	5
Chlorobenzene	ND		5.0	3.8	ug/L			06/29/20 22:34	5
Chloroform	ND		5.0	1.7	ug/L			06/29/20 22:34	5
Tetrachloroethene	ND		5.0	1.8	ug/L			06/29/20 22:34	5
Trichloroethene	ND		5.0	2.3	ug/L			06/29/20 22:34	5

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0	4.5	ug/L			06/29/20 22:34	5
1,1-Dichloroethene	ND		5.0	1.5	ug/L			06/29/20 22:34	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		77 - 120					06/29/20 22:34	5
4-Bromofluorobenzene (Surr)	106		73 - 120					06/29/20 22:34	5
Toluene-d8 (Surr)	97		80 - 120					06/29/20 22:34	5
Dibromofluoromethane (Surr)	106		75 - 123					06/29/20 22:34	5

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		100	8.2	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,2-Dichlorobenzene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,2-Diphenylhydrazine	ND		100	7.8	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,3-Dichlorobenzene	ND		100	6.9	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,4-Dichlorobenzene	ND		100	56	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,2'-oxybis[1-chloropropane]	ND		50	8.4	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4,6-Trichlorophenol	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dichlorophenol	ND		50	7.7	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dimethylphenol	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dinitrophenol	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dinitrotoluene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,6-Dinitrotoluene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Chloronaphthalene	ND		50	9.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Chlorophenol	ND		50	6.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Nitrophenol	ND		50	7.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
3,3'-Dichlorobenzidine	ND		50	8.2	ug/L		06/29/20 16:29	06/30/20 13:39	10
4,6-Dinitro-2-methylphenol	ND		100	6.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Bromophenyl phenyl ether	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Chloro-3-methylphenol	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Chlorophenyl phenyl ether	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Nitrophenol	ND		150	100	ug/L		06/29/20 16:29	06/30/20 13:39	10
Acenaphthene	12 J		50	8.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
Acenaphthylene	ND		50	8.7	ug/L		06/29/20 16:29	06/30/20 13:39	10
Anthracene	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzidine	ND	*1	800	350	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[a]anthracene	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[a]pyrene	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[b]fluoranthene	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[g,h,i]perylene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[k]fluoranthene	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-chloroethoxy)methane	ND		50	7.5	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-chloroethyl)ether	ND		50	9.3	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-ethylhexyl) phthalate	33 J		100	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Butyl benzyl phthalate	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
Chrysene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Dibenz(a,h)anthracene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Diethyl phthalate	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Dimethyl phthalate	ND		50	9.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
Di-n-butyl phthalate	ND		50	16	ug/L		06/29/20 16:29	06/30/20 13:39	10

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Fluoranthene	ND		50	16	ug/L		06/29/20 16:29	06/30/20 13:39	10
Fluorene	11	J	50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorobenzene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorobutadiene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorocyclopentadiene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachloroethane	ND		50	6.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
Indeno[1,2,3-cd]pyrene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Isophorone	ND		50	7.4	ug/L		06/29/20 16:29	06/30/20 13:39	10
Naphthalene	ND		50	8.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
Nitrobenzene	ND		50	8.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodimethylamine	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodi-n-propylamine	ND		50	8.9	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodiphenylamine	ND		50	4.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
Pentachlorophenol	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:39	10
Phenanthrene	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Phenol	ND		50	3.5	ug/L		06/29/20 16:29	06/30/20 13:39	10
Pyrene	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		52 - 151	06/29/20 16:29	06/30/20 13:39	10
2-Fluorobiphenyl	82		44 - 120	06/29/20 16:29	06/30/20 13:39	10
2-Fluorophenol	43		17 - 120	06/29/20 16:29	06/30/20 13:39	10
Nitrobenzene-d5	78		15 - 314	06/29/20 16:29	06/30/20 13:39	10
Phenol-d5	30		8 - 424	06/29/20 16:29	06/30/20 13:39	10
p-Terphenyl-d14 (Surr)	88		22 - 125	06/29/20 16:29	06/30/20 13:39	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4,5-Trichlorophenol	ND	*	5.0	0.48	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4,6-Trichlorophenol	ND	*	5.0	0.61	ug/L		06/30/20 15:20	07/01/20 12:56	1
2-Methylphenol	2.6	J	5.0	0.40	ug/L		06/30/20 15:20	07/01/20 12:56	1
3-Methylphenol	ND		10	0.40	ug/L		06/30/20 15:20	07/01/20 12:56	1
4-Methylphenol	ND		10	0.36	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 12:56	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 12:56	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 12:56	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	148	X	41 - 120	06/30/20 15:20	07/01/20 12:56	1
2-Fluorobiphenyl	116		48 - 120	06/30/20 15:20	07/01/20 12:56	1
2-Fluorophenol (Surr)	80		35 - 120	06/30/20 15:20	07/01/20 12:56	1
Nitrobenzene-d5 (Surr)	112		46 - 120	06/30/20 15:20	07/01/20 12:56	1
p-Terphenyl-d14 (Surr)	118		60 - 148	06/30/20 15:20	07/01/20 12:56	1
Phenol-d5 (Surr)	60		22 - 120	06/30/20 15:20	07/01/20 12:56	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	25	X	36 - 121	07/01/20 15:48	07/03/20 03:18	1
Tetrachloro-m-xylene (Surr)	57		42 - 135	07/01/20 15:48	07/03/20 03:18	1

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.8		0.50	0.14	ng/L		07/01/20 11:00	07/06/20 11:59	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:19	1
Chromium	0.0022	J	0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:19	1
Iron	1.3		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:19	1
Lead	0.0047	J	0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:19	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:40	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:40	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:40	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 20:35	1
Barium	0.034	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 20:35	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 20:35	1
Chromium	0.0021	J	0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 20:35	1
Lead	0.0040	J	0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 20:35	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 20:35	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 20:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	2.9	J	4.8	1.3	mg/L		06/29/20 16:43	06/30/20 19:40	1
Fluoride	0.17		0.10	0.052	mg/L			06/30/20 17:51	2
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:47	1
Chemical Oxygen Demand	858		100	50.0	mg/L			07/01/20 17:59	10
Phenolics, Total Recoverable	0.040		0.010	0.0035	mg/L			07/02/20 15:48	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	387		10.0	4.0	mg/L			06/30/20 14:57	1
Chromium, hexavalent	ND	H	0.010	0.0050	mg/L			06/27/20 11:02	1
Ferrous Iron	ND	HF	0.10	0.075	mg/L			06/27/20 15:55	1
Biochemical Oxygen Demand	99.6	b	60.0	60.0	mg/L			06/27/20 06:33	1
Carbonaceous Biochemical Oxygen Demand	98.8	b	24.0	24.0	mg/L			06/27/20 06:33	1
Total Organic Carbon	183		4.0	1.7	mg/L			07/02/20 20:34	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	16.4		4.0	4.0	mg/L			06/27/20 11:05	1
pH	7.5	HF	0.1	0.1	SU			06/30/20 14:03	1
Temperature	19.3	HF	0.001	0.001	Degrees C			06/30/20 14:03	1

Surrogate Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	DBFM (75-123)	TOL (77-120)
480-171773-1	GEOBAG FILTRATE	103	101	103	101
480-171773-2	FILTER PRESS FILTRATE	99	99	102	96
LCS 480-538351/5	Lab Control Sample	101	103	100	100
MB 480-538351/7	Method Blank	101	101	103	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 TOL = Toluene-d8 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (77-120)	BFB (73-120)	TOL (80-120)	DBFM (75-123)
480-171773-1	GEOBAG FILTRATE	112	106	94	108
480-171773-2	FILTER PRESS FILTRATE	107	106	97	106
LCS 480-538566/5	Lab Control Sample	108	109	96	110
MB 480-538566/7	Method Blank	110	105	96	111

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (Surr)

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TBP (52-151)	FBP (44-120)	2FP (17-120)	NBZ (15-314)	PHL (8-424)	TPHd14 (22-125)
480-171773-1	GEOBAG FILTRATE	94	88	39	76	28	67
480-171773-2	FILTER PRESS FILTRATE	94	82	43	78	30	88
LCS 480-538584/2-A	Lab Control Sample	121	85	50	87	35	108
LCSD 480-538584/3-A	Lab Control Sample Dup	110	86	46	85	33	107
MB 480-538584/1-A	Method Blank	110	89	51	92	35	109

Surrogate Legend

TBP = 2,4,6-Tribromophenol
 FBP = 2-Fluorobiphenyl
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5
 PHL = Phenol-d5
 TPHd14 = p-Terphenyl-d14 (Surr)

Surrogate Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TBP	FBP	2FP	NBZ	TPHd14	PHL
		(41-120)	(48-120)	(35-120)	(46-120)	(60-148)	(22-120)
480-171773-1	GEOBAG FILTRATE	137 X	98	75	104	89	53
480-171773-2	FILTER PRESS FILTRATE	148 X	116	80	112	118	60
LCS 480-538762/2-A	Lab Control Sample	130 X	105	84	105	112	65
MB 480-538762/1-A	Method Blank	104	106	79	104	112	56

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCBP1	TCX1
		(36-121)	(42-135)
480-171773-1	GEOBAG FILTRATE	20 X	42
480-171773-2	FILTER PRESS FILTRATE	25 X	57
LCS 480-538962/2-A	Lab Control Sample	43	72
LCSD 480-538962/3-A	Lab Control Sample Dup	44	65
MB 480-538962/1-A	Method Blank	47	71

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene (Surr)

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-538351/7
Matrix: Water
Analysis Batch: 538351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.39	ug/L			06/27/20 14:04	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.26	ug/L			06/27/20 14:04	1
1,1,2-Trichloroethane	ND		5.0	0.48	ug/L			06/27/20 14:04	1
1,1-Dichloroethane	ND		5.0	0.59	ug/L			06/27/20 14:04	1
1,1-Dichloroethene	ND		5.0	0.85	ug/L			06/27/20 14:04	1
1,2-Dichlorobenzene	ND		5.0	0.44	ug/L			06/27/20 14:04	1
1,2-Dichloroethane	ND		5.0	0.60	ug/L			06/27/20 14:04	1
1,2-Dichloroethene, Total	ND		10	3.2	ug/L			06/27/20 14:04	1
1,2-Dichloropropane	ND		5.0	0.61	ug/L			06/27/20 14:04	1
1,3-Dichlorobenzene	ND		5.0	0.54	ug/L			06/27/20 14:04	1
1,4-Dichlorobenzene	ND		5.0	0.51	ug/L			06/27/20 14:04	1
2-Chloroethyl vinyl ether	ND		25	1.9	ug/L			06/27/20 14:04	1
Acrolein	ND		100	17	ug/L			06/27/20 14:04	1
Acrylonitrile	ND		50	1.9	ug/L			06/27/20 14:04	1
Benzene	ND		5.0	0.60	ug/L			06/27/20 14:04	1
Bromoform	ND		5.0	0.47	ug/L			06/27/20 14:04	1
Bromomethane	ND		5.0	1.2	ug/L			06/27/20 14:04	1
Carbon tetrachloride	ND		5.0	0.51	ug/L			06/27/20 14:04	1
Chlorobenzene	ND		5.0	0.48	ug/L			06/27/20 14:04	1
Chlorodibromomethane	ND		5.0	0.41	ug/L			06/27/20 14:04	1
Chloroethane	ND		5.0	0.87	ug/L			06/27/20 14:04	1
Chloroform	ND		5.0	0.54	ug/L			06/27/20 14:04	1
Chloromethane	ND		5.0	0.64	ug/L			06/27/20 14:04	1
cis-1,3-Dichloropropene	ND		5.0	0.33	ug/L			06/27/20 14:04	1
Dichlorobromomethane	ND		5.0	0.54	ug/L			06/27/20 14:04	1
Ethylbenzene	ND		5.0	0.46	ug/L			06/27/20 14:04	1
Methylene Chloride	ND		5.0	0.81	ug/L			06/27/20 14:04	1
Tetrachloroethene	ND		5.0	0.34	ug/L			06/27/20 14:04	1
Toluene	ND		5.0	0.45	ug/L			06/27/20 14:04	1
trans-1,2-Dichloroethene	ND		5.0	0.59	ug/L			06/27/20 14:04	1
trans-1,3-Dichloropropene	ND		5.0	0.44	ug/L			06/27/20 14:04	1
Trichloroethene	ND		5.0	0.60	ug/L			06/27/20 14:04	1
Vinyl chloride	ND		5.0	0.75	ug/L			06/27/20 14:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		68 - 130		06/27/20 14:04	1
4-Bromofluorobenzene (Surr)	101		76 - 123		06/27/20 14:04	1
Dibromofluoromethane (Surr)	103		75 - 123		06/27/20 14:04	1
Toluene-d8 (Surr)	97		77 - 120		06/27/20 14:04	1

Lab Sample ID: LCS 480-538351/5
Matrix: Water
Analysis Batch: 538351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	19.3		ug/L		96	52 - 162
1,1,2,2-Tetrachloroethane	20.0	19.6		ug/L		98	46 - 157
1,1,2-Trichloroethane	20.0	20.0		ug/L		100	52 - 150

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-538351/5
Matrix: Water
Analysis Batch: 538351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	20.0	19.0		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	19.6		ug/L		98	1 - 234
1,2-Dichlorobenzene	20.0	19.4		ug/L		97	18 - 190
1,2-Dichloroethane	20.0	18.6		ug/L		93	49 - 155
1,2-Dichloropropane	20.0	18.8		ug/L		94	1 - 210
1,3-Dichlorobenzene	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	20.0	19.0		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	19.7	J	ug/L		99	1 - 305
Benzene	20.0	19.1		ug/L		96	37 - 151
Bromoform	20.0	19.6		ug/L		98	45 - 169
Bromomethane	20.0	19.1		ug/L		95	1 - 242
Carbon tetrachloride	20.0	19.4		ug/L		97	70 - 140
Chlorobenzene	20.0	18.9		ug/L		95	37 - 160
Chlorodibromomethane	20.0	19.2		ug/L		96	53 - 149
Chloroethane	20.0	19.5		ug/L		98	14 - 230
Chloroform	20.0	18.9		ug/L		95	51 - 138
Chloromethane	20.0	18.5		ug/L		93	1 - 273
cis-1,3-Dichloropropene	20.0	19.2		ug/L		96	1 - 227
Dichlorobromomethane	20.0	18.9		ug/L		94	35 - 155
Ethylbenzene	20.0	19.3		ug/L		96	37 - 162
Methylene Chloride	20.0	18.1		ug/L		90	1 - 221
Tetrachloroethene	20.0	19.2		ug/L		96	64 - 148
Toluene	20.0	19.1		ug/L		96	47 - 150
trans-1,2-Dichloroethene	20.0	18.9		ug/L		94	54 - 156
trans-1,3-Dichloropropene	20.0	19.5		ug/L		97	17 - 183
Trichloroethene	20.0	18.8		ug/L		94	71 - 157
Vinyl chloride	20.0	19.0		ug/L		95	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Dibromofluoromethane (Surr)	100		75 - 123
Toluene-d8 (Surr)	100		77 - 120

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

Lab Sample ID: MB 480-538566/7
Matrix: Water
Analysis Batch: 538566

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/29/20 17:07	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/29/20 17:07	1
Benzene	ND		1.0	0.41	ug/L			06/29/20 17:07	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/29/20 17:07	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/29/20 17:07	1
Chloroform	ND		1.0	0.34	ug/L			06/29/20 17:07	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/29/20 17:07	1
Trichloroethene	ND		1.0	0.46	ug/L			06/29/20 17:07	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Lab Sample ID: MB 480-538566/7
Matrix: Water
Analysis Batch: 538566

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0	0.90	ug/L			06/29/20 17:07	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/29/20 17:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		77 - 120		06/29/20 17:07	1
4-Bromofluorobenzene (Surr)	105		73 - 120		06/29/20 17:07	1
Toluene-d8 (Surr)	96		80 - 120		06/29/20 17:07	1
Dibromofluoromethane (Surr)	111		75 - 123		06/29/20 17:07	1

Lab Sample ID: LCS 480-538566/5
Matrix: Water
Analysis Batch: 538566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	27.5		ug/L		110	75 - 120
2-Butanone (MEK)	125	126		ug/L		101	57 - 140
Benzene	25.0	21.8		ug/L		87	71 - 124
Carbon tetrachloride	25.0	29.4		ug/L		118	72 - 134
Chlorobenzene	25.0	22.8		ug/L		91	80 - 120
Chloroform	25.0	25.1		ug/L		100	73 - 127
Tetrachloroethene	25.0	24.7		ug/L		99	74 - 122
Trichloroethene	25.0	23.8		ug/L		95	74 - 123
Vinyl chloride	25.0	25.1		ug/L		100	65 - 133
1,1-Dichloroethene	25.0	23.9		ug/L		96	66 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		77 - 120
4-Bromofluorobenzene (Surr)	109		73 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	110		75 - 123

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		10	0.82	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,2-Dichlorobenzene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,2-Diphenylhydrazine	ND		10	0.78	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,3-Dichlorobenzene	ND		10	0.69	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,4-Dichlorobenzene	ND		10	5.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,2'-oxybis[1-chloropropane]	ND		5.0	0.84	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4,6-Trichlorophenol	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dichlorophenol	ND		5.0	0.77	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dimethylphenol	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dinitrophenol	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4-Dinitrotoluene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,6-Dinitrotoluene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Chloronaphthalene	ND		5.0	0.91	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Chlorophenol	ND		5.0	0.66	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Nitrophenol	ND		5.0	0.70	ug/L		06/29/20 16:29	06/30/20 11:38	1
3,3'-Dichlorobenzidine	ND		5.0	0.82	ug/L		06/29/20 16:29	06/30/20 11:38	1
4,6-Dinitro-2-methylphenol	ND		10	0.66	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Bromophenyl phenyl ether	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Chloro-3-methylphenol	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Chlorophenyl phenyl ether	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Nitrophenol	ND		15	10	ug/L		06/29/20 16:29	06/30/20 11:38	1
Acenaphthene	ND		5.0	0.81	ug/L		06/29/20 16:29	06/30/20 11:38	1
Acenaphthylene	ND		5.0	0.87	ug/L		06/29/20 16:29	06/30/20 11:38	1
Anthracene	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzidine	ND		80	35	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[a]anthracene	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[a]pyrene	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[b]fluoranthene	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[g,h,i]perylene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[k]fluoranthene	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-chloroethoxy)methane	ND		5.0	0.75	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-chloroethyl)ether	ND		5.0	0.93	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-ethylhexyl) phthalate	ND		10	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Butyl benzyl phthalate	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
Chrysene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Dibenz(a,h)anthracene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Diethyl phthalate	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Dimethyl phthalate	ND		5.0	0.91	ug/L		06/29/20 16:29	06/30/20 11:38	1
Di-n-butyl phthalate	ND		5.0	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Di-n-octyl phthalate	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Fluoranthene	ND		5.0	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Fluorene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorobenzene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorobutadiene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorocyclopentadiene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachloroethane	ND		5.0	0.60	ug/L		06/29/20 16:29	06/30/20 11:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Isophorone	ND		5.0	0.74	ug/L		06/29/20 16:29	06/30/20 11:38	1
Naphthalene	ND		5.0	0.86	ug/L		06/29/20 16:29	06/30/20 11:38	1
Nitrobenzene	ND		5.0	0.81	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodimethylamine	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodi-n-propylamine	ND		5.0	0.89	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodiphenylamine	ND		5.0	0.40	ug/L		06/29/20 16:29	06/30/20 11:38	1
Pentachlorophenol	ND		10	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Phenanthrene	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Phenol	ND		5.0	0.35	ug/L		06/29/20 16:29	06/30/20 11:38	1
Pyrene	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol	110		52 - 151	06/29/20 16:29	06/30/20 11:38	1
2-Fluorobiphenyl	89		44 - 120	06/29/20 16:29	06/30/20 11:38	1
2-Fluorophenol	51		17 - 120	06/29/20 16:29	06/30/20 11:38	1
Nitrobenzene-d5	92		15 - 314	06/29/20 16:29	06/30/20 11:38	1
Phenol-d5	35		8 - 424	06/29/20 16:29	06/30/20 11:38	1
p-Terphenyl-d14 (Surr)	109		22 - 125	06/29/20 16:29	06/30/20 11:38	1

Lab Sample ID: LCS 480-538584/2-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,4-Trichlorobenzene	50.0	39.3		ug/L		79	44 - 142
1,2-Dichlorobenzene	50.0	34.7		ug/L		69	32 - 129
1,2-Diphenylhydrazine	50.0	50.2		ug/L		100	47 - 146
1,3-Dichlorobenzene	50.0	32.3		ug/L		65	1 - 172
1,4-Dichlorobenzene	50.0	33.6		ug/L		67	20 - 124
2,2'-oxybis[1-chloropropane]	50.0	40.9		ug/L		82	36 - 166
2,4,6-Trichlorophenol	50.0	52.8		ug/L		106	37 - 144
2,4-Dichlorophenol	50.0	48.9		ug/L		98	39 - 135
2,4-Dimethylphenol	50.0	47.6		ug/L		95	32 - 120
2,4-Dinitrophenol	100	125		ug/L		125	1 - 191
2,4-Dinitrotoluene	50.0	52.7		ug/L		105	39 - 139
2,6-Dinitrotoluene	50.0	51.8		ug/L		104	50 - 158
2-Chloronaphthalene	50.0	43.9		ug/L		88	60 - 120
2-Chlorophenol	50.0	39.9		ug/L		80	23 - 134
2-Nitrophenol	50.0	51.3		ug/L		103	29 - 182
3,3'-Dichlorobenzidine	100	108		ug/L		108	1 - 262
4,6-Dinitro-2-methylphenol	100	115		ug/L		115	1 - 181
4-Bromophenyl phenyl ether	50.0	51.7		ug/L		103	53 - 127
4-Chloro-3-methylphenol	50.0	51.3		ug/L		103	22 - 147
4-Chlorophenyl phenyl ether	50.0	48.1		ug/L		96	25 - 158
4-Nitrophenol	100	51.6		ug/L		52	1 - 132
Acenaphthene	50.0	47.0		ug/L		94	47 - 145
Acenaphthylene	50.0	47.7		ug/L		95	33 - 145
Anthracene	50.0	52.0		ug/L		104	27 - 133
Benzidine	100	36.5	J	ug/L		36	1 - 120
Benzo[a]anthracene	50.0	50.8		ug/L		102	33 - 143
Benzo[a]pyrene	50.0	51.9		ug/L		104	17 - 163
Benzo[b]fluoranthene	50.0	52.1		ug/L		104	24 - 159
Benzo[g,h,i]perylene	50.0	52.6		ug/L		105	1 - 219
Benzo[k]fluoranthene	50.0	52.1		ug/L		104	11 - 162
Bis(2-chloroethoxy)methane	50.0	44.4		ug/L		89	33 - 184
Bis(2-chloroethyl)ether	50.0	40.7		ug/L		81	12 - 158
Bis(2-ethylhexyl) phthalate	50.0	53.5		ug/L		107	8 - 158
Butyl benzyl phthalate	50.0	54.7		ug/L		109	1 - 152
Chrysene	50.0	49.9		ug/L		100	17 - 168
Dibenz(a,h)anthracene	50.0	53.1		ug/L		106	1 - 227

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-538584/2-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diethyl phthalate	50.0	50.7		ug/L		101	1 - 120
Dimethyl phthalate	50.0	49.2		ug/L		98	1 - 120
Di-n-butyl phthalate	50.0	55.1		ug/L		110	1 - 120
Di-n-octyl phthalate	50.0	55.2		ug/L		110	4 - 146
Fluoranthene	50.0	53.7		ug/L		107	26 - 137
Fluorene	50.0	47.3		ug/L		95	59 - 121
Hexachlorobenzene	50.0	51.5		ug/L		103	1 - 152
Hexachlorobutadiene	50.0	38.3		ug/L		77	24 - 120
Hexachlorocyclopentadiene	50.0	42.5		ug/L		85	5 - 120
Hexachloroethane	50.0	33.9		ug/L		68	40 - 120
Indeno[1,2,3-cd]pyrene	50.0	53.8		ug/L		108	1 - 171
Isophorone	50.0	47.1		ug/L		94	21 - 196
Naphthalene	50.0	41.7		ug/L		83	21 - 133
Nitrobenzene	50.0	44.5		ug/L		89	35 - 180
N-Nitrosodimethylamine	50.0	22.8		ug/L		46	19 - 120
N-Nitrosodi-n-propylamine	50.0	45.0		ug/L		90	1 - 230
N-Nitrosodiphenylamine	50.0	52.2		ug/L		104	54 - 125
Pentachlorophenol	100	117		ug/L		117	14 - 176
Phenanthrene	50.0	50.6		ug/L		101	54 - 120
Phenol	50.0	19.7		ug/L		39	5 - 120
Pyrene	50.0	50.6		ug/L		101	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	121		52 - 151
2-Fluorobiphenyl	85		44 - 120
2-Fluorophenol	50		17 - 120
Nitrobenzene-d5	87		15 - 314
Phenol-d5	35		8 - 424
p-Terphenyl-d14 (Surr)	108		22 - 125

Lab Sample ID: LCSD 480-538584/3-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	50.0	40.4		ug/L		81	44 - 142	3	34
1,2-Dichlorobenzene	50.0	34.9		ug/L		70	32 - 129	0	38
1,2-Diphenylhydrazine	50.0	49.6		ug/L		99	47 - 146	1	20
1,3-Dichlorobenzene	50.0	33.5		ug/L		67	1 - 172	4	37
1,4-Dichlorobenzene	50.0	34.0		ug/L		68	20 - 124	1	40
2,2'-oxybis[1-chloropropane]	50.0	39.1		ug/L		78	36 - 166	4	36
2,4,6-Trichlorophenol	50.0	54.0		ug/L		108	37 - 144	2	20
2,4-Dichlorophenol	50.0	48.4		ug/L		97	39 - 135	1	23
2,4-Dimethylphenol	50.0	46.1		ug/L		92	32 - 120	3	18
2,4-Dinitrophenol	100	127		ug/L		127	1 - 191	1	29
2,4-Dinitrotoluene	50.0	53.7		ug/L		107	39 - 139	2	20
2,6-Dinitrotoluene	50.0	52.9		ug/L		106	50 - 158	2	17
2-Chloronaphthalene	50.0	44.9		ug/L		90	60 - 120	2	30

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-538584/3-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chlorophenol	50.0	38.6		ug/L		77	23 - 134	4	26
2-Nitrophenol	50.0	48.8		ug/L		98	29 - 182	5	28
3,3'-Dichlorobenzidine	100	106		ug/L		106	1 - 262	2	31
4,6-Dinitro-2-methylphenol	100	113		ug/L		113	1 - 181	2	30
4-Bromophenyl phenyl ether	50.0	50.4		ug/L		101	53 - 127	3	16
4-Chloro-3-methylphenol	50.0	48.6		ug/L		97	22 - 147	5	16
4-Chlorophenyl phenyl ether	50.0	48.0		ug/L		96	25 - 158	0	15
4-Nitrophenol	100	51.2		ug/L		51	1 - 132	1	24
Acenaphthene	50.0	47.4		ug/L		95	47 - 145	1	25
Acenaphthylene	50.0	48.0		ug/L		96	33 - 145	1	22
Anthracene	50.0	49.6		ug/L		99	27 - 133	5	15
Benzidine	100	61.3	J *1	ug/L		61	1 - 120	51	50
Benzo[a]anthracene	50.0	50.5		ug/L		101	33 - 143	1	15
Benzo[a]pyrene	50.0	53.0		ug/L		106	17 - 163	2	15
Benzo[b]fluoranthene	50.0	56.9		ug/L		114	24 - 159	9	17
Benzo[g,h,i]perylene	50.0	52.8		ug/L		106	1 - 219	0	19
Benzo[k]fluoranthene	50.0	49.5		ug/L		99	11 - 162	5	19
Bis(2-chloroethoxy)methane	50.0	45.3		ug/L		91	33 - 184	2	23
Bis(2-chloroethyl)ether	50.0	40.1		ug/L		80	12 - 158	1	33
Bis(2-ethylhexyl) phthalate	50.0	54.0		ug/L		108	8 - 158	1	15
Butyl benzyl phthalate	50.0	53.3		ug/L		107	1 - 152	3	15
Chrysene	50.0	50.2		ug/L		100	17 - 168	0	15
Dibenz(a,h)anthracene	50.0	53.1		ug/L		106	1 - 227	0	18
Diethyl phthalate	50.0	50.9		ug/L		102	1 - 120	0	15
Dimethyl phthalate	50.0	50.0		ug/L		100	1 - 120	2	15
Di-n-butyl phthalate	50.0	54.1		ug/L		108	1 - 120	2	15
Di-n-octyl phthalate	50.0	56.1		ug/L		112	4 - 146	2	15
Fluoranthene	50.0	51.8		ug/L		104	26 - 137	4	15
Fluorene	50.0	48.4		ug/L		97	59 - 121	2	18
Hexachlorobenzene	50.0	49.3		ug/L		99	1 - 152	4	15
Hexachlorobutadiene	50.0	38.0		ug/L		76	24 - 120	1	50
Hexachlorocyclopentadiene	50.0	43.3		ug/L		87	5 - 120	2	50
Hexachloroethane	50.0	33.1		ug/L		66	40 - 120	2	43
Indeno[1,2,3-cd]pyrene	50.0	53.4		ug/L		107	1 - 171	1	17
Isophorone	50.0	45.8		ug/L		92	21 - 196	3	21
Naphthalene	50.0	41.3		ug/L		83	21 - 133	1	31
Nitrobenzene	50.0	43.1		ug/L		86	35 - 180	3	27
N-Nitrosodimethylamine	50.0	21.8		ug/L		44	19 - 120	5	22
N-Nitrosodi-n-propylamine	50.0	43.9		ug/L		88	1 - 230	3	23
N-Nitrosodiphenylamine	50.0	49.8		ug/L		100	54 - 125	5	15
Pentachlorophenol	100	115		ug/L		115	14 - 176	2	21
Phenanthrene	50.0	49.4		ug/L		99	54 - 120	2	16
Phenol	50.0	18.8		ug/L		38	5 - 120	5	36
Pyrene	50.0	50.2		ug/L		100	52 - 120	1	15

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2,4,6-Tribromophenol	110		52 - 151
2-Fluorobiphenyl	86		44 - 120

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-538584/3-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 538584

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Fluorophenol	46		17 - 120
Nitrobenzene-d5	85		15 - 314
Phenol-d5	33		8 - 424
p-Terphenyl-d14 (Surr)	107		22 - 125

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

Lab Sample ID: MB 480-538762/1-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		06/30/20 15:20	07/01/20 11:29	1
2-Methylphenol	ND		5.0	0.40	ug/L		06/30/20 15:20	07/01/20 11:29	1
3-Methylphenol	ND		10	0.40	ug/L		06/30/20 15:20	07/01/20 11:29	1
4-Methylphenol	ND		10	0.36	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 11:29	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 11:29	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 11:29	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 11:29	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	104		41 - 120	06/30/20 15:20	07/01/20 11:29	1
2-Fluorobiphenyl	106		48 - 120	06/30/20 15:20	07/01/20 11:29	1
2-Fluorophenol (Surr)	79		35 - 120	06/30/20 15:20	07/01/20 11:29	1
Nitrobenzene-d5 (Surr)	104		46 - 120	06/30/20 15:20	07/01/20 11:29	1
p-Terphenyl-d14 (Surr)	112		60 - 148	06/30/20 15:20	07/01/20 11:29	1
Phenol-d5 (Surr)	56		22 - 120	06/30/20 15:20	07/01/20 11:29	1

Lab Sample ID: LCS 480-538762/2-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dichlorobenzene	32.0	29.8		ug/L		93	51 - 120
2,4-Dinitrotoluene	32.0	35.7		ug/L		112	69 - 120
2,4,5-Trichlorophenol	32.0	41.8	*	ug/L		131	65 - 126
2,4,6-Trichlorophenol	32.0	39.3	*	ug/L		123	64 - 120
2-Methylphenol	32.0	32.8		ug/L		102	39 - 120
3-Methylphenol	32.0	31.2		ug/L		98	39 - 120
4-Methylphenol	32.0	31.2		ug/L		97	29 - 131
Hexachlorobenzene	32.0	35.5		ug/L		111	61 - 120
Hexachlorobutadiene	32.0	33.3		ug/L		104	35 - 120

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Lab Sample ID: LCS 480-538762/2-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachloroethane	32.0	28.5		ug/L		89	43 - 120
Nitrobenzene	32.0	33.5		ug/L		105	53 - 123
Pentachlorophenol	64.0	64.2		ug/L		100	29 - 136
Pyridine	64.0	34.6		ug/L		54	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	130	X	41 - 120
2-Fluorobiphenyl	105		48 - 120
2-Fluorophenol (Surr)	84		35 - 120
Nitrobenzene-d5 (Surr)	105		46 - 120
p-Terphenyl-d14 (Surr)	112		60 - 148
Phenol-d5 (Surr)	65		22 - 120

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 480-538962/1-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538962

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/02/20 22:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	47		36 - 121	07/01/20 15:48	07/02/20 22:20	1
Tetrachloro-m-xylene (Surr)	71		42 - 135	07/01/20 15:48	07/02/20 22:20	1

Lab Sample ID: LCS 480-538962/2-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.00	0.978		ug/L		98	69 - 123
PCB-1260	1.00	0.905		ug/L		91	69 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	43		36 - 121
Tetrachloro-m-xylene (Surr)	72		42 - 135

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCSD 480-538962/3-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 538962

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	1.00	0.953		ug/L		95	69 - 123	3	30
PCB-1260	1.00	0.899		ug/L		90	69 - 120	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	44		36 - 121
Tetrachloro-m-xylene (Surr)	65		42 - 135

Method: 1631E - Mercury, Low Level (CVAFS)

Lab Sample ID: MB 240-440889/1-A
Matrix: Water
Analysis Batch: 441110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.50	0.14	ng/L		07/01/20 11:00	07/02/20 10:32	1

Lab Sample ID: LCS 240-440889/2-A
Matrix: Water
Analysis Batch: 441110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	5.00	4.96		ng/L		99	77 - 123

Lab Sample ID: 480-171773-1 MS
Matrix: Water
Analysis Batch: 441337

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	35.1		10.0	44.32		ng/L		92	71 - 125

Lab Sample ID: 480-171773-1 MSD
Matrix: Water
Analysis Batch: 441337

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	35.1		10.0	44.26		ng/L		91	71 - 125	0	24

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-538451/1-A
Matrix: Water
Analysis Batch: 538638

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538451

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:00	1
Chromium	ND		0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:00	1
Iron	ND		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:00	1
Lead	ND		0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:00	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-538451/2-A
Matrix: Water
Analysis Batch: 538638

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538451
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.200	0.209		mg/L		104	85 - 115
Chromium	0.200	0.207		mg/L		103	85 - 115
Iron	10.0	10.26		mg/L		103	85 - 115
Lead	0.200	0.203		mg/L		102	85 - 115

Lab Sample ID: MB 480-538744/1-C
Matrix: Water
Analysis Batch: 539257

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 538920

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:03	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:03	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:03	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:03	1

Lab Sample ID: LCS 480-538744/2-C
Matrix: Water
Analysis Batch: 539257

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic, Dissolved	0.200	0.203		mg/L		101	85 - 115
Chromium, Dissolved	0.200	0.201		mg/L		100	85 - 115
Iron, Dissolved	10.0	10.00		mg/L		100	85 - 115
Lead, Dissolved	0.200	0.197		mg/L		99	85 - 115

Lab Sample ID: 480-171773-1 MS
Matrix: Water
Analysis Batch: 539257

Client Sample ID: GEOBAG FILTRATE
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic, Dissolved	ND		0.200	0.207		mg/L		104	70 - 130
Chromium, Dissolved	ND		0.200	0.199		mg/L		99	70 - 130
Iron, Dissolved	ND		10.0	9.92		mg/L		99	70 - 130
Lead, Dissolved	ND		0.200	0.199		mg/L		99	70 - 130

Lab Sample ID: 480-171773-1 MSD
Matrix: Water
Analysis Batch: 539257

Client Sample ID: GEOBAG FILTRATE
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic, Dissolved	ND		0.200	0.212		mg/L		106	70 - 130	2	20
Chromium, Dissolved	ND		0.200	0.199		mg/L		100	70 - 130	0	20
Iron, Dissolved	ND		10.0	9.98		mg/L		100	70 - 130	1	20
Lead, Dissolved	ND		0.200	0.200		mg/L		100	70 - 130	1	20

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-539037/1-A
Matrix: Water
Analysis Batch: 539260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 539037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 19:21	1
Barium	ND	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 19:21	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 19:21	1
Chromium	ND		0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 19:21	1
Lead	ND		0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 19:21	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 19:21	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 19:21	1

Lab Sample ID: LCS 480-539037/2-A
Matrix: Water
Analysis Batch: 539260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 539037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.200	0.202		mg/L		101	80 - 120
Barium	0.200	0.211	^	mg/L		106	80 - 120
Cadmium	0.200	0.198		mg/L		99	80 - 120
Chromium	0.200	0.200		mg/L		100	80 - 120
Lead	0.200	0.195		mg/L		98	80 - 120
Selenium	0.200	0.195		mg/L		97	80 - 120
Silver	0.0500	0.0482		mg/L		96	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-538722/1-A
Matrix: Water
Analysis Batch: 538883

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:51	1

Lab Sample ID: LCS 480-538722/2-A
Matrix: Water
Analysis Batch: 538883

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00667	0.00688		mg/L		103	80 - 120

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 480-538587/1-A
Matrix: Water
Analysis Batch: 538602

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538587

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	ND		5.0	1.4	mg/L		06/29/20 16:43	06/30/20 19:40	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 1664B - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 480-538587/2-A
 Matrix: Water
 Analysis Batch: 538602

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538587
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Oil & Grease	40.0	34.00		mg/L		85	78 - 114

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-538674/4
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.026	mg/L			06/30/20 13:22	1

Lab Sample ID: LCS 480-538674/3
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Fluoride	5.00	4.63		mg/L		93	90 - 110

Lab Sample ID: 480-171773-2 MS
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: FILTER PRESS FILTRATE
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Fluoride	0.17		10.0	9.50		mg/L		93	82 - 120

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 480-538713/1-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 538713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:18	1

Lab Sample ID: LCS 480-538713/2-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538713
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.400	0.423		mg/L		106	90 - 110

Lab Sample ID: LCS 480-538713/3-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538713
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.250	0.255		mg/L		102	90 - 110

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 410.4 - COD

Lab Sample ID: MB 480-538470/52
Matrix: Water
Analysis Batch: 538470

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10.0	5.0	mg/L			06/28/20 06:29	1

Lab Sample ID: LCS 480-538470/53
Matrix: Water
Analysis Batch: 538470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.60		mg/L		102	90 - 110

Lab Sample ID: MB 480-539130/4
Matrix: Water
Analysis Batch: 539130

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10.0	5.0	mg/L			07/01/20 17:59	1

Lab Sample ID: LCS 480-539130/5
Matrix: Water
Analysis Batch: 539130

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	24.36		mg/L		97	90 - 110

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 480-539178/44
Matrix: Water
Analysis Batch: 539178

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	ND		0.010	0.0035	mg/L			07/02/20 14:39	1

Lab Sample ID: LCS 480-539178/45
Matrix: Water
Analysis Batch: 539178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.101		mg/L		101	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-538756/1
Matrix: Water
Analysis Batch: 538756

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	4.0	mg/L			06/30/20 14:57	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 480-538756/2
 Matrix: Water
 Analysis Batch: 538756

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	504	446.0		mg/L		89	85 - 115

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 480-538343/1
 Matrix: Water
 Analysis Batch: 538343

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	1.0	mg/L			06/27/20 11:05	1

Lab Sample ID: LCS 480-538343/2
 Matrix: Water
 Analysis Batch: 538343

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	341	330.8		mg/L		97	88 - 110

Method: SM 3500 CR D - Chromium, Hexavalent

Lab Sample ID: MB 480-538385/3
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010	0.0050	mg/L			06/27/20 11:02	1

Lab Sample ID: LCS 480-538385/4
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0501		mg/L		100	85 - 115

Lab Sample ID: 480-171773-1 DU
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: GEOBAG FILTRATE
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND	H	ND		mg/L		NC	15

Method: SM 3500 FE D - Iron, Ferrous and Ferric

Lab Sample ID: MB 480-538395/3
 Matrix: Water
 Analysis Batch: 538395

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND		0.10	0.075	mg/L			06/27/20 15:55	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 3500 FE D - Iron, Ferrous and Ferric (Continued)

Lab Sample ID: LCS 480-538395/4
Matrix: Water
Analysis Batch: 538395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	2.00	2.01		mg/L		101	90 - 110

Lab Sample ID: 480-171773-2 MS
Matrix: Water
Analysis Batch: 538395

Client Sample ID: FILTER PRESS FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	ND	HF	2.00	1.91		mg/L		96	70 - 130

Lab Sample ID: 480-171773-1 DU
Matrix: Water
Analysis Batch: 538395

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	HF	ND		mg/L		NC	20

Lab Sample ID: 480-171773-2 DU
Matrix: Water
Analysis Batch: 538395

Client Sample ID: FILTER PRESS FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	HF	ND		mg/L		NC	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-538753/1
Matrix: Water
Analysis Batch: 538753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 480-538753/23
Matrix: Water
Analysis Batch: 538753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-538375/1
Matrix: Water
Analysis Batch: 538375

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			06/27/20 06:33	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 480-538375/2
Matrix: Water
Analysis Batch: 538375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	188.3		mg/L		95	85 - 115

Lab Sample ID: USB 480-538376/1
Matrix: Water
Analysis Batch: 538376

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonaceous Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			06/27/20 06:33	1

Lab Sample ID: LCS 480-538376/2
Matrix: Water
Analysis Batch: 538376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbonaceous Biochemical Oxygen Demand	198	183.0		mg/L		92	85 - 115

Lab Sample ID: 480-171773-1 DU
Matrix: Water
Analysis Batch: 538376

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Carbonaceous Biochemical Oxygen Demand	16.5	b	28.26	F3	mg/L		53	20

Method: SM 5310C - TOC

Lab Sample ID: MB 480-538906/4
Matrix: Water
Analysis Batch: 538906

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			06/30/20 17:48	1

Lab Sample ID: LCS 480-538906/5
Matrix: Water
Analysis Batch: 538906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.09		mg/L		102	90 - 110

Lab Sample ID: MB 480-539191/4
Matrix: Water
Analysis Batch: 539191

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			07/02/20 16:28	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 5310C - TOC (Continued)

Lab Sample ID: LCS 480-539191/5

Matrix: Water

Analysis Batch: 539191

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.13		mg/L		102	90 - 110

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QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

GC/MS VOA

Analysis Batch: 538351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	624.1	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	624.1	
MB 480-538351/7	Method Blank	Total/NA	Water	624.1	
LCS 480-538351/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 538566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	8260C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	8260C	
MB 480-538566/7	Method Blank	Total/NA	Water	8260C	
LCS 480-538566/5	Lab Control Sample	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 538584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	625	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	625	
MB 480-538584/1-A	Method Blank	Total/NA	Water	625	
LCS 480-538584/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 480-538584/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 538685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	625.1	538584
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	625.1	538584
MB 480-538584/1-A	Method Blank	Total/NA	Water	625.1	538584
LCS 480-538584/2-A	Lab Control Sample	Total/NA	Water	625.1	538584
LCSD 480-538584/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	538584

Prep Batch: 538762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3510C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3510C	
MB 480-538762/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-538762/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 538875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	8270D	538762
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	8270D	538762
MB 480-538762/1-A	Method Blank	Total/NA	Water	8270D	538762
LCS 480-538762/2-A	Lab Control Sample	Total/NA	Water	8270D	538762

GC Semi VOA

Prep Batch: 538962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3510C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3510C	
MB 480-538962/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-538962/2-A	Lab Control Sample	Total/NA	Water	3510C	

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

GC Semi VOA (Continued)

Prep Batch: 538962 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-538962/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 539133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	608.3	538962
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	608.3	538962
MB 480-538962/1-A	Method Blank	Total/NA	Water	608.3	538962
LCS 480-538962/2-A	Lab Control Sample	Total/NA	Water	608.3	538962
LCSD 480-538962/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	538962

Metals

Prep Batch: 440889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1631E	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1631E	
MB 240-440889/1-A	Method Blank	Total/NA	Water	1631E	
LCS 240-440889/2-A	Lab Control Sample	Total/NA	Water	1631E	
480-171773-1 MS	GEOBAG FILTRATE	Total/NA	Water	1631E	
480-171773-1 MSD	GEOBAG FILTRATE	Total/NA	Water	1631E	

Analysis Batch: 441110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-440889/1-A	Method Blank	Total/NA	Water	1631E	440889
LCS 240-440889/2-A	Lab Control Sample	Total/NA	Water	1631E	440889

Analysis Batch: 441337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1631E	440889
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1631E	440889
480-171773-1 MS	GEOBAG FILTRATE	Total/NA	Water	1631E	440889
480-171773-1 MSD	GEOBAG FILTRATE	Total/NA	Water	1631E	440889

Prep Batch: 538451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	200.7	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	200.7	
MB 480-538451/1-A	Method Blank	Total/NA	Water	200.7	
LCS 480-538451/2-A	Lab Control Sample	Total/NA	Water	200.7	

Analysis Batch: 538638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	200.7 Rev 4.4	538451
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	200.7 Rev 4.4	538451
MB 480-538451/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	538451
LCS 480-538451/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	538451

Prep Batch: 538722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	7470A	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	7470A	

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Metals (Continued)

Prep Batch: 538722 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-538722/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-538722/2-A	Lab Control Sample	Total/NA	Water	7470A	

Filtration Batch: 538744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	FILTRATION	
MB 480-538744/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	

Analysis Batch: 538883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	7470A	538722
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	7470A	538722
MB 480-538722/1-A	Method Blank	Total/NA	Water	7470A	538722
LCS 480-538722/2-A	Lab Control Sample	Total/NA	Water	7470A	538722

Prep Batch: 538920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	200.7	538744
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	200.7	538744
MB 480-538744/1-C	Method Blank	Dissolved	Water	200.7	538744
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	200.7	538744
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	200.7	538744
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	200.7	538744

Prep Batch: 539037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3005A	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3005A	
MB 480-539037/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-539037/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 539257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
MB 480-538744/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	538920
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920

Analysis Batch: 539260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	6010C	539037
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	6010C	539037
MB 480-539037/1-A	Method Blank	Total/NA	Water	6010C	539037
LCS 480-539037/2-A	Lab Control Sample	Total/NA	Water	6010C	539037

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 538343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 2540D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 2540D	
MB 480-538343/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 480-538343/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 538375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5210B	
USB 480-538375/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-538375/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 538376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5210B	
USB 480-538376/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-538376/2	Lab Control Sample	Total/NA	Water	SM 5210B	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	

Analysis Batch: 538385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 3500 CR D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 CR D	
MB 480-538385/3	Method Blank	Total/NA	Water	SM 3500 CR D	
LCS 480-538385/4	Lab Control Sample	Total/NA	Water	SM 3500 CR D	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 CR D	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 3500 CR D	

Analysis Batch: 538395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	
MB 480-538395/3	Method Blank	Total/NA	Water	SM 3500 FE D	
LCS 480-538395/4	Lab Control Sample	Total/NA	Water	SM 3500 FE D	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-2 DU	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	

Analysis Batch: 538470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	410.4	
MB 480-538470/52	Method Blank	Total/NA	Water	410.4	
LCS 480-538470/53	Lab Control Sample	Total/NA	Water	410.4	

Prep Batch: 538587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1664B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1664B	
MB 480-538587/1-A	Method Blank	Total/NA	Water	1664B	
LCS 480-538587/2-A	Lab Control Sample	Total/NA	Water	1664B	

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QC Association Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 538602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1664B	538587
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1664B	538587
MB 480-538587/1-A	Method Blank	Total/NA	Water	1664B	538587
LCS 480-538587/2-A	Lab Control Sample	Total/NA	Water	1664B	538587

Analysis Batch: 538674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	300.0	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	300.0	
MB 480-538674/4	Method Blank	Total/NA	Water	300.0	
LCS 480-538674/3	Lab Control Sample	Total/NA	Water	300.0	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	300.0	

Prep Batch: 538713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	Distill/CN	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	Distill/CN	
MB 480-538713/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 480-538713/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCS 480-538713/3-A	Lab Control Sample	Total/NA	Water	Distill/CN	

Analysis Batch: 538730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	335.4	538713
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	335.4	538713
MB 480-538713/1-A	Method Blank	Total/NA	Water	335.4	538713
LCS 480-538713/2-A	Lab Control Sample	Total/NA	Water	335.4	538713
LCS 480-538713/3-A	Lab Control Sample	Total/NA	Water	335.4	538713

Analysis Batch: 538753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 4500 H+ B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 4500 H+ B	
LCS 480-538753/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-538753/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 538756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 2540C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 2540C	
MB 480-538756/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-538756/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 538906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5310C	
MB 480-538906/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-538906/5	Lab Control Sample	Total/NA	Water	SM 5310C	

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 539130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	410.4	
MB 480-539130/4	Method Blank	Total/NA	Water	410.4	
LCS 480-539130/5	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 539178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	420.4	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	420.4	
MB 480-539178/44	Method Blank	Total/NA	Water	420.4	
LCS 480-539178/45	Lab Control Sample	Total/NA	Water	420.4	

Analysis Batch: 539191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5310C	
MB 480-539191/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-539191/5	Lab Control Sample	Total/NA	Water	SM 5310C	

Lab Chronicle

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	538351	06/27/20 20:32	LCH	TAL BUF
Total/NA	Analysis	8260C		4	538566	06/29/20 22:11	OMI	TAL BUF
Total/NA	Prep	625			538584	06/29/20 16:29	ATG	TAL BUF
Total/NA	Analysis	625.1		20	538685	06/30/20 13:15	JMM	TAL BUF
Total/NA	Prep	3510C			538762	06/30/20 15:20	ATG	TAL BUF
Total/NA	Analysis	8270D		1	538875	07/01/20 12:27	JMM	TAL BUF
Total/NA	Prep	3510C			538962	07/01/20 15:48	ATG	TAL BUF
Total/NA	Analysis	608.3		1	539133	07/03/20 03:05	W1T	TAL BUF
Total/NA	Prep	1631E			440889	07/01/20 11:00	AJC	TAL CAN
Total/NA	Analysis	1631E		2	441337	07/06/20 11:45	AJC	TAL CAN
Dissolved	Filtration	FILTRATION			538744	06/30/20 14:12	KMP	TAL BUF
Dissolved	Prep	200.7			538920	07/02/20 09:03	NSW	TAL BUF
Dissolved	Analysis	200.7 Rev 4.4		1	539257	07/02/20 16:22	AMH	TAL BUF
Total/NA	Prep	200.7			538451	06/29/20 09:18	NSW	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	538638	06/29/20 18:23	LMH	TAL BUF
Total/NA	Prep	3005A			539037	07/02/20 10:00	NSW	TAL BUF
Total/NA	Analysis	6010C		1	539260	07/02/20 20:31	AMH	TAL BUF
Total/NA	Prep	7470A			538722	06/30/20 12:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	538883	06/30/20 18:54	BMB	TAL BUF
Total/NA	Prep	1664B			538587	06/29/20 16:43	T1S	TAL BUF
Total/NA	Analysis	1664B		1	538602	06/30/20 19:40	T1S	TAL BUF
Total/NA	Analysis	300.0		1	538674	06/30/20 17:37	IMZ	TAL BUF
Total/NA	Prep	Distill/CN			538713	06/30/20 11:22	CRK	TAL BUF
Total/NA	Analysis	335.4		1	538730	06/30/20 12:45	JRF	TAL BUF
Total/NA	Analysis	410.4		1	538470	06/28/20 06:50	CSS	TAL BUF
Total/NA	Analysis	420.4		1	539178	07/02/20 15:45	SRA	TAL BUF
Total/NA	Analysis	SM 2540C		1	538756	06/30/20 14:57	E1T	TAL BUF
Total/NA	Analysis	SM 2540D		1	538343	06/27/20 11:05	CSS	TAL BUF
Total/NA	Analysis	SM 3500 CR D		1	538385	06/27/20 11:02	CRK	TAL BUF
Total/NA	Analysis	SM 3500 FE D		1	538395	06/27/20 15:55	CSS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	538753	06/30/20 14:00	BEF	TAL BUF
Total/NA	Analysis	SM 5210B		1	538375	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5210B		1	538376	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	538906	06/30/20 21:37	CLA	TAL BUF

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	538351	06/27/20 20:57	LCH	TAL BUF
Total/NA	Analysis	8260C		5	538566	06/29/20 22:34	OMI	TAL BUF

Lab Chronicle

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			538584	06/29/20 16:29	ATG	TAL BUF
Total/NA	Analysis	625.1		10	538685	06/30/20 13:39	JMM	TAL BUF
Total/NA	Prep	3510C			538762	06/30/20 15:20	ATG	TAL BUF
Total/NA	Analysis	8270D		1	538875	07/01/20 12:56	JMM	TAL BUF
Total/NA	Prep	3510C			538962	07/01/20 15:48	ATG	TAL BUF
Total/NA	Analysis	608.3		1	539133	07/03/20 03:18	W1T	TAL BUF
Total/NA	Prep	1631E			440889	07/01/20 11:00	AJC	TAL CAN
Total/NA	Analysis	1631E		1	441337	07/06/20 11:59	AJC	TAL CAN
Dissolved	Filtration	FILTRATION			538744	06/30/20 14:12	KMP	TAL BUF
Dissolved	Prep	200.7			538920	07/02/20 09:03	NSW	TAL BUF
Dissolved	Analysis	200.7 Rev 4.4		1	539257	07/02/20 16:40	AMH	TAL BUF
Total/NA	Prep	200.7			538451	06/29/20 09:18	NSW	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	538638	06/29/20 18:19	LMH	TAL BUF
Total/NA	Prep	3005A			539037	07/02/20 10:00	NSW	TAL BUF
Total/NA	Analysis	6010C		1	539260	07/02/20 20:35	AMH	TAL BUF
Total/NA	Prep	7470A			538722	06/30/20 12:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	538883	06/30/20 18:55	BMB	TAL BUF
Total/NA	Prep	1664B			538587	06/29/20 16:43	T1S	TAL BUF
Total/NA	Analysis	1664B		1	538602	06/30/20 19:40	T1S	TAL BUF
Total/NA	Analysis	300.0		2	538674	06/30/20 17:51	IMZ	TAL BUF
Total/NA	Prep	Distill/CN			538713	06/30/20 11:22	CRK	TAL BUF
Total/NA	Analysis	335.4		1	538730	06/30/20 12:47	JRF	TAL BUF
Total/NA	Analysis	410.4		10	539130	07/01/20 17:59	CSS	TAL BUF
Total/NA	Analysis	420.4		1	539178	07/02/20 15:48	SRA	TAL BUF
Total/NA	Analysis	SM 2540C		1	538756	06/30/20 14:57	E1T	TAL BUF
Total/NA	Analysis	SM 2540D		1	538343	06/27/20 11:05	CSS	TAL BUF
Total/NA	Analysis	SM 3500 CR D		1	538385	06/27/20 11:02	CRK	TAL BUF
Total/NA	Analysis	SM 3500 FE D		1	538395	06/27/20 15:55	CSS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	538753	06/30/20 14:03	BEF	TAL BUF
Total/NA	Analysis	SM 5210B		1	538375	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5210B		1	538376	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5310C		4	539191	07/02/20 20:34	CLA	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-02-21
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
335.4	Distill/CN	Water	Cyanide, Total
624.1		Water	1,2-Dichloroethene, Total
625.1	625	Water	1,2-Dichlorobenzene
625.1	625	Water	1,3-Dichlorobenzene
625.1	625	Water	1,4-Dichlorobenzene
SM 3500 CR D		Water	Chromium, hexavalent
SM 3500 FE D		Water	Ferrous Iron
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20 *
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL BUF
1631E	Mercury, Low Level (CVAFS)	EPA	TAL CAN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1664B	HEM and SGT-HEM	1664B	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
335.4	Cyanide, Total	MCAWW	TAL BUF
410.4	COD	MCAWW	TAL BUF
420.4	Phenolics, Total Recoverable	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL BUF
SM 3500 CR D	Chromium, Hexavalent	SM	TAL BUF
SM 3500 FE D	Iron, Ferrous and Ferric	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
SM 5310C	TOC	SM	TAL BUF
1631E	Preparation, Mercury, Low Level	EPA	TAL CAN
1664B	HEM and SGT-HEM (Aqueous)	1664B	TAL BUF
200.7	Preparation, Total Metals	EPA	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
5030C	Purge and Trap	SW846	TAL BUF
625	Liquid-Liquid Extraction	40CFR136A	TAL BUF
7470A	Preparation, Mercury	SW846	TAL BUF
Distill/CN	Distillation, Cyanide	None	TAL BUF
FILTRATION	Sample Filtration	None	TAL BUF

Protocol References:

1664B = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-171773-1	GEOBAG FILTRATE	Water	06/26/20 10:00	06/26/20 15:45	
480-171773-2	FILTER PRESS FILTRATE	Water	06/26/20 10:30	06/26/20 15:45	

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Chain of Custody Record

Client Information		Sampler: <i>Gregory Ernst</i>		Lab PM: Fischer, Brian J		Carrier Tracking No(s):		COC No: 480-147151-32700.1	
Client Contact: James Hyzy		Phone: <i>580 Quote 48022334</i>		E-Mail: brian.fischer@testamericainc.com		Page: Page 1 of 2		Job #:	
Company: Severson Environmental Services, Inc.		Due Date Requested:		Analysis Requested		Barcode: 480-171773 Chain of Custody		decahydrate	
Address: 2749 Lockport Road		TAT Requested (days):		635.4 - Local Method		6010C, 7470A		U - Acetone	
City: Niagara Falls		PO #: Purchase Order not required		625.1 PREC - Priority Pollutant - SVCS		2540C - Calcd - Local Method		J - DI Water	
State, Zip: NY, 14305		WO #:		608.3 PCB PREC - Priority Pollutant PCBs		2540D - TSS		V - MCAA	
Phone:		Project #: 48004527		8270D - TCLP Semivolatiles		5210B - BOD & CBOD		W - pH 4-5	
Email: jhyzy@severson.com		SSOW#:		420.4 NP - Local Method		625.1 PREC - Priority Pollutant - SVCS		K - EDTA	
Project Name: Severson Environmental Services, Inc.		Sample Date		200.7 - (MOD) 200.7 - T As/Cr/Fe/Pb		608.3 PCB PREC - Priority Pollutant PCBs		L - EDA	
Site: New Jersey		Sample Time		410.4 - Local Method		8270D - TCLP Semivolatiles		Z - other (specify)	
Sample Identification		Sample Type (C=Comp, G=grab)		1631E - Local Method		420.4 NP - Local Method		Other:	
Grobby Filtrate		Preservation Code:		Perform MS/MSD (Yes or No)		200.7 - (MOD) 200.7 - T As/Cr/Fe/Pb		Total Number of containers	
Filtered Pass Filtrate		Water		Field Filtered Sample (Yes or No)		410.4 - Local Method		335.4 - Local Method	
		Water				300.0 28D - Fluoride		6010C, 7470A	
						1631E - Local Method		2540C - Calcd - Local Method	
						420.4 NP - Local Method		2540D - TSS	
						200.7 - (MOD) 200.7 - T As/Cr/Fe/Pb		5210B - BOD & CBOD	
						420.4 NP - Local Method		625.1 PREC - Priority Pollutant - SVCS	
						608.3 PCB PREC - Priority Pollutant PCBs		8270D - TCLP Semivolatiles	
						8270D - TCLP Semivolatiles		608.3 PCB PREC - Priority Pollutant PCBs	
						608.3 PCB PREC - Priority Pollutant PCBs		625.1 PREC - Priority Pollutant - SVCS	
						625.1 PREC - Priority Pollutant - SVCS		608.3 PCB PREC - Priority Pollutant PCBs	
						608.3 PCB PREC - Priority Pollutant PCBs		8270D - TCLP Semivolatiles	
						8270D - TCLP Semivolatiles		420.4 NP - Local Method	
						420.4 NP - Local Method		200.7 - (MOD) 200.7 - T As/Cr/Fe/Pb	
						200.7 - (MOD) 200.7 - T As/Cr/Fe/Pb		410.4 - Local Method	
						410.4 - Local Method		300.0 28D - Fluoride	
						300.0 28D - Fluoride		1631E - Local Method	
						1631E - Local Method		Perform MS/MSD (Yes or No)	
						Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)	
						Field Filtered Sample (Yes or No)		Matrix (W=water, S=solid, O=water/soil, BT=Tissue, A=Air)	
						Matrix (W=water, S=solid, O=water/soil, BT=Tissue, A=Air)		Sample Type (C=Comp, G=grab)	
						Sample Type (C=Comp, G=grab)		Sample Time	
						Sample Time		Sample Date	
						Sample Date		Sample Time	
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Chain of Custody Record



Environment Testing
 America



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Shipping/Receiving		Phone:	Fischer, Brian J	State of Origin:	480-56847.1
Company		E-Mail:	brian.fischer@testamericainc.com	Page 1 of 1	
TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #	480-171773-1
Address:		Due Date Requested:		Preservation Codes:	
4101 Shuffel Street NW,		7/6/2020		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate D - AsNaO2 E - Nitric Acid F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
City:		TAT Requested (days):		M - None N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
State, Zip:		PO #:		Total Number of containers	
OH, 44720		WO #:		2	
Phone:		Project #:		Special Instructions/Note:	
330-497-9396(Tel) 330-497-0772(Fax)		48004527		LTHC	
Email:		SSOW#:		Perform MS/MSD (Yes or No)	
Project Name:		Sample Date		Field Filtered Sample (Yes or No)	
Sevenson Environmental Services, Inc.		6/26/20		1631E/631E_Prep	
Site:		Sample Time		Matrix	
Sevenson Environmental		10:00 Eastern		(W-water, S-solid, O-organic, A-air)	
Sample Identification - Client ID (Lab ID)		6/26/20		Preservation Code:	
GEOBAG FILTRATE (480-171773-1)		10:30 Eastern		Water	
FILTER PRESS FILTRATE (480-171773-2)		6/26/20		Water	

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

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Months
 Primary Deliverable Rank: 2
 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:

Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	1/29/20	17:00	Date/Time: 6/30/20 10:30 Company: ETC
Relinquished by:	Date/Time:	Company:	Date/Time: _____ Company: _____
Relinquished by:	Date/Time:	Company:	Date/Time: _____ Company: _____

Custody Seal No.: _____
 Custody Seals Intact:
 Δ Yes Δ No

Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : _____
Canton Facility		
Client <u>ETA Buffalo</u>	Site Name _____	Cooler unpacked by: <u>[Signature]</u>
Cooler Received on <u>6-30-20</u>	Opened on <u>6-30-20</u>	
FedEx: 1 st Grd <input checked="" type="checkbox"/> Exp <input type="checkbox"/> UPS <input type="checkbox"/> FAS <input type="checkbox"/> Clipper <input type="checkbox"/>	Client Drop Off <input type="checkbox"/> TestAmerica Courier <input type="checkbox"/> Other <input type="checkbox"/>	
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>111</u>	Foam Box <input type="checkbox"/> Client Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/>	
Packing material used: <u>Bubble Wrap</u> <input type="checkbox"/> Foam <input type="checkbox"/> <u>Plastic Bag</u> <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/>		
COOLANT: <u>Wet Ice</u> <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> Water <input type="checkbox"/> None <input type="checkbox"/>		
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. <u>0.9</u> °C Corrected Cooler Temp. <u>1.8</u> °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u>		Yes No
-Were the seals on the outside of the cooler(s) signed & dated?		<u>Yes</u> No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes <u>No</u>
-Were tamper/custody seals intact and uncompromised?		<u>Yes</u> No NA
3. Shippers' packing slip attached to the cooler(s)?		<u>Yes</u> No
4. Did custody papers accompany the sample(s)?		<u>Yes</u> No
5. Were the custody papers relinquished & signed in the appropriate place?		<u>Yes</u> No
6. Was/were the person(s) who collected the samples clearly identified on the COC?		Yes <u>No</u>
7. Did all bottles arrive in good condition (Unbroken)?		<u>Yes</u> No
8. Could all bottle labels be reconciled with the COC?		<u>Yes</u> No
9. Were correct bottle(s) used for the test(s) indicated?		<u>Yes</u> No
10. Sufficient quantity received to perform indicated analyses?		<u>Yes</u> No
11. Are these work share samples?		<u>Yes</u> No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?		<u>Yes</u> No NA pH Strip Lot# <u>HC911298</u>
13. Were VOAs on the COC?		<u>Yes</u> No
14. Were air bubbles >6 mm in any VOA vials? Larger than this.		Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____		Yes No
16. Was a LL Hg or Me Hg trip blank present?		Yes No
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____
_____ _____ _____ _____		
18. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
19. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

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Login Sample Receipt Checklist

Client: Severson Environmental Services, Inc.

Job Number: 480-171773-1

Login Number: 171773

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Stopa, Erik S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	severson
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix D Filter Test Results

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-171773-1

Client Project/Site: Severson Environmental Services, Inc.

For:

Severson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, New York 14305

Attn: James Hyzy



Authorized for release by:
7/7/2020 12:39:06 PM

Alexander Gilbert, Project Management Assistant I
alexander.gilbert@testamericainc.com

Designee for

Brian Fischer, Manager of Project Management
(716)504-9835
brian.fischer@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate recovery exceeds control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
b	Result Detected in the Unseeded Control blank (USB).
F3	Duplicate RPD exceeds the control limit
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Eurofins TestAmerica, Buffalo

Definitions/Glossary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Job ID: 480-171773-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative 480-171773-1

Comments

No additional comments.

Receipt

The samples were received on 6/26/2020 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 4.7° C and 5.6° C.

GC/MS VOA

Method 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: GEOBAG FILTRATE (480-171773-1). Elevated reporting limits (RLs) are provided.

Method 624.1: The following sample was diluted due to the abundance of non-target analytes: FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 8260C: The following samples were diluted due to the abundance of non-target analytes: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 8260C: The continuing calibration verification (CCV) associated with batch 480-538566 recovered above the upper control limit for Carbon tetrachloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method 8260C: The following samples were collected in unpreserved vials; however, the test assigned was a preserved test. The samples were analyzed within the 7-day holding time specified for unpreserved samples: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 625.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 480-538584 and analytical batch 480-538685 recovered outside control limits for the following analytes: Benzidine.

Method 625.1: The following samples were diluted due to the nature of the sample matrix: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Elevated reporting limits (RLs) are provided.

Method 625.1: The following sample required a dilution due to the nature of the sample matrix: GEOBAG FILTRATE (480-171773-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8270D: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). These results have been reported and qualified.

Method 8270D: The laboratory control sample (LCS) for preparation batch 480-538762 and analytical batch 480-538875 recovered outside control limits for the following surrogate: 2,4,6-Tribromophenol. This surrogate is biased high and no detections were found for associated analytes in the following affected samples: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Therefore, the data has been reported.

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-538875 recovered outside acceptance criteria, low biased, for Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Case Narrative

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Job ID: 480-171773-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method 8270D: The laboratory control sample (LCS) for preparation batch 480-538762 and analytical batch 480-538875 recovered outside control limits for the following analytes: 2,4,5-Trichlorophenol and 2,4,6-Trichlorophenol. These analytes were biased high in the LCS and were not detected in the associated samples; 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.

HPLC/IC

Method 300.0: The following sample was diluted due to the nature of the sample matrix: FILTER PRESS FILTRATE (480-171773-2). 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 Semi VOA

Method 608.3: Surrogate recovery for the following samples were outside control limits: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 6010C: The interference check standard solution (ICSA) associated with the following samples showed results for Barium at a level greater than 2 times the limit of detection (LOD). It is believed that the solution contains trace impurities of this element and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. GEOBAG FILTRATE (480-171773-1), FILTER PRESS FILTRATE (480-171773-2), (LCS 480-539037/2-A) and (MB 480-539037/1-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 3500 CR D: The following samples were analyzed outside of analytical holding time due to laboratory oversight: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method SM 3500 FE D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Methods 9040C, SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: GEOBAG FILTRATE (480-171773-1) and FILTER PRESS FILTRATE (480-171773-2).

Method 410.4: The method blank for analytical batch 480-538991 contained analyte above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

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.

Detection Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	69		50	6.0	ug/L	10		624.1	Total/NA
Ethylbenzene	330		50	4.6	ug/L	10		624.1	Total/NA
Toluene	13	J	50	4.5	ug/L	10		624.1	Total/NA
Benzene	60		4.0	1.6	ug/L	4		8260C	Total/NA
Acenaphthene	250		100	16	ug/L	20		625.1	Total/NA
Anthracene	84	J	100	28	ug/L	20		625.1	Total/NA
Benzo[a]anthracene	47	J	100	22	ug/L	20		625.1	Total/NA
Benzo[a]pyrene	51	J	100	26	ug/L	20		625.1	Total/NA
Benzo[b]fluoranthene	26	J	100	24	ug/L	20		625.1	Total/NA
Chrysene	41	J	100	20	ug/L	20		625.1	Total/NA
Fluoranthene	83	J	100	32	ug/L	20		625.1	Total/NA
Fluorene	99	J	100	20	ug/L	20		625.1	Total/NA
Naphthalene	820		100	17	ug/L	20		625.1	Total/NA
Phenanthrene	320		100	24	ug/L	20		625.1	Total/NA
Pyrene	160		100	28	ug/L	20		625.1	Total/NA
2-Methylphenol	0.82	J	5.0	0.40	ug/L	1		8270D	Total/NA
3-Methylphenol	6.2	J	10	0.40	ug/L	1		8270D	Total/NA
4-Methylphenol	6.2	J	10	0.36	ug/L	1		8270D	Total/NA
Mercury	35.1		1.0	0.28	ng/L	2		1631E	Total/NA
Arsenic	0.0091	J	0.015	0.0056	mg/L	1		200.7 Rev 4.4	Total/NA
Iron	3.6		0.050	0.019	mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	0.0076	J	0.015	0.0056	mg/L	1		6010C	Total/NA
Barium	0.048	^	0.0020	0.00070	mg/L	1		6010C	Total/NA
Oil & Grease	5.3		4.7	1.3	mg/L	1		1664B	Total/NA
Fluoride	0.099		0.050	0.026	mg/L	1		300.0	Total/NA
Chemical Oxygen Demand	57.8		10.0	5.0	mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.044		0.010	0.0035	mg/L	1		420.4	Total/NA
Total Dissolved Solids	194		10.0	4.0	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10.8		4.0	4.0	mg/L	1		SM 2540D	Total/NA
pH	7.4	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.1	HF	0.001	0.001	Degrees C	1		SM 4500 H+ B	Total/NA
Biochemical Oxygen Demand	11.9	b	6.0	6.0	mg/L	1		SM 5210B	Total/NA
Carbonaceous Biochemical Oxygen Demand	16.5	b	6.0	6.0	mg/L	1		SM 5210B	Total/NA
Total Organic Carbon	14.5		1.0	0.43	mg/L	1		SM 5310C	Total/NA

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	73		50	6.0	ug/L	10		624.1	Total/NA
Ethylbenzene	130		50	4.6	ug/L	10		624.1	Total/NA
Benzene	50		5.0	2.1	ug/L	5		8260C	Total/NA
Acenaphthene	12	J	50	8.1	ug/L	10		625.1	Total/NA
Bis(2-ethylhexyl) phthalate	33	J	100	12	ug/L	10		625.1	Total/NA
Fluorene	11	J	50	10	ug/L	10		625.1	Total/NA
2-Methylphenol	2.6	J	5.0	0.40	ug/L	1		8270D	Total/NA
Mercury	3.8		0.50	0.14	ng/L	1		1631E	Total/NA
Chromium	0.0022	J	0.0040	0.0010	mg/L	1		200.7 Rev 4.4	Total/NA
Iron	1.3		0.050	0.019	mg/L	1		200.7 Rev 4.4	Total/NA
Lead	0.0047	J	0.010	0.0030	mg/L	1		200.7 Rev 4.4	Total/NA
Barium	0.034	^	0.0020	0.00070	mg/L	1		6010C	Total/NA
Chromium	0.0021	J	0.0040	0.0010	mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Detection Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE (Continued)

Lab Sample ID: 480-171773-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0040	J	0.010	0.0030	mg/L	1		6010C	Total/NA
Oil & Grease	2.9	J	4.8	1.3	mg/L	1		1664B	Total/NA
Fluoride	0.17		0.10	0.052	mg/L	2		300.0	Total/NA
Chemical Oxygen Demand	858		100	50.0	mg/L	10		410.4	Total/NA
Phenolics, Total Recoverable	0.040		0.010	0.0035	mg/L	1		420.4	Total/NA
Total Dissolved Solids	387		10.0	4.0	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	16.4		4.0	4.0	mg/L	1		SM 2540D	Total/NA
pH	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.3	HF	0.001	0.001	Degrees C	1		SM 4500 H+ B	Total/NA
Biochemical Oxygen Demand	99.6	b	60.0	60.0	mg/L	1		SM 5210B	Total/NA
Carbonaceous Biochemical Oxygen Demand	98.8	b	24.0	24.0	mg/L	1		SM 5210B	Total/NA
Total Organic Carbon	183		4.0	1.7	mg/L	4		SM 5310C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo



Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	3.9	ug/L			06/27/20 20:32	10
1,1,2,2-Tetrachloroethane	ND		50	2.6	ug/L			06/27/20 20:32	10
1,1,2-Trichloroethane	ND		50	4.8	ug/L			06/27/20 20:32	10
1,1-Dichloroethane	ND		50	5.9	ug/L			06/27/20 20:32	10
1,1-Dichloroethene	ND		50	8.5	ug/L			06/27/20 20:32	10
1,2-Dichlorobenzene	ND		50	4.4	ug/L			06/27/20 20:32	10
1,2-Dichloroethane	ND		50	6.0	ug/L			06/27/20 20:32	10
1,2-Dichloroethene, Total	ND		100	32	ug/L			06/27/20 20:32	10
1,2-Dichloropropane	ND		50	6.1	ug/L			06/27/20 20:32	10
1,3-Dichlorobenzene	ND		50	5.4	ug/L			06/27/20 20:32	10
1,4-Dichlorobenzene	ND		50	5.1	ug/L			06/27/20 20:32	10
2-Chloroethyl vinyl ether	ND		250	19	ug/L			06/27/20 20:32	10
Acrolein	ND		1000	170	ug/L			06/27/20 20:32	10
Acrylonitrile	ND		500	19	ug/L			06/27/20 20:32	10
Benzene	69		50	6.0	ug/L			06/27/20 20:32	10
Bromoform	ND		50	4.7	ug/L			06/27/20 20:32	10
Bromomethane	ND		50	12	ug/L			06/27/20 20:32	10
Carbon tetrachloride	ND		50	5.1	ug/L			06/27/20 20:32	10
Chlorobenzene	ND		50	4.8	ug/L			06/27/20 20:32	10
Chlorodibromomethane	ND		50	4.1	ug/L			06/27/20 20:32	10
Chloroethane	ND		50	8.7	ug/L			06/27/20 20:32	10
Chloroform	ND		50	5.4	ug/L			06/27/20 20:32	10
Chloromethane	ND		50	6.4	ug/L			06/27/20 20:32	10
cis-1,3-Dichloropropene	ND		50	3.3	ug/L			06/27/20 20:32	10
Dichlorobromomethane	ND		50	5.4	ug/L			06/27/20 20:32	10
Ethylbenzene	330		50	4.6	ug/L			06/27/20 20:32	10
Methylene Chloride	ND		50	8.1	ug/L			06/27/20 20:32	10
Tetrachloroethene	ND		50	3.4	ug/L			06/27/20 20:32	10
Toluene	13 J		50	4.5	ug/L			06/27/20 20:32	10
trans-1,2-Dichloroethene	ND		50	5.9	ug/L			06/27/20 20:32	10
trans-1,3-Dichloropropene	ND		50	4.4	ug/L			06/27/20 20:32	10
Trichloroethene	ND		50	6.0	ug/L			06/27/20 20:32	10
Vinyl chloride	ND		50	7.5	ug/L			06/27/20 20:32	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		68 - 130		06/27/20 20:32	10
4-Bromofluorobenzene (Surr)	101		76 - 123		06/27/20 20:32	10
Dibromofluoromethane (Surr)	103		75 - 123		06/27/20 20:32	10
Toluene-d8 (Surr)	101		77 - 120		06/27/20 20:32	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		4.0	0.84	ug/L			06/29/20 22:11	4
2-Butanone (MEK)	ND		40	5.3	ug/L			06/29/20 22:11	4
Benzene	60		4.0	1.6	ug/L			06/29/20 22:11	4
Carbon tetrachloride	ND		4.0	1.1	ug/L			06/29/20 22:11	4
Chlorobenzene	ND		4.0	3.0	ug/L			06/29/20 22:11	4
Chloroform	ND		4.0	1.4	ug/L			06/29/20 22:11	4
Tetrachloroethene	ND		4.0	1.4	ug/L			06/29/20 22:11	4
Trichloroethene	ND		4.0	1.8	ug/L			06/29/20 22:11	4

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		4.0	3.6	ug/L			06/29/20 22:11	4
1,1-Dichloroethene	ND		4.0	1.2	ug/L			06/29/20 22:11	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		77 - 120					06/29/20 22:11	4
4-Bromofluorobenzene (Surr)	106		73 - 120					06/29/20 22:11	4
Toluene-d8 (Surr)	94		80 - 120					06/29/20 22:11	4
Dibromofluoromethane (Surr)	108		75 - 123					06/29/20 22:11	4

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		200	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,2-Dichlorobenzene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,2-Diphenylhydrazine	ND		200	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,3-Dichlorobenzene	ND		200	14	ug/L		06/29/20 16:29	06/30/20 13:15	20
1,4-Dichlorobenzene	ND		200	110	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,2'-oxybis[1-chloropropane]	ND		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4,6-Trichlorophenol	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dichlorophenol	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dimethylphenol	ND		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dinitrophenol	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,4-Dinitrotoluene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
2,6-Dinitrotoluene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Chloronaphthalene	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Chlorophenol	ND		100	13	ug/L		06/29/20 16:29	06/30/20 13:15	20
2-Nitrophenol	ND		100	14	ug/L		06/29/20 16:29	06/30/20 13:15	20
3,3'-Dichlorobenzidine	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
4,6-Dinitro-2-methylphenol	ND		200	13	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Bromophenyl phenyl ether	ND		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Chloro-3-methylphenol	ND		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Chlorophenyl phenyl ether	ND		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
4-Nitrophenol	ND		300	200	ug/L		06/29/20 16:29	06/30/20 13:15	20
Acenaphthene	250		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
Acenaphthylene	ND		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
Anthracene	84 J		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzidine	ND	*1	1600	700	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[a]anthracene	47 J		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[a]pyrene	51 J		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[b]fluoranthene	26 J		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[g,h,i]perylene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Benzo[k]fluoranthene	ND		100	26	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-chloroethoxy)methane	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-chloroethyl)ether	ND		100	19	ug/L		06/29/20 16:29	06/30/20 13:15	20
Bis(2-ethylhexyl) phthalate	ND		200	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Butyl benzyl phthalate	ND		100	22	ug/L		06/29/20 16:29	06/30/20 13:15	20
Chrysene	41 J		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Dibenz(a,h)anthracene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Diethyl phthalate	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Dimethyl phthalate	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
Di-n-butyl phthalate	ND		100	32	ug/L		06/29/20 16:29	06/30/20 13:15	20

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Fluoranthene	83	J	100	32	ug/L		06/29/20 16:29	06/30/20 13:15	20
Fluorene	99	J	100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorobenzene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorobutadiene	ND		100	20	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachlorocyclopentadiene	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
Hexachloroethane	ND		100	12	ug/L		06/29/20 16:29	06/30/20 13:15	20
Indeno[1,2,3-cd]pyrene	ND		100	30	ug/L		06/29/20 16:29	06/30/20 13:15	20
Isophorone	ND		100	15	ug/L		06/29/20 16:29	06/30/20 13:15	20
Naphthalene	820		100	17	ug/L		06/29/20 16:29	06/30/20 13:15	20
Nitrobenzene	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodimethylamine	ND		200	100	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodi-n-propylamine	ND		100	18	ug/L		06/29/20 16:29	06/30/20 13:15	20
N-Nitrosodiphenylamine	ND		100	7.9	ug/L		06/29/20 16:29	06/30/20 13:15	20
Pentachlorophenol	ND		200	32	ug/L		06/29/20 16:29	06/30/20 13:15	20
Phenanthrene	320		100	24	ug/L		06/29/20 16:29	06/30/20 13:15	20
Phenol	ND		100	7.0	ug/L		06/29/20 16:29	06/30/20 13:15	20
Pyrene	160		100	28	ug/L		06/29/20 16:29	06/30/20 13:15	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		52 - 151	06/29/20 16:29	06/30/20 13:15	20
2-Fluorobiphenyl	88		44 - 120	06/29/20 16:29	06/30/20 13:15	20
2-Fluorophenol	39		17 - 120	06/29/20 16:29	06/30/20 13:15	20
Nitrobenzene-d5	76		15 - 314	06/29/20 16:29	06/30/20 13:15	20
Phenol-d5	28		8 - 424	06/29/20 16:29	06/30/20 13:15	20
p-Terphenyl-d14 (Surr)	67		22 - 125	06/29/20 16:29	06/30/20 13:15	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4,5-Trichlorophenol	ND	*	5.0	0.48	ug/L		06/30/20 15:20	07/01/20 12:27	1
2,4,6-Trichlorophenol	ND	*	5.0	0.61	ug/L		06/30/20 15:20	07/01/20 12:27	1
2-Methylphenol	0.82	J	5.0	0.40	ug/L		06/30/20 15:20	07/01/20 12:27	1
3-Methylphenol	6.2	J	10	0.40	ug/L		06/30/20 15:20	07/01/20 12:27	1
4-Methylphenol	6.2	J	10	0.36	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 12:27	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 12:27	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 12:27	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 12:27	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 12:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	137	X	41 - 120	06/30/20 15:20	07/01/20 12:27	1
2-Fluorobiphenyl	98		48 - 120	06/30/20 15:20	07/01/20 12:27	1
2-Fluorophenol (Surr)	75		35 - 120	06/30/20 15:20	07/01/20 12:27	1
Nitrobenzene-d5 (Surr)	104		46 - 120	06/30/20 15:20	07/01/20 12:27	1
p-Terphenyl-d14 (Surr)	89		60 - 148	06/30/20 15:20	07/01/20 12:27	1
Phenol-d5 (Surr)	53		22 - 120	06/30/20 15:20	07/01/20 12:27	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:05	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	20	X	36 - 121	07/01/20 15:48	07/03/20 03:05	1
Tetrachloro-m-xylene (Surr)	42		42 - 135	07/01/20 15:48	07/03/20 03:05	1

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	35.1		1.0	0.28	ng/L		07/01/20 11:00	07/06/20 11:45	2

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0091	J	0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:23	1
Chromium	ND		0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:23	1
Iron	3.6		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:23	1
Lead	ND		0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:23	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:22	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:22	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:22	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:22	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0076	J	0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 20:31	1
Barium	0.048	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 20:31	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 20:31	1
Chromium	ND		0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 20:31	1
Lead	ND		0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 20:31	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 20:31	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 20:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	5.3		4.7	1.3	mg/L		06/29/20 16:43	06/30/20 19:40	1
Fluoride	0.099		0.050	0.026	mg/L			06/30/20 17:37	1
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:45	1
Chemical Oxygen Demand	57.8		10.0	5.0	mg/L			06/28/20 06:50	1
Phenolics, Total Recoverable	0.044		0.010	0.0035	mg/L			07/02/20 15:45	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	194		10.0	4.0	mg/L			06/30/20 14:57	1
Chromium, hexavalent	ND	H	0.010	0.0050	mg/L			06/27/20 11:02	1
Ferrous Iron	ND	HF	0.10	0.075	mg/L			06/27/20 15:55	1
Biochemical Oxygen Demand	11.9	b	6.0	6.0	mg/L			06/27/20 06:33	1
Carbonaceous Biochemical Oxygen Demand	16.5	b	6.0	6.0	mg/L			06/27/20 06:33	1
Total Organic Carbon	14.5		1.0	0.43	mg/L			06/30/20 21:37	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	10.8		4.0	4.0	mg/L			06/27/20 11:05	1
pH	7.4	HF	0.1	0.1	SU			06/30/20 14:00	1
Temperature	19.1	HF	0.001	0.001	Degrees C			06/30/20 14:00	1

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	3.9	ug/L			06/27/20 20:57	10
1,1,2,2-Tetrachloroethane	ND		50	2.6	ug/L			06/27/20 20:57	10
1,1,2-Trichloroethane	ND		50	4.8	ug/L			06/27/20 20:57	10
1,1-Dichloroethane	ND		50	5.9	ug/L			06/27/20 20:57	10
1,1-Dichloroethene	ND		50	8.5	ug/L			06/27/20 20:57	10
1,2-Dichlorobenzene	ND		50	4.4	ug/L			06/27/20 20:57	10
1,2-Dichloroethane	ND		50	6.0	ug/L			06/27/20 20:57	10
1,2-Dichloroethene, Total	ND		100	32	ug/L			06/27/20 20:57	10
1,2-Dichloropropane	ND		50	6.1	ug/L			06/27/20 20:57	10
1,3-Dichlorobenzene	ND		50	5.4	ug/L			06/27/20 20:57	10
1,4-Dichlorobenzene	ND		50	5.1	ug/L			06/27/20 20:57	10
2-Chloroethyl vinyl ether	ND		250	19	ug/L			06/27/20 20:57	10
Acrolein	ND		1000	170	ug/L			06/27/20 20:57	10
Acrylonitrile	ND		500	19	ug/L			06/27/20 20:57	10
Benzene	73		50	6.0	ug/L			06/27/20 20:57	10
Bromoform	ND		50	4.7	ug/L			06/27/20 20:57	10
Bromomethane	ND		50	12	ug/L			06/27/20 20:57	10
Carbon tetrachloride	ND		50	5.1	ug/L			06/27/20 20:57	10
Chlorobenzene	ND		50	4.8	ug/L			06/27/20 20:57	10
Chlorodibromomethane	ND		50	4.1	ug/L			06/27/20 20:57	10
Chloroethane	ND		50	8.7	ug/L			06/27/20 20:57	10
Chloroform	ND		50	5.4	ug/L			06/27/20 20:57	10
Chloromethane	ND		50	6.4	ug/L			06/27/20 20:57	10
cis-1,3-Dichloropropene	ND		50	3.3	ug/L			06/27/20 20:57	10
Dichlorobromomethane	ND		50	5.4	ug/L			06/27/20 20:57	10
Ethylbenzene	130		50	4.6	ug/L			06/27/20 20:57	10
Methylene Chloride	ND		50	8.1	ug/L			06/27/20 20:57	10
Tetrachloroethene	ND		50	3.4	ug/L			06/27/20 20:57	10
Toluene	ND		50	4.5	ug/L			06/27/20 20:57	10
trans-1,2-Dichloroethene	ND		50	5.9	ug/L			06/27/20 20:57	10
trans-1,3-Dichloropropene	ND		50	4.4	ug/L			06/27/20 20:57	10
Trichloroethene	ND		50	6.0	ug/L			06/27/20 20:57	10
Vinyl chloride	ND		50	7.5	ug/L			06/27/20 20:57	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		68 - 130		06/27/20 20:57	10
4-Bromofluorobenzene (Surr)	99		76 - 123		06/27/20 20:57	10
Dibromofluoromethane (Surr)	102		75 - 123		06/27/20 20:57	10
Toluene-d8 (Surr)	96		77 - 120		06/27/20 20:57	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0	1.1	ug/L			06/29/20 22:34	5
2-Butanone (MEK)	ND		50	6.6	ug/L			06/29/20 22:34	5
Benzene	50		5.0	2.1	ug/L			06/29/20 22:34	5
Carbon tetrachloride	ND		5.0	1.4	ug/L			06/29/20 22:34	5
Chlorobenzene	ND		5.0	3.8	ug/L			06/29/20 22:34	5
Chloroform	ND		5.0	1.7	ug/L			06/29/20 22:34	5
Tetrachloroethene	ND		5.0	1.8	ug/L			06/29/20 22:34	5
Trichloroethene	ND		5.0	2.3	ug/L			06/29/20 22:34	5

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0	4.5	ug/L			06/29/20 22:34	5
1,1-Dichloroethene	ND		5.0	1.5	ug/L			06/29/20 22:34	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		77 - 120					06/29/20 22:34	5
4-Bromofluorobenzene (Surr)	106		73 - 120					06/29/20 22:34	5
Toluene-d8 (Surr)	97		80 - 120					06/29/20 22:34	5
Dibromofluoromethane (Surr)	106		75 - 123					06/29/20 22:34	5

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		100	8.2	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,2-Dichlorobenzene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,2-Diphenylhydrazine	ND		100	7.8	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,3-Dichlorobenzene	ND		100	6.9	ug/L		06/29/20 16:29	06/30/20 13:39	10
1,4-Dichlorobenzene	ND		100	56	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,2'-oxybis[1-chloropropane]	ND		50	8.4	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4,6-Trichlorophenol	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dichlorophenol	ND		50	7.7	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dimethylphenol	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dinitrophenol	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,4-Dinitrotoluene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
2,6-Dinitrotoluene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Chloronaphthalene	ND		50	9.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Chlorophenol	ND		50	6.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
2-Nitrophenol	ND		50	7.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
3,3'-Dichlorobenzidine	ND		50	8.2	ug/L		06/29/20 16:29	06/30/20 13:39	10
4,6-Dinitro-2-methylphenol	ND		100	6.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Bromophenyl phenyl ether	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Chloro-3-methylphenol	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Chlorophenyl phenyl ether	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
4-Nitrophenol	ND		150	100	ug/L		06/29/20 16:29	06/30/20 13:39	10
Acenaphthene	12 J		50	8.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
Acenaphthylene	ND		50	8.7	ug/L		06/29/20 16:29	06/30/20 13:39	10
Anthracene	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzidine	ND	*1	800	350	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[a]anthracene	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[a]pyrene	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[b]fluoranthene	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[g,h,i]perylene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Benzo[k]fluoranthene	ND		50	13	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-chloroethoxy)methane	ND		50	7.5	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-chloroethyl)ether	ND		50	9.3	ug/L		06/29/20 16:29	06/30/20 13:39	10
Bis(2-ethylhexyl) phthalate	33 J		100	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Butyl benzyl phthalate	ND		50	11	ug/L		06/29/20 16:29	06/30/20 13:39	10
Chrysene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Dibenz(a,h)anthracene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Diethyl phthalate	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Dimethyl phthalate	ND		50	9.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
Di-n-butyl phthalate	ND		50	16	ug/L		06/29/20 16:29	06/30/20 13:39	10

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Fluoranthene	ND		50	16	ug/L		06/29/20 16:29	06/30/20 13:39	10
Fluorene	11	J	50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorobenzene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorobutadiene	ND		50	10	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachlorocyclopentadiene	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
Hexachloroethane	ND		50	6.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
Indeno[1,2,3-cd]pyrene	ND		50	15	ug/L		06/29/20 16:29	06/30/20 13:39	10
Isophorone	ND		50	7.4	ug/L		06/29/20 16:29	06/30/20 13:39	10
Naphthalene	ND		50	8.6	ug/L		06/29/20 16:29	06/30/20 13:39	10
Nitrobenzene	ND		50	8.1	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodimethylamine	ND		100	50	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodi-n-propylamine	ND		50	8.9	ug/L		06/29/20 16:29	06/30/20 13:39	10
N-Nitrosodiphenylamine	ND		50	4.0	ug/L		06/29/20 16:29	06/30/20 13:39	10
Pentachlorophenol	ND		100	16	ug/L		06/29/20 16:29	06/30/20 13:39	10
Phenanthrene	ND		50	12	ug/L		06/29/20 16:29	06/30/20 13:39	10
Phenol	ND		50	3.5	ug/L		06/29/20 16:29	06/30/20 13:39	10
Pyrene	ND		50	14	ug/L		06/29/20 16:29	06/30/20 13:39	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	94		52 - 151	06/29/20 16:29	06/30/20 13:39	10
2-Fluorobiphenyl	82		44 - 120	06/29/20 16:29	06/30/20 13:39	10
2-Fluorophenol	43		17 - 120	06/29/20 16:29	06/30/20 13:39	10
Nitrobenzene-d5	78		15 - 314	06/29/20 16:29	06/30/20 13:39	10
Phenol-d5	30		8 - 424	06/29/20 16:29	06/30/20 13:39	10
p-Terphenyl-d14 (Surr)	88		22 - 125	06/29/20 16:29	06/30/20 13:39	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4,5-Trichlorophenol	ND	*	5.0	0.48	ug/L		06/30/20 15:20	07/01/20 12:56	1
2,4,6-Trichlorophenol	ND	*	5.0	0.61	ug/L		06/30/20 15:20	07/01/20 12:56	1
2-Methylphenol	2.6	J	5.0	0.40	ug/L		06/30/20 15:20	07/01/20 12:56	1
3-Methylphenol	ND		10	0.40	ug/L		06/30/20 15:20	07/01/20 12:56	1
4-Methylphenol	ND		10	0.36	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 12:56	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 12:56	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 12:56	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 12:56	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	148	X	41 - 120	06/30/20 15:20	07/01/20 12:56	1
2-Fluorobiphenyl	116		48 - 120	06/30/20 15:20	07/01/20 12:56	1
2-Fluorophenol (Surr)	80		35 - 120	06/30/20 15:20	07/01/20 12:56	1
Nitrobenzene-d5 (Surr)	112		46 - 120	06/30/20 15:20	07/01/20 12:56	1
p-Terphenyl-d14 (Surr)	118		60 - 148	06/30/20 15:20	07/01/20 12:56	1
Phenol-d5 (Surr)	60		22 - 120	06/30/20 15:20	07/01/20 12:56	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:18	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/03/20 03:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	25	X	36 - 121	07/01/20 15:48	07/03/20 03:18	1
Tetrachloro-m-xylene (Surr)	57		42 - 135	07/01/20 15:48	07/03/20 03:18	1

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.8		0.50	0.14	ng/L		07/01/20 11:00	07/06/20 11:59	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:19	1
Chromium	0.0022	J	0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:19	1
Iron	1.3		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:19	1
Lead	0.0047	J	0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:19	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:40	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:40	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:40	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 20:35	1
Barium	0.034	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 20:35	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 20:35	1
Chromium	0.0021	J	0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 20:35	1
Lead	0.0040	J	0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 20:35	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 20:35	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 20:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	2.9	J	4.8	1.3	mg/L		06/29/20 16:43	06/30/20 19:40	1
Fluoride	0.17		0.10	0.052	mg/L			06/30/20 17:51	2
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:47	1
Chemical Oxygen Demand	858		100	50.0	mg/L			07/01/20 17:59	10
Phenolics, Total Recoverable	0.040		0.010	0.0035	mg/L			07/02/20 15:48	1

Eurofins TestAmerica, Buffalo

Client Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	387		10.0	4.0	mg/L			06/30/20 14:57	1
Chromium, hexavalent	ND	H	0.010	0.0050	mg/L			06/27/20 11:02	1
Ferrous Iron	ND	HF	0.10	0.075	mg/L			06/27/20 15:55	1
Biochemical Oxygen Demand	99.6	b	60.0	60.0	mg/L			06/27/20 06:33	1
Carbonaceous Biochemical Oxygen Demand	98.8	b	24.0	24.0	mg/L			06/27/20 06:33	1
Total Organic Carbon	183		4.0	1.7	mg/L			07/02/20 20:34	4
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	16.4		4.0	4.0	mg/L			06/27/20 11:05	1
pH	7.5	HF	0.1	0.1	SU			06/30/20 14:03	1
Temperature	19.3	HF	0.001	0.001	Degrees C			06/30/20 14:03	1

Surrogate Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	DBFM (75-123)	TOL (77-120)
480-171773-1	GEOBAG FILTRATE	103	101	103	101
480-171773-2	FILTER PRESS FILTRATE	99	99	102	96
LCS 480-538351/5	Lab Control Sample	101	103	100	100
MB 480-538351/7	Method Blank	101	101	103	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 TOL = Toluene-d8 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (77-120)	BFB (73-120)	TOL (80-120)	DBFM (75-123)
480-171773-1	GEOBAG FILTRATE	112	106	94	108
480-171773-2	FILTER PRESS FILTRATE	107	106	97	106
LCS 480-538566/5	Lab Control Sample	108	109	96	110
MB 480-538566/7	Method Blank	110	105	96	111

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (Surr)

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TBP (52-151)	FBP (44-120)	2FP (17-120)	NBZ (15-314)	PHL (8-424)	TPHd14 (22-125)
480-171773-1	GEOBAG FILTRATE	94	88	39	76	28	67
480-171773-2	FILTER PRESS FILTRATE	94	82	43	78	30	88
LCS 480-538584/2-A	Lab Control Sample	121	85	50	87	35	108
LCSD 480-538584/3-A	Lab Control Sample Dup	110	86	46	85	33	107
MB 480-538584/1-A	Method Blank	110	89	51	92	35	109

Surrogate Legend

TBP = 2,4,6-Tribromophenol
 FBP = 2-Fluorobiphenyl
 2FP = 2-Fluorophenol
 NBZ = Nitrobenzene-d5
 PHL = Phenol-d5
 TPHd14 = p-Terphenyl-d14 (Surr)

Surrogate Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (41-120)	FBP (48-120)	2FP (35-120)	NBZ (46-120)	TPHd14 (60-148)	PHL (22-120)
480-171773-1	GEOBAG FILTRATE	137 X	98	75	104	89	53
480-171773-2	FILTER PRESS FILTRATE	148 X	116	80	112	118	60
LCS 480-538762/2-A	Lab Control Sample	130 X	105	84	105	112	65
MB 480-538762/1-A	Method Blank	104	106	79	104	112	56

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 TPHd14 = p-Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1 (36-121)	TCX1 (42-135)
480-171773-1	GEOBAG FILTRATE	20 X	42
480-171773-2	FILTER PRESS FILTRATE	25 X	57
LCS 480-538962/2-A	Lab Control Sample	43	72
LCSD 480-538962/3-A	Lab Control Sample Dup	44	65
MB 480-538962/1-A	Method Blank	47	71

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene (Surr)

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-538351/7
Matrix: Water
Analysis Batch: 538351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.39	ug/L			06/27/20 14:04	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.26	ug/L			06/27/20 14:04	1
1,1,2-Trichloroethane	ND		5.0	0.48	ug/L			06/27/20 14:04	1
1,1-Dichloroethane	ND		5.0	0.59	ug/L			06/27/20 14:04	1
1,1-Dichloroethene	ND		5.0	0.85	ug/L			06/27/20 14:04	1
1,2-Dichlorobenzene	ND		5.0	0.44	ug/L			06/27/20 14:04	1
1,2-Dichloroethane	ND		5.0	0.60	ug/L			06/27/20 14:04	1
1,2-Dichloroethene, Total	ND		10	3.2	ug/L			06/27/20 14:04	1
1,2-Dichloropropane	ND		5.0	0.61	ug/L			06/27/20 14:04	1
1,3-Dichlorobenzene	ND		5.0	0.54	ug/L			06/27/20 14:04	1
1,4-Dichlorobenzene	ND		5.0	0.51	ug/L			06/27/20 14:04	1
2-Chloroethyl vinyl ether	ND		25	1.9	ug/L			06/27/20 14:04	1
Acrolein	ND		100	17	ug/L			06/27/20 14:04	1
Acrylonitrile	ND		50	1.9	ug/L			06/27/20 14:04	1
Benzene	ND		5.0	0.60	ug/L			06/27/20 14:04	1
Bromoform	ND		5.0	0.47	ug/L			06/27/20 14:04	1
Bromomethane	ND		5.0	1.2	ug/L			06/27/20 14:04	1
Carbon tetrachloride	ND		5.0	0.51	ug/L			06/27/20 14:04	1
Chlorobenzene	ND		5.0	0.48	ug/L			06/27/20 14:04	1
Chlorodibromomethane	ND		5.0	0.41	ug/L			06/27/20 14:04	1
Chloroethane	ND		5.0	0.87	ug/L			06/27/20 14:04	1
Chloroform	ND		5.0	0.54	ug/L			06/27/20 14:04	1
Chloromethane	ND		5.0	0.64	ug/L			06/27/20 14:04	1
cis-1,3-Dichloropropene	ND		5.0	0.33	ug/L			06/27/20 14:04	1
Dichlorobromomethane	ND		5.0	0.54	ug/L			06/27/20 14:04	1
Ethylbenzene	ND		5.0	0.46	ug/L			06/27/20 14:04	1
Methylene Chloride	ND		5.0	0.81	ug/L			06/27/20 14:04	1
Tetrachloroethene	ND		5.0	0.34	ug/L			06/27/20 14:04	1
Toluene	ND		5.0	0.45	ug/L			06/27/20 14:04	1
trans-1,2-Dichloroethene	ND		5.0	0.59	ug/L			06/27/20 14:04	1
trans-1,3-Dichloropropene	ND		5.0	0.44	ug/L			06/27/20 14:04	1
Trichloroethene	ND		5.0	0.60	ug/L			06/27/20 14:04	1
Vinyl chloride	ND		5.0	0.75	ug/L			06/27/20 14:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		68 - 130		06/27/20 14:04	1
4-Bromofluorobenzene (Surr)	101		76 - 123		06/27/20 14:04	1
Dibromofluoromethane (Surr)	103		75 - 123		06/27/20 14:04	1
Toluene-d8 (Surr)	97		77 - 120		06/27/20 14:04	1

Lab Sample ID: LCS 480-538351/5
Matrix: Water
Analysis Batch: 538351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	19.3		ug/L		96	52 - 162
1,1,2,2-Tetrachloroethane	20.0	19.6		ug/L		98	46 - 157
1,1,2-Trichloroethane	20.0	20.0		ug/L		100	52 - 150

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-538351/5
 Matrix: Water
 Analysis Batch: 538351

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	20.0	19.0		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	19.6		ug/L		98	1 - 234
1,2-Dichlorobenzene	20.0	19.4		ug/L		97	18 - 190
1,2-Dichloroethane	20.0	18.6		ug/L		93	49 - 155
1,2-Dichloropropane	20.0	18.8		ug/L		94	1 - 210
1,3-Dichlorobenzene	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	20.0	19.0		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	19.7	J	ug/L		99	1 - 305
Benzene	20.0	19.1		ug/L		96	37 - 151
Bromoform	20.0	19.6		ug/L		98	45 - 169
Bromomethane	20.0	19.1		ug/L		95	1 - 242
Carbon tetrachloride	20.0	19.4		ug/L		97	70 - 140
Chlorobenzene	20.0	18.9		ug/L		95	37 - 160
Chlorodibromomethane	20.0	19.2		ug/L		96	53 - 149
Chloroethane	20.0	19.5		ug/L		98	14 - 230
Chloroform	20.0	18.9		ug/L		95	51 - 138
Chloromethane	20.0	18.5		ug/L		93	1 - 273
cis-1,3-Dichloropropene	20.0	19.2		ug/L		96	1 - 227
Dichlorobromomethane	20.0	18.9		ug/L		94	35 - 155
Ethylbenzene	20.0	19.3		ug/L		96	37 - 162
Methylene Chloride	20.0	18.1		ug/L		90	1 - 221
Tetrachloroethene	20.0	19.2		ug/L		96	64 - 148
Toluene	20.0	19.1		ug/L		96	47 - 150
trans-1,2-Dichloroethene	20.0	18.9		ug/L		94	54 - 156
trans-1,3-Dichloropropene	20.0	19.5		ug/L		97	17 - 183
Trichloroethene	20.0	18.8		ug/L		94	71 - 157
Vinyl chloride	20.0	19.0		ug/L		95	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Dibromofluoromethane (Surr)	100		75 - 123
Toluene-d8 (Surr)	100		77 - 120

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

Lab Sample ID: MB 480-538566/7
 Matrix: Water
 Analysis Batch: 538566

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/29/20 17:07	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/29/20 17:07	1
Benzene	ND		1.0	0.41	ug/L			06/29/20 17:07	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/29/20 17:07	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/29/20 17:07	1
Chloroform	ND		1.0	0.34	ug/L			06/29/20 17:07	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/29/20 17:07	1
Trichloroethene	ND		1.0	0.46	ug/L			06/29/20 17:07	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Lab Sample ID: MB 480-538566/7
Matrix: Water
Analysis Batch: 538566

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0	0.90	ug/L			06/29/20 17:07	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/29/20 17:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		77 - 120		06/29/20 17:07	1
4-Bromofluorobenzene (Surr)	105		73 - 120		06/29/20 17:07	1
Toluene-d8 (Surr)	96		80 - 120		06/29/20 17:07	1
Dibromofluoromethane (Surr)	111		75 - 123		06/29/20 17:07	1

Lab Sample ID: LCS 480-538566/5
Matrix: Water
Analysis Batch: 538566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	27.5		ug/L		110	75 - 120
2-Butanone (MEK)	125	126		ug/L		101	57 - 140
Benzene	25.0	21.8		ug/L		87	71 - 124
Carbon tetrachloride	25.0	29.4		ug/L		118	72 - 134
Chlorobenzene	25.0	22.8		ug/L		91	80 - 120
Chloroform	25.0	25.1		ug/L		100	73 - 127
Tetrachloroethene	25.0	24.7		ug/L		99	74 - 122
Trichloroethene	25.0	23.8		ug/L		95	74 - 123
Vinyl chloride	25.0	25.1		ug/L		100	65 - 133
1,1-Dichloroethene	25.0	23.9		ug/L		96	66 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		77 - 120
4-Bromofluorobenzene (Surr)	109		73 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	110		75 - 123

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		10	0.82	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,2-Dichlorobenzene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,2-Diphenylhydrazine	ND		10	0.78	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,3-Dichlorobenzene	ND		10	0.69	ug/L		06/29/20 16:29	06/30/20 11:38	1
1,4-Dichlorobenzene	ND		10	5.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,2'-oxybis[1-chloropropane]	ND		5.0	0.84	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4,6-Trichlorophenol	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dichlorophenol	ND		5.0	0.77	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dimethylphenol	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,4-Dinitrophenol	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4-Dinitrotoluene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2,6-Dinitrotoluene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Chloronaphthalene	ND		5.0	0.91	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Chlorophenol	ND		5.0	0.66	ug/L		06/29/20 16:29	06/30/20 11:38	1
2-Nitrophenol	ND		5.0	0.70	ug/L		06/29/20 16:29	06/30/20 11:38	1
3,3'-Dichlorobenzidine	ND		5.0	0.82	ug/L		06/29/20 16:29	06/30/20 11:38	1
4,6-Dinitro-2-methylphenol	ND		10	0.66	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Bromophenyl phenyl ether	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Chloro-3-methylphenol	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Chlorophenyl phenyl ether	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
4-Nitrophenol	ND		15	10	ug/L		06/29/20 16:29	06/30/20 11:38	1
Acenaphthene	ND		5.0	0.81	ug/L		06/29/20 16:29	06/30/20 11:38	1
Acenaphthylene	ND		5.0	0.87	ug/L		06/29/20 16:29	06/30/20 11:38	1
Anthracene	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzidine	ND		80	35	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[a]anthracene	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[a]pyrene	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[b]fluoranthene	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[g,h,i]perylene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Benzo[k]fluoranthene	ND		5.0	1.3	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-chloroethoxy)methane	ND		5.0	0.75	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-chloroethyl)ether	ND		5.0	0.93	ug/L		06/29/20 16:29	06/30/20 11:38	1
Bis(2-ethylhexyl) phthalate	ND		10	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Butyl benzyl phthalate	ND		5.0	1.1	ug/L		06/29/20 16:29	06/30/20 11:38	1
Chrysene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Dibenz(a,h)anthracene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Diethyl phthalate	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Dimethyl phthalate	ND		5.0	0.91	ug/L		06/29/20 16:29	06/30/20 11:38	1
Di-n-butyl phthalate	ND		5.0	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Di-n-octyl phthalate	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Fluoranthene	ND		5.0	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Fluorene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorobenzene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorobutadiene	ND		5.0	1.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachlorocyclopentadiene	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
Hexachloroethane	ND		5.0	0.60	ug/L		06/29/20 16:29	06/30/20 11:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	1.5	ug/L		06/29/20 16:29	06/30/20 11:38	1
Isophorone	ND		5.0	0.74	ug/L		06/29/20 16:29	06/30/20 11:38	1
Naphthalene	ND		5.0	0.86	ug/L		06/29/20 16:29	06/30/20 11:38	1
Nitrobenzene	ND		5.0	0.81	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodimethylamine	ND		10	5.0	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodi-n-propylamine	ND		5.0	0.89	ug/L		06/29/20 16:29	06/30/20 11:38	1
N-Nitrosodiphenylamine	ND		5.0	0.40	ug/L		06/29/20 16:29	06/30/20 11:38	1
Pentachlorophenol	ND		10	1.6	ug/L		06/29/20 16:29	06/30/20 11:38	1
Phenanthrene	ND		5.0	1.2	ug/L		06/29/20 16:29	06/30/20 11:38	1
Phenol	ND		5.0	0.35	ug/L		06/29/20 16:29	06/30/20 11:38	1
Pyrene	ND		5.0	1.4	ug/L		06/29/20 16:29	06/30/20 11:38	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-538584/1-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538584

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol	110		52 - 151	06/29/20 16:29	06/30/20 11:38	1
2-Fluorobiphenyl	89		44 - 120	06/29/20 16:29	06/30/20 11:38	1
2-Fluorophenol	51		17 - 120	06/29/20 16:29	06/30/20 11:38	1
Nitrobenzene-d5	92		15 - 314	06/29/20 16:29	06/30/20 11:38	1
Phenol-d5	35		8 - 424	06/29/20 16:29	06/30/20 11:38	1
p-Terphenyl-d14 (Surr)	109		22 - 125	06/29/20 16:29	06/30/20 11:38	1

Lab Sample ID: LCS 480-538584/2-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,4-Trichlorobenzene	50.0	39.3		ug/L		79	44 - 142
1,2-Dichlorobenzene	50.0	34.7		ug/L		69	32 - 129
1,2-Diphenylhydrazine	50.0	50.2		ug/L		100	47 - 146
1,3-Dichlorobenzene	50.0	32.3		ug/L		65	1 - 172
1,4-Dichlorobenzene	50.0	33.6		ug/L		67	20 - 124
2,2'-oxybis[1-chloropropane]	50.0	40.9		ug/L		82	36 - 166
2,4,6-Trichlorophenol	50.0	52.8		ug/L		106	37 - 144
2,4-Dichlorophenol	50.0	48.9		ug/L		98	39 - 135
2,4-Dimethylphenol	50.0	47.6		ug/L		95	32 - 120
2,4-Dinitrophenol	100	125		ug/L		125	1 - 191
2,4-Dinitrotoluene	50.0	52.7		ug/L		105	39 - 139
2,6-Dinitrotoluene	50.0	51.8		ug/L		104	50 - 158
2-Chloronaphthalene	50.0	43.9		ug/L		88	60 - 120
2-Chlorophenol	50.0	39.9		ug/L		80	23 - 134
2-Nitrophenol	50.0	51.3		ug/L		103	29 - 182
3,3'-Dichlorobenzidine	100	108		ug/L		108	1 - 262
4,6-Dinitro-2-methylphenol	100	115		ug/L		115	1 - 181
4-Bromophenyl phenyl ether	50.0	51.7		ug/L		103	53 - 127
4-Chloro-3-methylphenol	50.0	51.3		ug/L		103	22 - 147
4-Chlorophenyl phenyl ether	50.0	48.1		ug/L		96	25 - 158
4-Nitrophenol	100	51.6		ug/L		52	1 - 132
Acenaphthene	50.0	47.0		ug/L		94	47 - 145
Acenaphthylene	50.0	47.7		ug/L		95	33 - 145
Anthracene	50.0	52.0		ug/L		104	27 - 133
Benzidine	100	36.5	J	ug/L		36	1 - 120
Benzo[a]anthracene	50.0	50.8		ug/L		102	33 - 143
Benzo[a]pyrene	50.0	51.9		ug/L		104	17 - 163
Benzo[b]fluoranthene	50.0	52.1		ug/L		104	24 - 159
Benzo[g,h,i]perylene	50.0	52.6		ug/L		105	1 - 219
Benzo[k]fluoranthene	50.0	52.1		ug/L		104	11 - 162
Bis(2-chloroethoxy)methane	50.0	44.4		ug/L		89	33 - 184
Bis(2-chloroethyl)ether	50.0	40.7		ug/L		81	12 - 158
Bis(2-ethylhexyl) phthalate	50.0	53.5		ug/L		107	8 - 158
Butyl benzyl phthalate	50.0	54.7		ug/L		109	1 - 152
Chrysene	50.0	49.9		ug/L		100	17 - 168
Dibenz(a,h)anthracene	50.0	53.1		ug/L		106	1 - 227

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QC Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-538584/2-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diethyl phthalate	50.0	50.7		ug/L		101	1 - 120
Dimethyl phthalate	50.0	49.2		ug/L		98	1 - 120
Di-n-butyl phthalate	50.0	55.1		ug/L		110	1 - 120
Di-n-octyl phthalate	50.0	55.2		ug/L		110	4 - 146
Fluoranthene	50.0	53.7		ug/L		107	26 - 137
Fluorene	50.0	47.3		ug/L		95	59 - 121
Hexachlorobenzene	50.0	51.5		ug/L		103	1 - 152
Hexachlorobutadiene	50.0	38.3		ug/L		77	24 - 120
Hexachlorocyclopentadiene	50.0	42.5		ug/L		85	5 - 120
Hexachloroethane	50.0	33.9		ug/L		68	40 - 120
Indeno[1,2,3-cd]pyrene	50.0	53.8		ug/L		108	1 - 171
Isophorone	50.0	47.1		ug/L		94	21 - 196
Naphthalene	50.0	41.7		ug/L		83	21 - 133
Nitrobenzene	50.0	44.5		ug/L		89	35 - 180
N-Nitrosodimethylamine	50.0	22.8		ug/L		46	19 - 120
N-Nitrosodi-n-propylamine	50.0	45.0		ug/L		90	1 - 230
N-Nitrosodiphenylamine	50.0	52.2		ug/L		104	54 - 125
Pentachlorophenol	100	117		ug/L		117	14 - 176
Phenanthrene	50.0	50.6		ug/L		101	54 - 120
Phenol	50.0	19.7		ug/L		39	5 - 120
Pyrene	50.0	50.6		ug/L		101	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	121		52 - 151
2-Fluorobiphenyl	85		44 - 120
2-Fluorophenol	50		17 - 120
Nitrobenzene-d5	87		15 - 314
Phenol-d5	35		8 - 424
p-Terphenyl-d14 (Surr)	108		22 - 125

Lab Sample ID: LCSD 480-538584/3-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	50.0	40.4		ug/L		81	44 - 142	3	34
1,2-Dichlorobenzene	50.0	34.9		ug/L		70	32 - 129	0	38
1,2-Diphenylhydrazine	50.0	49.6		ug/L		99	47 - 146	1	20
1,3-Dichlorobenzene	50.0	33.5		ug/L		67	1 - 172	4	37
1,4-Dichlorobenzene	50.0	34.0		ug/L		68	20 - 124	1	40
2,2'-oxybis[1-chloropropane]	50.0	39.1		ug/L		78	36 - 166	4	36
2,4,6-Trichlorophenol	50.0	54.0		ug/L		108	37 - 144	2	20
2,4-Dichlorophenol	50.0	48.4		ug/L		97	39 - 135	1	23
2,4-Dimethylphenol	50.0	46.1		ug/L		92	32 - 120	3	18
2,4-Dinitrophenol	100	127		ug/L		127	1 - 191	1	29
2,4-Dinitrotoluene	50.0	53.7		ug/L		107	39 - 139	2	20
2,6-Dinitrotoluene	50.0	52.9		ug/L		106	50 - 158	2	17
2-Chloronaphthalene	50.0	44.9		ug/L		90	60 - 120	2	30

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QC Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-538584/3-A

Matrix: Water

Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 538584

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chlorophenol	50.0	38.6		ug/L		77	23 - 134	4	26
2-Nitrophenol	50.0	48.8		ug/L		98	29 - 182	5	28
3,3'-Dichlorobenzidine	100	106		ug/L		106	1 - 262	2	31
4,6-Dinitro-2-methylphenol	100	113		ug/L		113	1 - 181	2	30
4-Bromophenyl phenyl ether	50.0	50.4		ug/L		101	53 - 127	3	16
4-Chloro-3-methylphenol	50.0	48.6		ug/L		97	22 - 147	5	16
4-Chlorophenyl phenyl ether	50.0	48.0		ug/L		96	25 - 158	0	15
4-Nitrophenol	100	51.2		ug/L		51	1 - 132	1	24
Acenaphthene	50.0	47.4		ug/L		95	47 - 145	1	25
Acenaphthylene	50.0	48.0		ug/L		96	33 - 145	1	22
Anthracene	50.0	49.6		ug/L		99	27 - 133	5	15
Benzidine	100	61.3	J *1	ug/L		61	1 - 120	51	50
Benzo[a]anthracene	50.0	50.5		ug/L		101	33 - 143	1	15
Benzo[a]pyrene	50.0	53.0		ug/L		106	17 - 163	2	15
Benzo[b]fluoranthene	50.0	56.9		ug/L		114	24 - 159	9	17
Benzo[g,h,i]perylene	50.0	52.8		ug/L		106	1 - 219	0	19
Benzo[k]fluoranthene	50.0	49.5		ug/L		99	11 - 162	5	19
Bis(2-chloroethoxy)methane	50.0	45.3		ug/L		91	33 - 184	2	23
Bis(2-chloroethyl)ether	50.0	40.1		ug/L		80	12 - 158	1	33
Bis(2-ethylhexyl) phthalate	50.0	54.0		ug/L		108	8 - 158	1	15
Butyl benzyl phthalate	50.0	53.3		ug/L		107	1 - 152	3	15
Chrysene	50.0	50.2		ug/L		100	17 - 168	0	15
Dibenz(a,h)anthracene	50.0	53.1		ug/L		106	1 - 227	0	18
Diethyl phthalate	50.0	50.9		ug/L		102	1 - 120	0	15
Dimethyl phthalate	50.0	50.0		ug/L		100	1 - 120	2	15
Di-n-butyl phthalate	50.0	54.1		ug/L		108	1 - 120	2	15
Di-n-octyl phthalate	50.0	56.1		ug/L		112	4 - 146	2	15
Fluoranthene	50.0	51.8		ug/L		104	26 - 137	4	15
Fluorene	50.0	48.4		ug/L		97	59 - 121	2	18
Hexachlorobenzene	50.0	49.3		ug/L		99	1 - 152	4	15
Hexachlorobutadiene	50.0	38.0		ug/L		76	24 - 120	1	50
Hexachlorocyclopentadiene	50.0	43.3		ug/L		87	5 - 120	2	50
Hexachloroethane	50.0	33.1		ug/L		66	40 - 120	2	43
Indeno[1,2,3-cd]pyrene	50.0	53.4		ug/L		107	1 - 171	1	17
Isophorone	50.0	45.8		ug/L		92	21 - 196	3	21
Naphthalene	50.0	41.3		ug/L		83	21 - 133	1	31
Nitrobenzene	50.0	43.1		ug/L		86	35 - 180	3	27
N-Nitrosodimethylamine	50.0	21.8		ug/L		44	19 - 120	5	22
N-Nitrosodi-n-propylamine	50.0	43.9		ug/L		88	1 - 230	3	23
N-Nitrosodiphenylamine	50.0	49.8		ug/L		100	54 - 125	5	15
Pentachlorophenol	100	115		ug/L		115	14 - 176	2	21
Phenanthrene	50.0	49.4		ug/L		99	54 - 120	2	16
Phenol	50.0	18.8		ug/L		38	5 - 120	5	36
Pyrene	50.0	50.2		ug/L		100	52 - 120	1	15

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2,4,6-Tribromophenol	110		52 - 151
2-Fluorobiphenyl	86		44 - 120

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-538584/3-A
Matrix: Water
Analysis Batch: 538685

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 538584

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Fluorophenol	46		17 - 120
Nitrobenzene-d5	85		15 - 314
Phenol-d5	33		8 - 424
p-Terphenyl-d14 (Surr)	107		22 - 125

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

Lab Sample ID: MB 480-538762/1-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		10	0.46	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		06/30/20 15:20	07/01/20 11:29	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		06/30/20 15:20	07/01/20 11:29	1
2-Methylphenol	ND		5.0	0.40	ug/L		06/30/20 15:20	07/01/20 11:29	1
3-Methylphenol	ND		10	0.40	ug/L		06/30/20 15:20	07/01/20 11:29	1
4-Methylphenol	ND		10	0.36	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		06/30/20 15:20	07/01/20 11:29	1
Hexachloroethane	ND		5.0	0.59	ug/L		06/30/20 15:20	07/01/20 11:29	1
Nitrobenzene	ND		5.0	0.29	ug/L		06/30/20 15:20	07/01/20 11:29	1
Pentachlorophenol	ND		10	2.2	ug/L		06/30/20 15:20	07/01/20 11:29	1
Pyridine	ND		25	0.41	ug/L		06/30/20 15:20	07/01/20 11:29	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	104		41 - 120	06/30/20 15:20	07/01/20 11:29	1
2-Fluorobiphenyl	106		48 - 120	06/30/20 15:20	07/01/20 11:29	1
2-Fluorophenol (Surr)	79		35 - 120	06/30/20 15:20	07/01/20 11:29	1
Nitrobenzene-d5 (Surr)	104		46 - 120	06/30/20 15:20	07/01/20 11:29	1
p-Terphenyl-d14 (Surr)	112		60 - 148	06/30/20 15:20	07/01/20 11:29	1
Phenol-d5 (Surr)	56		22 - 120	06/30/20 15:20	07/01/20 11:29	1

Lab Sample ID: LCS 480-538762/2-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dichlorobenzene	32.0	29.8		ug/L		93	51 - 120
2,4-Dinitrotoluene	32.0	35.7		ug/L		112	69 - 120
2,4,5-Trichlorophenol	32.0	41.8	*	ug/L		131	65 - 126
2,4,6-Trichlorophenol	32.0	39.3	*	ug/L		123	64 - 120
2-Methylphenol	32.0	32.8		ug/L		102	39 - 120
3-Methylphenol	32.0	31.2		ug/L		98	39 - 120
4-Methylphenol	32.0	31.2		ug/L		97	29 - 131
Hexachlorobenzene	32.0	35.5		ug/L		111	61 - 120
Hexachlorobutadiene	32.0	33.3		ug/L		104	35 - 120

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

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

Lab Sample ID: LCS 480-538762/2-A
Matrix: Water
Analysis Batch: 538875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachloroethane	32.0	28.5		ug/L		89	43 - 120
Nitrobenzene	32.0	33.5		ug/L		105	53 - 123
Pentachlorophenol	64.0	64.2		ug/L		100	29 - 136
Pyridine	64.0	34.6		ug/L		54	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	130	X	41 - 120
2-Fluorobiphenyl	105		48 - 120
2-Fluorophenol (Surr)	84		35 - 120
Nitrobenzene-d5 (Surr)	105		46 - 120
p-Terphenyl-d14 (Surr)	112		60 - 148
Phenol-d5 (Surr)	65		22 - 120

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 480-538962/1-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538962

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1221	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1232	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1242	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1248	ND		0.060	0.038	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1254	ND		0.060	0.031	ug/L		07/01/20 15:48	07/02/20 22:20	1
PCB-1260	ND		0.060	0.031	ug/L		07/01/20 15:48	07/02/20 22:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	47		36 - 121	07/01/20 15:48	07/02/20 22:20	1
Tetrachloro-m-xylene (Surr)	71		42 - 135	07/01/20 15:48	07/02/20 22:20	1

Lab Sample ID: LCS 480-538962/2-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.00	0.978		ug/L		98	69 - 123
PCB-1260	1.00	0.905		ug/L		91	69 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	43		36 - 121
Tetrachloro-m-xylene (Surr)	72		42 - 135

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCSD 480-538962/3-A
Matrix: Water
Analysis Batch: 539133

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 538962

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	1.00	0.953		ug/L		95	69 - 123	3	30
PCB-1260	1.00	0.899		ug/L		90	69 - 120	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	44		36 - 121
Tetrachloro-m-xylene (Surr)	65		42 - 135

Method: 1631E - Mercury, Low Level (CVAFS)

Lab Sample ID: MB 240-440889/1-A
Matrix: Water
Analysis Batch: 441110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.50	0.14	ng/L		07/01/20 11:00	07/02/20 10:32	1

Lab Sample ID: LCS 240-440889/2-A
Matrix: Water
Analysis Batch: 441110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	5.00	4.96		ng/L		99	77 - 123

Lab Sample ID: 480-171773-1 MS
Matrix: Water
Analysis Batch: 441337

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	35.1		10.0	44.32		ng/L		92	71 - 125

Lab Sample ID: 480-171773-1 MSD
Matrix: Water
Analysis Batch: 441337

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA
Prep Batch: 440889

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	35.1		10.0	44.26		ng/L		91	71 - 125	0	24

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-538451/1-A
Matrix: Water
Analysis Batch: 538638

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538451

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		06/29/20 09:18	06/29/20 18:00	1
Chromium	ND		0.0040	0.0010	mg/L		06/29/20 09:18	06/29/20 18:00	1
Iron	ND		0.050	0.019	mg/L		06/29/20 09:18	06/29/20 18:00	1
Lead	ND		0.010	0.0030	mg/L		06/29/20 09:18	06/29/20 18:00	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-538451/2-A
Matrix: Water
Analysis Batch: 538638

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538451
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.200	0.209		mg/L		104	85 - 115
Chromium	0.200	0.207		mg/L		103	85 - 115
Iron	10.0	10.26		mg/L		103	85 - 115
Lead	0.200	0.203		mg/L		102	85 - 115

Lab Sample ID: MB 480-538744/1-C
Matrix: Water
Analysis Batch: 539257

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 538920

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	ND		0.015	0.0056	mg/L		07/02/20 09:03	07/02/20 16:03	1
Chromium, Dissolved	ND		0.0040	0.0010	mg/L		07/02/20 09:03	07/02/20 16:03	1
Iron, Dissolved	ND		0.050	0.019	mg/L		07/02/20 09:03	07/02/20 16:03	1
Lead, Dissolved	ND		0.010	0.0030	mg/L		07/02/20 09:03	07/02/20 16:03	1

Lab Sample ID: LCS 480-538744/2-C
Matrix: Water
Analysis Batch: 539257

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic, Dissolved	0.200	0.203		mg/L		101	85 - 115
Chromium, Dissolved	0.200	0.201		mg/L		100	85 - 115
Iron, Dissolved	10.0	10.00		mg/L		100	85 - 115
Lead, Dissolved	0.200	0.197		mg/L		99	85 - 115

Lab Sample ID: 480-171773-1 MS
Matrix: Water
Analysis Batch: 539257

Client Sample ID: GEOBAG FILTRATE
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic, Dissolved	ND		0.200	0.207		mg/L		104	70 - 130
Chromium, Dissolved	ND		0.200	0.199		mg/L		99	70 - 130
Iron, Dissolved	ND		10.0	9.92		mg/L		99	70 - 130
Lead, Dissolved	ND		0.200	0.199		mg/L		99	70 - 130

Lab Sample ID: 480-171773-1 MSD
Matrix: Water
Analysis Batch: 539257

Client Sample ID: GEOBAG FILTRATE
Prep Type: Dissolved
Prep Batch: 538920
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic, Dissolved	ND		0.200	0.212		mg/L		106	70 - 130	2	20
Chromium, Dissolved	ND		0.200	0.199		mg/L		100	70 - 130	0	20
Iron, Dissolved	ND		10.0	9.98		mg/L		100	70 - 130	1	20
Lead, Dissolved	ND		0.200	0.200		mg/L		100	70 - 130	1	20

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-539037/1-A
Matrix: Water
Analysis Batch: 539260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 539037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		07/02/20 10:00	07/02/20 19:21	1
Barium	ND	^	0.0020	0.00070	mg/L		07/02/20 10:00	07/02/20 19:21	1
Cadmium	ND		0.0020	0.00050	mg/L		07/02/20 10:00	07/02/20 19:21	1
Chromium	ND		0.0040	0.0010	mg/L		07/02/20 10:00	07/02/20 19:21	1
Lead	ND		0.010	0.0030	mg/L		07/02/20 10:00	07/02/20 19:21	1
Selenium	ND		0.025	0.0087	mg/L		07/02/20 10:00	07/02/20 19:21	1
Silver	ND		0.0060	0.0017	mg/L		07/02/20 10:00	07/02/20 19:21	1

Lab Sample ID: LCS 480-539037/2-A
Matrix: Water
Analysis Batch: 539260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 539037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.200	0.202		mg/L		101	80 - 120
Barium	0.200	0.211	^	mg/L		106	80 - 120
Cadmium	0.200	0.198		mg/L		99	80 - 120
Chromium	0.200	0.200		mg/L		100	80 - 120
Lead	0.200	0.195		mg/L		98	80 - 120
Selenium	0.200	0.195		mg/L		97	80 - 120
Silver	0.0500	0.0482		mg/L		96	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-538722/1-A
Matrix: Water
Analysis Batch: 538883

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		06/30/20 12:40	06/30/20 18:51	1

Lab Sample ID: LCS 480-538722/2-A
Matrix: Water
Analysis Batch: 538883

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 538722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00667	0.00688		mg/L		103	80 - 120

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 480-538587/1-A
Matrix: Water
Analysis Batch: 538602

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 538587

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	ND		5.0	1.4	mg/L		06/29/20 16:43	06/30/20 19:40	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 1664B - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 480-538587/2-A
 Matrix: Water
 Analysis Batch: 538602

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538587
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Oil & Grease	40.0	34.00		mg/L		85	78 - 114

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-538674/4
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.026	mg/L			06/30/20 13:22	1

Lab Sample ID: LCS 480-538674/3
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Fluoride	5.00	4.63		mg/L		93	90 - 110

Lab Sample ID: 480-171773-2 MS
 Matrix: Water
 Analysis Batch: 538674

Client Sample ID: FILTER PRESS FILTRATE
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Fluoride	0.17		10.0	9.50		mg/L		93	82 - 120

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 480-538713/1-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 538713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0050	mg/L		06/30/20 11:22	06/30/20 12:18	1

Lab Sample ID: LCS 480-538713/2-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538713
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.400	0.423		mg/L		106	90 - 110

Lab Sample ID: LCS 480-538713/3-A
 Matrix: Water
 Analysis Batch: 538730

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 538713
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.250	0.255		mg/L		102	90 - 110

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: 410.4 - COD

Lab Sample ID: MB 480-538470/52
Matrix: Water
Analysis Batch: 538470

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10.0	5.0	mg/L			06/28/20 06:29	1

Lab Sample ID: LCS 480-538470/53
Matrix: Water
Analysis Batch: 538470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.60		mg/L		102	90 - 110

Lab Sample ID: MB 480-539130/4
Matrix: Water
Analysis Batch: 539130

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10.0	5.0	mg/L			07/01/20 17:59	1

Lab Sample ID: LCS 480-539130/5
Matrix: Water
Analysis Batch: 539130

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	24.36		mg/L		97	90 - 110

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 480-539178/44
Matrix: Water
Analysis Batch: 539178

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	ND		0.010	0.0035	mg/L			07/02/20 14:39	1

Lab Sample ID: LCS 480-539178/45
Matrix: Water
Analysis Batch: 539178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.101		mg/L		101	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-538756/1
Matrix: Water
Analysis Batch: 538756

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	4.0	mg/L			06/30/20 14:57	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 480-538756/2
 Matrix: Water
 Analysis Batch: 538756

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	504	446.0		mg/L		89	85 - 115

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 480-538343/1
 Matrix: Water
 Analysis Batch: 538343

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	1.0	mg/L			06/27/20 11:05	1

Lab Sample ID: LCS 480-538343/2
 Matrix: Water
 Analysis Batch: 538343

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	341	330.8		mg/L		97	88 - 110

Method: SM 3500 CR D - Chromium, Hexavalent

Lab Sample ID: MB 480-538385/3
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010	0.0050	mg/L			06/27/20 11:02	1

Lab Sample ID: LCS 480-538385/4
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0501		mg/L		100	85 - 115

Lab Sample ID: 480-171773-1 DU
 Matrix: Water
 Analysis Batch: 538385

Client Sample ID: GEOBAG FILTRATE
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND	H	ND		mg/L		NC	15

Method: SM 3500 FE D - Iron, Ferrous and Ferric

Lab Sample ID: MB 480-538395/3
 Matrix: Water
 Analysis Batch: 538395

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND		0.10	0.075	mg/L			06/27/20 15:55	1

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QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 3500 FE D - Iron, Ferrous and Ferric (Continued)

Lab Sample ID: LCS 480-538395/4
Matrix: Water
Analysis Batch: 538395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	2.00	2.01		mg/L		101	90 - 110

Lab Sample ID: 480-171773-2 MS
Matrix: Water
Analysis Batch: 538395

Client Sample ID: FILTER PRESS FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	ND	HF	2.00	1.91		mg/L		96	70 - 130

Lab Sample ID: 480-171773-1 DU
Matrix: Water
Analysis Batch: 538395

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	HF	ND		mg/L		NC	20

Lab Sample ID: 480-171773-2 DU
Matrix: Water
Analysis Batch: 538395

Client Sample ID: FILTER PRESS FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	HF	ND		mg/L		NC	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-538753/1
Matrix: Water
Analysis Batch: 538753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 480-538753/23
Matrix: Water
Analysis Batch: 538753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-538375/1
Matrix: Water
Analysis Batch: 538375

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			06/27/20 06:33	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 480-538375/2
Matrix: Water
Analysis Batch: 538375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	188.3		mg/L		95	85 - 115

Lab Sample ID: USB 480-538376/1
Matrix: Water
Analysis Batch: 538376

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonaceous Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			06/27/20 06:33	1

Lab Sample ID: LCS 480-538376/2
Matrix: Water
Analysis Batch: 538376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbonaceous Biochemical Oxygen Demand	198	183.0		mg/L		92	85 - 115

Lab Sample ID: 480-171773-1 DU
Matrix: Water
Analysis Batch: 538376

Client Sample ID: GEOBAG FILTRATE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Carbonaceous Biochemical Oxygen Demand	16.5	b	28.26	F3	mg/L		53	20

Method: SM 5310C - TOC

Lab Sample ID: MB 480-538906/4
Matrix: Water
Analysis Batch: 538906

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			06/30/20 17:48	1

Lab Sample ID: LCS 480-538906/5
Matrix: Water
Analysis Batch: 538906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.09		mg/L		102	90 - 110

Lab Sample ID: MB 480-539191/4
Matrix: Water
Analysis Batch: 539191

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			07/02/20 16:28	1

Eurofins TestAmerica, Buffalo

QC Sample Results

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method: SM 5310C - TOC (Continued)

Lab Sample ID: LCS 480-539191/5
Matrix: Water
Analysis Batch: 539191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.13		mg/L		102	90 - 110

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

GC/MS VOA

Analysis Batch: 538351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	624.1	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	624.1	
MB 480-538351/7	Method Blank	Total/NA	Water	624.1	
LCS 480-538351/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 538566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	8260C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	8260C	
MB 480-538566/7	Method Blank	Total/NA	Water	8260C	
LCS 480-538566/5	Lab Control Sample	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 538584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	625	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	625	
MB 480-538584/1-A	Method Blank	Total/NA	Water	625	
LCS 480-538584/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 480-538584/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 538685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	625.1	538584
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	625.1	538584
MB 480-538584/1-A	Method Blank	Total/NA	Water	625.1	538584
LCS 480-538584/2-A	Lab Control Sample	Total/NA	Water	625.1	538584
LCSD 480-538584/3-A	Lab Control Sample Dup	Total/NA	Water	625.1	538584

Prep Batch: 538762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3510C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3510C	
MB 480-538762/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-538762/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 538875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	8270D	538762
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	8270D	538762
MB 480-538762/1-A	Method Blank	Total/NA	Water	8270D	538762
LCS 480-538762/2-A	Lab Control Sample	Total/NA	Water	8270D	538762

GC Semi VOA

Prep Batch: 538962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3510C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3510C	
MB 480-538962/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-538962/2-A	Lab Control Sample	Total/NA	Water	3510C	

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

GC Semi VOA (Continued)

Prep Batch: 538962 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-538962/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 539133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	608.3	538962
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	608.3	538962
MB 480-538962/1-A	Method Blank	Total/NA	Water	608.3	538962
LCS 480-538962/2-A	Lab Control Sample	Total/NA	Water	608.3	538962
LCSD 480-538962/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	538962

Metals

Prep Batch: 440889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1631E	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1631E	
MB 240-440889/1-A	Method Blank	Total/NA	Water	1631E	
LCS 240-440889/2-A	Lab Control Sample	Total/NA	Water	1631E	
480-171773-1 MS	GEOBAG FILTRATE	Total/NA	Water	1631E	
480-171773-1 MSD	GEOBAG FILTRATE	Total/NA	Water	1631E	

Analysis Batch: 441110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-440889/1-A	Method Blank	Total/NA	Water	1631E	440889
LCS 240-440889/2-A	Lab Control Sample	Total/NA	Water	1631E	440889

Analysis Batch: 441337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1631E	440889
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1631E	440889
480-171773-1 MS	GEOBAG FILTRATE	Total/NA	Water	1631E	440889
480-171773-1 MSD	GEOBAG FILTRATE	Total/NA	Water	1631E	440889

Prep Batch: 538451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	200.7	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	200.7	
MB 480-538451/1-A	Method Blank	Total/NA	Water	200.7	
LCS 480-538451/2-A	Lab Control Sample	Total/NA	Water	200.7	

Analysis Batch: 538638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	200.7 Rev 4.4	538451
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	200.7 Rev 4.4	538451
MB 480-538451/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	538451
LCS 480-538451/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	538451

Prep Batch: 538722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	7470A	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	7470A	

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Metals (Continued)

Prep Batch: 538722 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-538722/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-538722/2-A	Lab Control Sample	Total/NA	Water	7470A	

Filtration Batch: 538744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	FILTRATION	
MB 480-538744/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	FILTRATION	

Analysis Batch: 538883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	7470A	538722
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	7470A	538722
MB 480-538722/1-A	Method Blank	Total/NA	Water	7470A	538722
LCS 480-538722/2-A	Lab Control Sample	Total/NA	Water	7470A	538722

Prep Batch: 538920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	200.7	538744
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	200.7	538744
MB 480-538744/1-C	Method Blank	Dissolved	Water	200.7	538744
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	200.7	538744
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	200.7	538744
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	200.7	538744

Prep Batch: 539037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	3005A	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	3005A	
MB 480-539037/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-539037/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 539257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-2	FILTER PRESS FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
MB 480-538744/1-C	Method Blank	Dissolved	Water	200.7 Rev 4.4	538920
LCS 480-538744/2-C	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-1 MS	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920
480-171773-1 MSD	GEOBAG FILTRATE	Dissolved	Water	200.7 Rev 4.4	538920

Analysis Batch: 539260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	6010C	539037
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	6010C	539037
MB 480-539037/1-A	Method Blank	Total/NA	Water	6010C	539037
LCS 480-539037/2-A	Lab Control Sample	Total/NA	Water	6010C	539037

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 538343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 2540D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 2540D	
MB 480-538343/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 480-538343/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 538375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5210B	
USB 480-538375/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-538375/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 538376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5210B	
USB 480-538376/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-538376/2	Lab Control Sample	Total/NA	Water	SM 5210B	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 5210B	

Analysis Batch: 538385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 3500 CR D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 CR D	
MB 480-538385/3	Method Blank	Total/NA	Water	SM 3500 CR D	
LCS 480-538385/4	Lab Control Sample	Total/NA	Water	SM 3500 CR D	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 CR D	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 3500 CR D	

Analysis Batch: 538395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	
MB 480-538395/3	Method Blank	Total/NA	Water	SM 3500 FE D	
LCS 480-538395/4	Lab Control Sample	Total/NA	Water	SM 3500 FE D	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-1 DU	GEOBAG FILTRATE	Total/NA	Water	SM 3500 FE D	
480-171773-2 DU	FILTER PRESS FILTRATE	Total/NA	Water	SM 3500 FE D	

Analysis Batch: 538470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	410.4	
MB 480-538470/52	Method Blank	Total/NA	Water	410.4	
LCS 480-538470/53	Lab Control Sample	Total/NA	Water	410.4	

Prep Batch: 538587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1664B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1664B	
MB 480-538587/1-A	Method Blank	Total/NA	Water	1664B	
LCS 480-538587/2-A	Lab Control Sample	Total/NA	Water	1664B	

Eurofins TestAmerica, Buffalo

QC Association Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 538602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	1664B	538587
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	1664B	538587
MB 480-538587/1-A	Method Blank	Total/NA	Water	1664B	538587
LCS 480-538587/2-A	Lab Control Sample	Total/NA	Water	1664B	538587

Analysis Batch: 538674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	300.0	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	300.0	
MB 480-538674/4	Method Blank	Total/NA	Water	300.0	
LCS 480-538674/3	Lab Control Sample	Total/NA	Water	300.0	
480-171773-2 MS	FILTER PRESS FILTRATE	Total/NA	Water	300.0	

Prep Batch: 538713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	Distill/CN	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	Distill/CN	
MB 480-538713/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 480-538713/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCS 480-538713/3-A	Lab Control Sample	Total/NA	Water	Distill/CN	

Analysis Batch: 538730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	335.4	538713
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	335.4	538713
MB 480-538713/1-A	Method Blank	Total/NA	Water	335.4	538713
LCS 480-538713/2-A	Lab Control Sample	Total/NA	Water	335.4	538713
LCS 480-538713/3-A	Lab Control Sample	Total/NA	Water	335.4	538713

Analysis Batch: 538753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 4500 H+ B	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 4500 H+ B	
LCS 480-538753/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 480-538753/23	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 538756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 2540C	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 2540C	
MB 480-538756/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-538756/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 538906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	SM 5310C	
MB 480-538906/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-538906/5	Lab Control Sample	Total/NA	Water	SM 5310C	

QC Association Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

General Chemistry

Analysis Batch: 539130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	410.4	
MB 480-539130/4	Method Blank	Total/NA	Water	410.4	
LCS 480-539130/5	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 539178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-1	GEOBAG FILTRATE	Total/NA	Water	420.4	
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	420.4	
MB 480-539178/44	Method Blank	Total/NA	Water	420.4	
LCS 480-539178/45	Lab Control Sample	Total/NA	Water	420.4	

Analysis Batch: 539191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-171773-2	FILTER PRESS FILTRATE	Total/NA	Water	SM 5310C	
MB 480-539191/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-539191/5	Lab Control Sample	Total/NA	Water	SM 5310C	

Lab Chronicle

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: GEOBAG FILTRATE

Lab Sample ID: 480-171773-1

Date Collected: 06/26/20 10:00

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	538351	06/27/20 20:32	LCH	TAL BUF
Total/NA	Analysis	8260C		4	538566	06/29/20 22:11	OMI	TAL BUF
Total/NA	Prep	625			538584	06/29/20 16:29	ATG	TAL BUF
Total/NA	Analysis	625.1		20	538685	06/30/20 13:15	JMM	TAL BUF
Total/NA	Prep	3510C			538762	06/30/20 15:20	ATG	TAL BUF
Total/NA	Analysis	8270D		1	538875	07/01/20 12:27	JMM	TAL BUF
Total/NA	Prep	3510C			538962	07/01/20 15:48	ATG	TAL BUF
Total/NA	Analysis	608.3		1	539133	07/03/20 03:05	W1T	TAL BUF
Total/NA	Prep	1631E			440889	07/01/20 11:00	AJC	TAL CAN
Total/NA	Analysis	1631E		2	441337	07/06/20 11:45	AJC	TAL CAN
Dissolved	Filtration	FILTRATION			538744	06/30/20 14:12	KMP	TAL BUF
Dissolved	Prep	200.7			538920	07/02/20 09:03	NSW	TAL BUF
Dissolved	Analysis	200.7 Rev 4.4		1	539257	07/02/20 16:22	AMH	TAL BUF
Total/NA	Prep	200.7			538451	06/29/20 09:18	NSW	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	538638	06/29/20 18:23	LMH	TAL BUF
Total/NA	Prep	3005A			539037	07/02/20 10:00	NSW	TAL BUF
Total/NA	Analysis	6010C		1	539260	07/02/20 20:31	AMH	TAL BUF
Total/NA	Prep	7470A			538722	06/30/20 12:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	538883	06/30/20 18:54	BMB	TAL BUF
Total/NA	Prep	1664B			538587	06/29/20 16:43	T1S	TAL BUF
Total/NA	Analysis	1664B		1	538602	06/30/20 19:40	T1S	TAL BUF
Total/NA	Analysis	300.0		1	538674	06/30/20 17:37	IMZ	TAL BUF
Total/NA	Prep	Distill/CN			538713	06/30/20 11:22	CRK	TAL BUF
Total/NA	Analysis	335.4		1	538730	06/30/20 12:45	JRF	TAL BUF
Total/NA	Analysis	410.4		1	538470	06/28/20 06:50	CSS	TAL BUF
Total/NA	Analysis	420.4		1	539178	07/02/20 15:45	SRA	TAL BUF
Total/NA	Analysis	SM 2540C		1	538756	06/30/20 14:57	E1T	TAL BUF
Total/NA	Analysis	SM 2540D		1	538343	06/27/20 11:05	CSS	TAL BUF
Total/NA	Analysis	SM 3500 CR D		1	538385	06/27/20 11:02	CRK	TAL BUF
Total/NA	Analysis	SM 3500 FE D		1	538395	06/27/20 15:55	CSS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	538753	06/30/20 14:00	BEF	TAL BUF
Total/NA	Analysis	SM 5210B		1	538375	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5210B		1	538376	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	538906	06/30/20 21:37	CLA	TAL BUF

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	538351	06/27/20 20:57	LCH	TAL BUF
Total/NA	Analysis	8260C		5	538566	06/29/20 22:34	OMI	TAL BUF

Lab Chronicle

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Client Sample ID: FILTER PRESS FILTRATE

Lab Sample ID: 480-171773-2

Date Collected: 06/26/20 10:30

Matrix: Water

Date Received: 06/26/20 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			538584	06/29/20 16:29	ATG	TAL BUF
Total/NA	Analysis	625.1		10	538685	06/30/20 13:39	JMM	TAL BUF
Total/NA	Prep	3510C			538762	06/30/20 15:20	ATG	TAL BUF
Total/NA	Analysis	8270D		1	538875	07/01/20 12:56	JMM	TAL BUF
Total/NA	Prep	3510C			538962	07/01/20 15:48	ATG	TAL BUF
Total/NA	Analysis	608.3		1	539133	07/03/20 03:18	W1T	TAL BUF
Total/NA	Prep	1631E			440889	07/01/20 11:00	AJC	TAL CAN
Total/NA	Analysis	1631E		1	441337	07/06/20 11:59	AJC	TAL CAN
Dissolved	Filtration	FILTRATION			538744	06/30/20 14:12	KMP	TAL BUF
Dissolved	Prep	200.7			538920	07/02/20 09:03	NSW	TAL BUF
Dissolved	Analysis	200.7 Rev 4.4		1	539257	07/02/20 16:40	AMH	TAL BUF
Total/NA	Prep	200.7			538451	06/29/20 09:18	NSW	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	538638	06/29/20 18:19	LMH	TAL BUF
Total/NA	Prep	3005A			539037	07/02/20 10:00	NSW	TAL BUF
Total/NA	Analysis	6010C		1	539260	07/02/20 20:35	AMH	TAL BUF
Total/NA	Prep	7470A			538722	06/30/20 12:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	538883	06/30/20 18:55	BMB	TAL BUF
Total/NA	Prep	1664B			538587	06/29/20 16:43	T1S	TAL BUF
Total/NA	Analysis	1664B		1	538602	06/30/20 19:40	T1S	TAL BUF
Total/NA	Analysis	300.0		2	538674	06/30/20 17:51	IMZ	TAL BUF
Total/NA	Prep	Distill/CN			538713	06/30/20 11:22	CRK	TAL BUF
Total/NA	Analysis	335.4		1	538730	06/30/20 12:47	JRF	TAL BUF
Total/NA	Analysis	410.4		10	539130	07/01/20 17:59	CSS	TAL BUF
Total/NA	Analysis	420.4		1	539178	07/02/20 15:48	SRA	TAL BUF
Total/NA	Analysis	SM 2540C		1	538756	06/30/20 14:57	E1T	TAL BUF
Total/NA	Analysis	SM 2540D		1	538343	06/27/20 11:05	CSS	TAL BUF
Total/NA	Analysis	SM 3500 CR D		1	538385	06/27/20 11:02	CRK	TAL BUF
Total/NA	Analysis	SM 3500 FE D		1	538395	06/27/20 15:55	CSS	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	538753	06/30/20 14:03	BEF	TAL BUF
Total/NA	Analysis	SM 5210B		1	538375	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5210B		1	538376	06/27/20 06:33	EY	TAL BUF
Total/NA	Analysis	SM 5310C		4	539191	07/02/20 20:34	CLA	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Severson Environmental Services, Inc.
 Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-02-21
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
335.4	Distill/CN	Water	Cyanide, Total
624.1		Water	1,2-Dichloroethene, Total
625.1	625	Water	1,2-Dichlorobenzene
625.1	625	Water	1,3-Dichlorobenzene
625.1	625	Water	1,4-Dichlorobenzene
SM 3500 CR D		Water	Chromium, hexavalent
SM 3500 FE D		Water	Ferrous Iron
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20 *
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
625.1	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL BUF
1631E	Mercury, Low Level (CVAFS)	EPA	TAL CAN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1664B	HEM and SGT-HEM	1664B	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
335.4	Cyanide, Total	MCAWW	TAL BUF
410.4	COD	MCAWW	TAL BUF
420.4	Phenolics, Total Recoverable	MCAWW	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL BUF
SM 3500 CR D	Chromium, Hexavalent	SM	TAL BUF
SM 3500 FE D	Iron, Ferrous and Ferric	SM	TAL BUF
SM 4500 H+ B	pH	SM	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
SM 5310C	TOC	SM	TAL BUF
1631E	Preparation, Mercury, Low Level	EPA	TAL CAN
1664B	HEM and SGT-HEM (Aqueous)	1664B	TAL BUF
200.7	Preparation, Total Metals	EPA	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
5030C	Purge and Trap	SW846	TAL BUF
625	Liquid-Liquid Extraction	40CFR136A	TAL BUF
7470A	Preparation, Mercury	SW846	TAL BUF
Distill/CN	Distillation, Cyanide	None	TAL BUF
FILTRATION	Sample Filtration	None	TAL BUF

Protocol References:

1664B = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Severson Environmental Services, Inc.
Project/Site: Severson Environmental Services, Inc.

Job ID: 480-171773-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-171773-1	GEOBAG FILTRATE	Water	06/26/20 10:00	06/26/20 15:45	
480-171773-2	FILTER PRESS FILTRATE	Water	06/26/20 10:30	06/26/20 15:45	

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Lab PM: Fischer, Brian J		Carrier Tracking No(s):		COC No: 480-56847.1	
Client Contact: Shipping/Receiving		E-Mail: brian.fischer@testamericainc.com		State of Origin: New York		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #		480-171773-1	
Address: 4101 Shuffel Street NW		Due Date Requested: 7/6/2020		Analysis Requested		Preservation Codes:	
City: North Canton		TAT Requested (days):		Perform MS/MSD (Yes or No)		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 Other:	
State, Zip: OH, 44720		PO #:		Field Filtered Sample (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Phone: 330-497-9396(Tel) 330-497-0772(Fax)		WO #:		1631E/631E Prep		LTHC	
Email:		Project #:		X		Special Instructions/Note:	
Project Name: Severson Environmental Services, Inc.		48004527		X		Total Number of Containers	
Site: Severson Environmental		SSOW#:		Matrix (W=water, S=solid, O=soil, A=air)		2	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Type (C=Comp, G=grab)		2	
GEOBAG FILTRATE (480-171773-1)		6/26/20		10:00 Eastern		2	
FILTER PRESS FILTRATE (480-171773-2)		6/26/20		10:30 Eastern		2	

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

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2
 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:

Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	6/29/20	17:00	Date/Time: 6/30/20 10:30 Company: ETC
Relinquished by:			Date/Time: _____ Company: _____
Relinquished by:			Date/Time: _____ Company: _____

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

Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : _____
Canton Facility		
Client <u>ETA Buffalo</u>	Site Name _____	Cooler unpacked by: <u>[Signature]</u>
Cooler Received on <u>6-30-20</u>	Opened on <u>6-30-20</u>	
FedEx: 1 st Grd <input checked="" type="checkbox"/> Exp <input type="checkbox"/> UPS <input type="checkbox"/> FAS <input type="checkbox"/> Clipper <input type="checkbox"/>	Client Drop Off <input type="checkbox"/> TestAmerica Courier <input type="checkbox"/> Other <input type="checkbox"/>	
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>111</u>	Foam Box <input type="checkbox"/> Client Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/>	
Packing material used: <u>Bubble Wrap</u> <input type="checkbox"/> Foam <input type="checkbox"/> <u>Plastic Bag</u> <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/>		
COOLANT: <u>Wet Ice</u> <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> Water <input type="checkbox"/> None <input type="checkbox"/>		
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. <u>0.9</u> °C Corrected Cooler Temp. <u>1.8</u> °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u> Yes No		
-Were the seals on the outside of the cooler(s) signed & dated? <u>Yes</u> No NA		
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? <u>Yes</u> No		
-Were tamper/custody seals intact and uncompromised? <u>Yes</u> No NA		
3. Shippers' packing slip attached to the cooler(s)? <u>Yes</u> No		
4. Did custody papers accompany the sample(s)? <u>Yes</u> No		
5. Were the custody papers relinquished & signed in the appropriate place? <u>Yes</u> No		
6. Was/were the person(s) who collected the samples clearly identified on the COC? <u>Yes</u> No		
7. Did all bottles arrive in good condition (Unbroken)? <u>Yes</u> No		
8. Could all bottle labels be reconciled with the COC? <u>Yes</u> No		
9. Were correct bottle(s) used for the test(s) indicated? <u>Yes</u> No		
10. Sufficient quantity received to perform indicated analyses? <u>Yes</u> No		
11. Are these work share samples? <u>Yes</u> No		
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt? <u>Yes</u> No NA		
13. Were VOAs on the COC? <u>Yes</u> No		
14. Were air bubbles >6 mm in any VOA vials? <u>Yes</u> No NA		
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ <u>Yes</u> No		
16. Was a LL Hg or Me Hg trip blank present? <u>Yes</u> No		
pH Strip Lot# <u>HC911298</u>		
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____
_____ _____ _____ _____		
18. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
19. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Login Sample Receipt Checklist

Client: Severson Environmental Services, Inc.

Job Number: 480-171773-1

Login Number: 171773

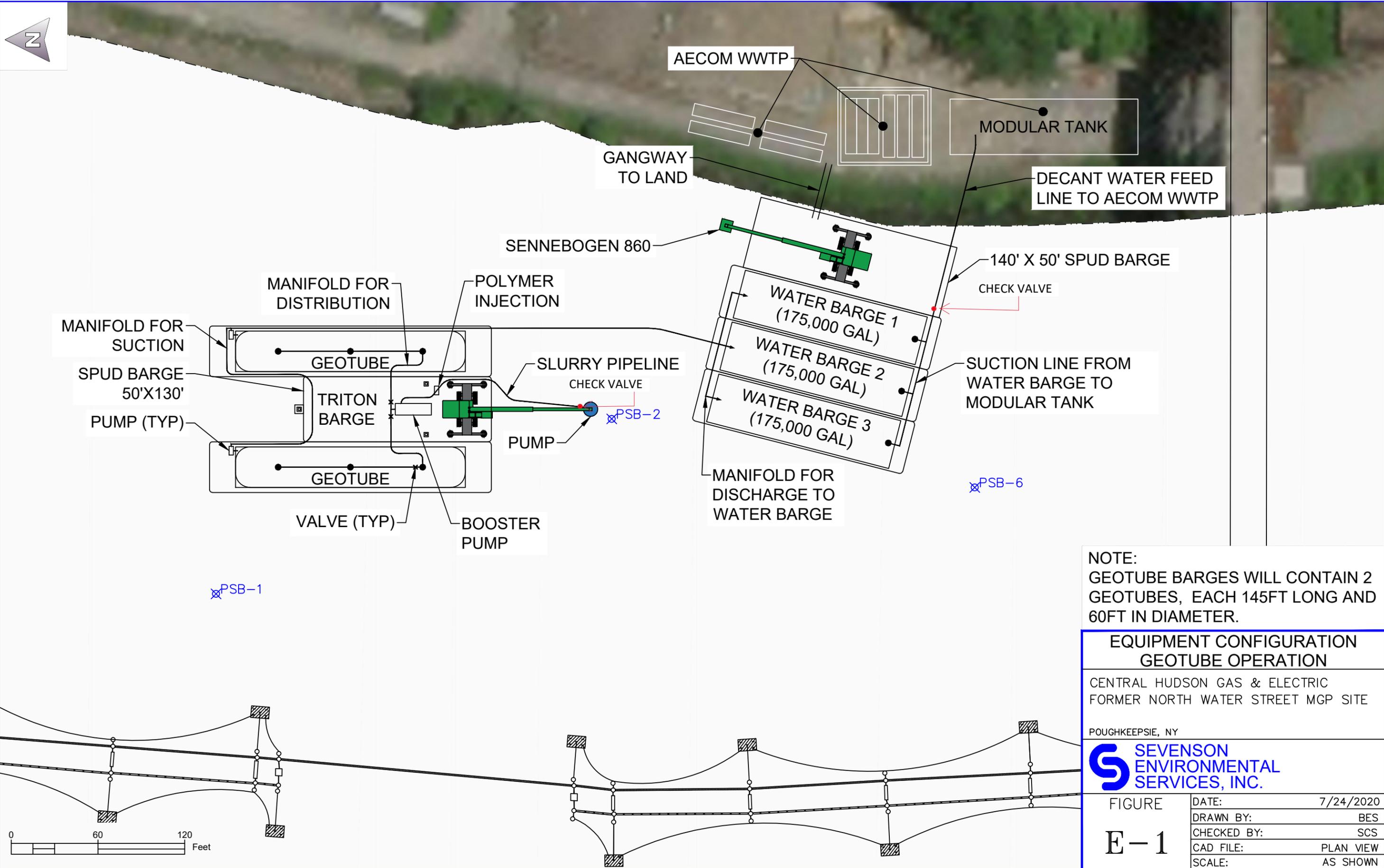
List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Stopa, Erik S

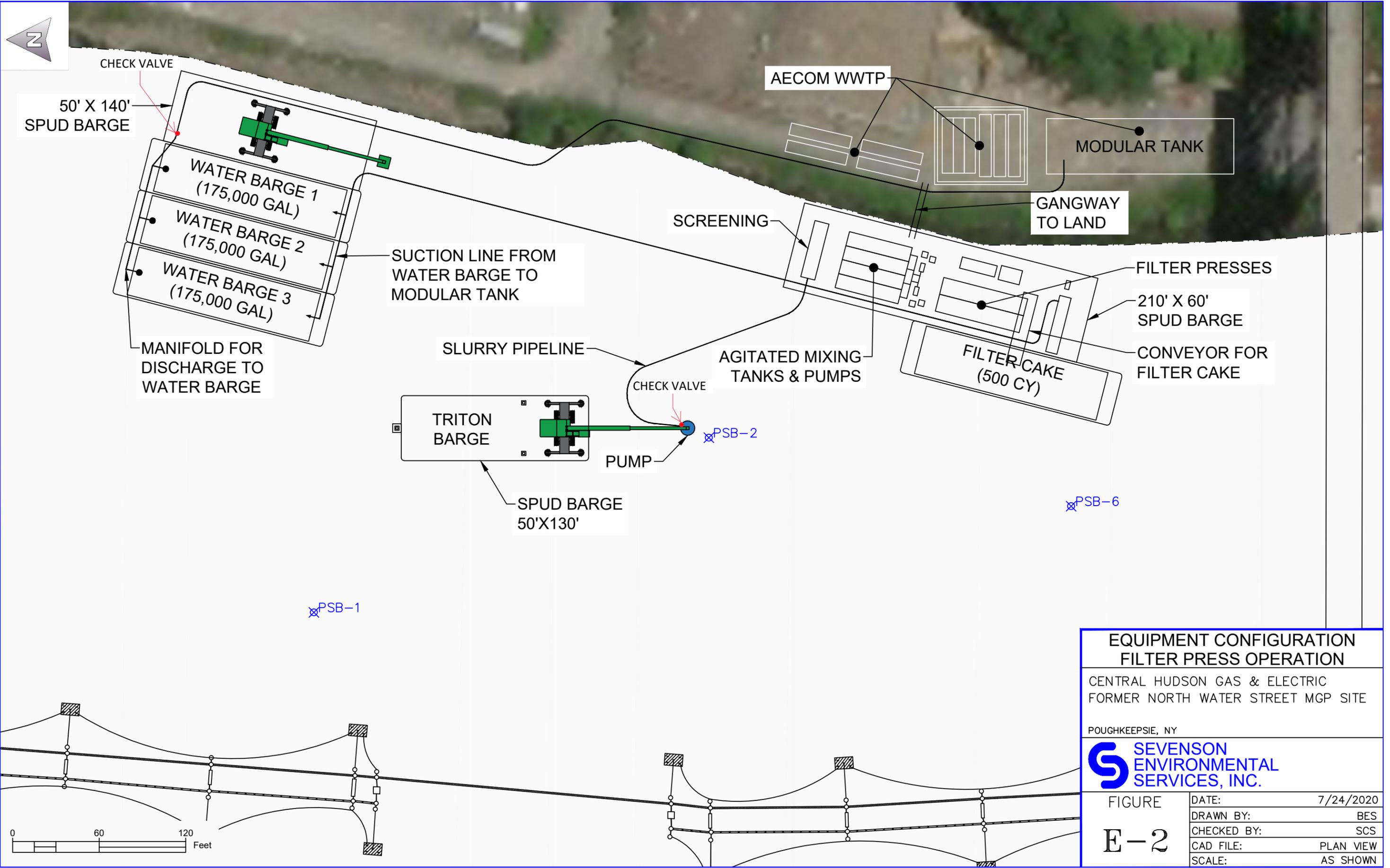
Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	severson
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix E Check Valve Information



NOTE:
 GEOTUBE BARGES WILL CONTAIN 2
 GEOTUBES, EACH 145FT LONG AND
 60FT IN DIAMETER.

EQUIPMENT CONFIGURATION GEOTUBE OPERATION	
CENTRAL HUDSON GAS & ELECTRIC FORMER NORTH WATER STREET MGP SITE	
POUGHKEEPSIE, NY	
 SEVENSON ENVIRONMENTAL SERVICES, INC.	
FIGURE	DATE: 7/24/2020
E-1	DRAWN BY: BES
	CHECKED BY: SCS
	CAD FILE: PLAN VIEW
	SCALE: AS SHOWN



EQUIPMENT CONFIGURATION FILTER PRESS OPERATION	
CENTRAL HUDSON GAS & ELECTRIC FORMER NORTH WATER STREET MGP SITE	
POUGHKEEPSIE, NY	
 SEVENSON ENVIRONMENTAL SERVICES, INC.	
FIGURE	DATE: 7/24/2020
E-2	DRAWN BY: BES
	CHECKED BY: SCS
	CAD FILE: PLAN VIEW
	SCALE: AS SHOWN

The SWL Series Swing Check Valves

- Meets AWWA C-508 Standards (Full Waterway)
 - Accepts Air and Oil Cushion
 - Swing Check Valve Solution



Crispin
Since 1905

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SWL SERIES

Swing Check Valve

SWL Swing Check Valve

Applications

- Water and Waste-water Systems
- Pump Discharge
- Valve Vaults

Features Include

- Both lever-and-weight and outside lever-and-spring designs available.
- Optional Air Cushion (Commercial or Bronze Cylinder Designs available).
- Ductile iron body with Ductile iron disc and 316 ss Seat standard.
- Valve Disc allows “full flow” through the valve
- Buna-N Rubber faced Discs standard.
- Optional double outside levers for weight or spring
- Available in sizes 3” thru 36”

The "SWL" series Swing Check Valve from Crispin Valve is an ideal solution for most check valve applications. Designed completely in-house using advanced 3D modeling and FEA technology, the SWL offers the same Crispin quality that you've come to expect from all of our products.

The SWL is available in Outside Lever/Weight, Lever/Spring, Air Cushion, and Oil Control configurations. Only produced in Ductile Iron with #150 flanged ends, the SWL swing check valve is intended for all swing check applications up to and including a 250 psi operating pressure.

Standard with 316ss seats and available with a variety of industry-approved epoxy coatings, the SWL offers flexibility in tackling hard water and corrosive environments.

Operation

Once pump pressure exceeds the back pressure on the down-stream side of the valve disc, the SWL Swing Check Valve moves the disc out of the flow by displacing the seat disc to the upper portion of the valve body. This creates full flow through the unit for both water and sewage.

Upon pump shut down, the disc will stroke closed when velocity begins to slow and stop. With the incorporation of a rubberized disc face, the resultant drip-tight seating will protect the system from costly leakage.

Design

- Body Seat

The threaded-in 316 stainless steel seat provides firm, water-tight retention in the body. This design can handle repeated stroking of the typical swing check application without vibration or loosening.

- **Standard Rubber-Faced Discs**

Standard on all sizes, the rubber-faced disc configuration provides drip-tight sealing.

- **Adjustable Packing**

Perfect for standard check valves where expensive maintenance rebuilds are not justified, the adjustable packing allows for fine tuning of sealing joints over time.

- **Bronze and Stainless Trim**

Standard in all units, the SWL's bronze and stainless steel trim provides excellent protection against corrosion.

- **Limit Switches**

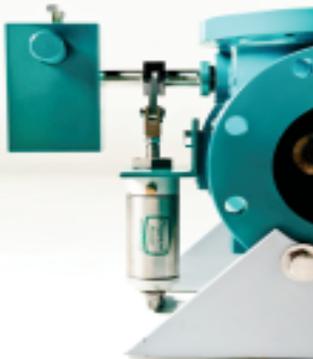
Mountable on all valves sizes, electric limit switches are available upon customer's request.

- **Full Waterway Flow Area**

With a flow area that is greater than or equal to the nominal valve size, the SWL swing check valve has a lower head loss characteristic than a Silent Check valve, and can be mounted in both the horizontal and vertical positions.

- **Serviceable**

The disc and clapper of the SWL can be removed from the valve while it is still in line. ■



Swing Check Valve



SWL Swing Check Valve

Swing Check Design Features

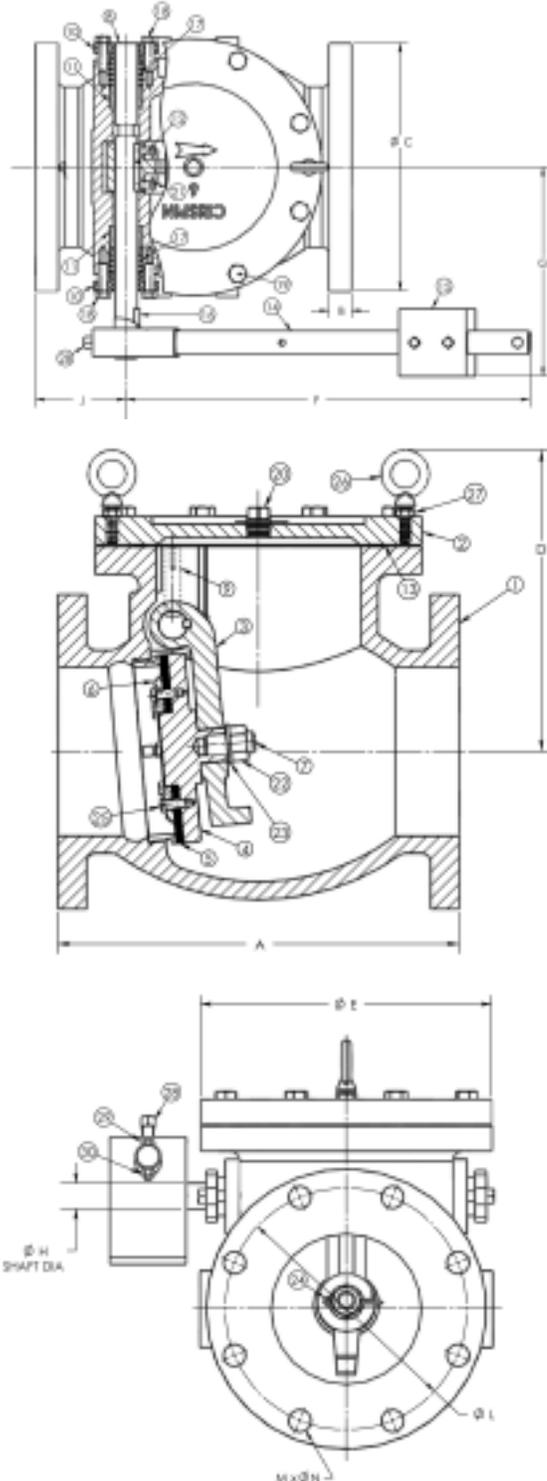
SWL SERIES

SWL-LW Series Parts List

ITEM	DESCRIPTION	MATERIAL
1	BODY/SEAT ASSY	A536 GR.65-45-12 & A351 GR CF8M
2	COVER	A536 GR.65-45-12 DUCTILE IRON
3	DISC ARM	A536 GR.65-45-12 DUCTILE IRON
4	DISC	A536 GR.65-45-12 DUCTILE IRON
5	DISC SEAT	D2000 BUNA-N RUBBER
6	SEAT RETAINER	A240 TYPE 316 S/S
7	STUD	18-8 STAINLESS STEEL
8	PIVOT SHAFT	A276 TYPE 304
9	PIVOT SHAFT PIN	BEARING BRONZE ALLOY 932
10	PACKING GLAND	CARBON STEEL
11	PT SFT BUSHING	BEARING BRONZE ALLOY 932
12	INNER PIVOT SHAFT KEY	A276 TYPE 316 S/S
13	COVER GASKET	KLINGERSIL C-4401
14	LEVER WELDMENT	CARBON STEEL
15	LEVER WEIGHT	ASTM A36
16	OUTER PIVOT SHAFT KEY	A276 TYPE 316
17	PACKING	PTFE IMPREGNATED, INTERLOCK BRAID
18	HX HD SCREW	18-8 STAINLESS STEEL
19	HHCS	STEEL, GR 5, ZINC-PLATED
20	PIPE PLUG SQ HD	CARBON STEEL
21	HHCS	18-8 STAINLESS STEEL
22	FINISH HEX NUT	18-8 STAINLESS STEEL
23	FLAT WASHER	18-8 STAINLESS STEEL
24	COTTER PIN	STEEL, ZINC-PLATED
25	HHCS	18-8 STAINLESS STEEL
26	EYEBOLT W/ SHOULDER	STEEL, ZINC-PLATED
27	HEX HEAD JAM NUT	STEEL, ZINC-PLATED
28	SQ HD SET SCREW,	CARBON STEEL
29	HHCS	STEEL, GR 5, ZINC-PLATED
30	STD HEX HEAD NUT	STEEL, ZINC-PLATED

Optional LS (Lever & Spring) configuration available

#	DESCRIPTION	MATERIAL
30	EYE BOLT	STEEL, ZINC-PLATED
31	LOCK WASHER	STEEL, ZINC-PLATED
32	HEX HEAD NUT	STEEL, ZINC-PLATED
33	SPRING BRACKET	CARBON STEEL
34	EXT. SPRING	MUSIC WIRE





Swing Check Valve

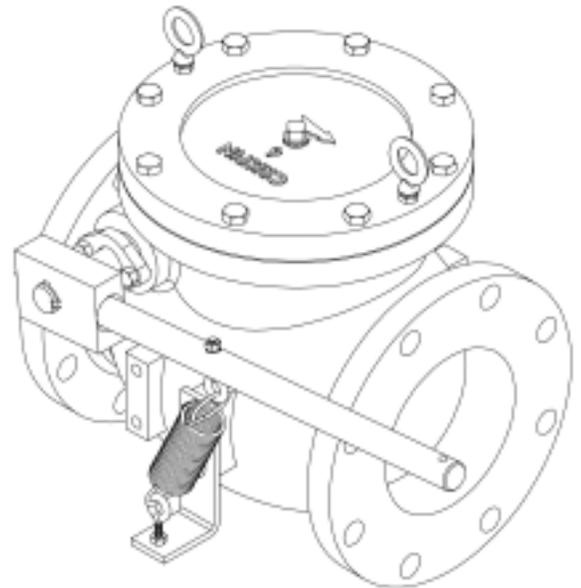
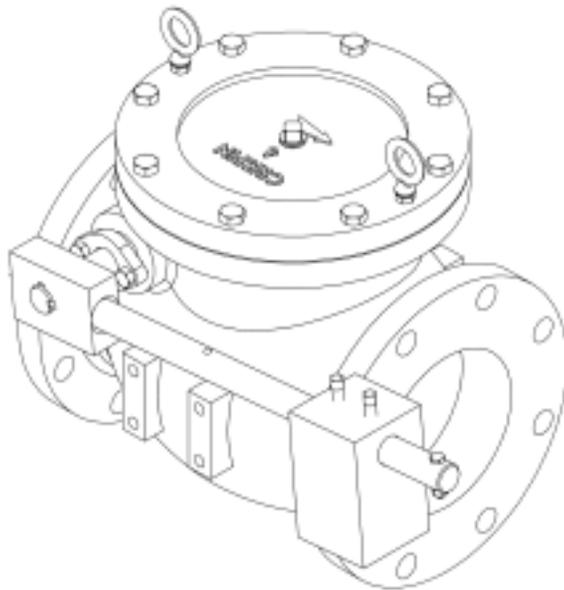
Swing Check Valve

“SWL” Series Dimensions

(both LW—Lever and Weight and LS—Lever and Spring)

SWL SERIES

SIZE	MODEL #	A	B	ØC	D	ØE	F	G	ØH	J	ØL	M x ØN	WT (lb)
3	SWL31-LW	9.50	.75	7.50	8.20	7.31	12.00	6.80	.75	3.00	6.00	4 x .75	68
4	SWL41-LW	11.50	.94	9.00	9.00	8.06	12.00	7.23	.87	3.75	7.50	8 x .75	98
6	SWL61-LW	14.00	1.00	11.00	10.54	11.42	18.00	9.29	1.00	4.02	9.50	8 x .88	188
8	SWL81-LW	19.50	1.12	13.50	12.50	13.19	18.00	11.10	1.25	5.75	11.75	8 x .88	317
10	SWL101-LW	24.50	1.19	16.00	14.94	16.50	18.00	13.20	1.25	7.25	14.25	12 x 1.00	500
12	SWL121-LW	27.50	1.25	19.00	16.63	18.25	18.00	14.41	1.50	7.75	17.00	12 x 1.00	670
14	SWL141-LW	31.00	1.38	21.00	18.94	21.50	24.75	16.90	2.00	8.50	18.75	12 x 1.12	1000
16	SWL161-LW	36.00	1.44	23.50	21.83	24.50	24.75	18.41	2.00	10.00	21.25	16 x 1.12	1328
18	SWL181-LW	40.00	1.56	25.00	22.80	27.25	30.75	20.91	2.00	11.00	22.75	16 x 1.25	1888
20	SWL201-LW	40.00	1.69	27.50	24.82	29.25	30.75	22.91	2.00	10.00	25.00	20 x 1.25	2200
24	SWL241-LW	48.00	1.88	32.00	28.88	33.50	36.68	26.22	2.75	12.00	29.50	20 x 1.38	3519
30	SWL301-LW	60.00	2.18	38.75	35.63	41.75	37.06	31.91	3.12	15.00	36.00	28 x 1.38	6248
36	SWL361-LW	63.00	2.44	46.00	40.31	48.50	44.00	37.41	3.50	13.50	42.75	32 x 1.62	9135



Notes:

1. 250 PSIG Max. Working Pressure
2. 500 PSIG Hydrostatic Shell Test Pressure
3. Valve will be painted externally with phenolic alkyd primer.



Swing Check Valve

Manufactured in compliance with ANSI/AWWA C512

Date: July, 2016

Specifications for SWL Swing Check Valves

GENERAL:

Check valves shall be ductile iron body, bronze and stainless mounted, full opening swing type. Valve body shall be enlarged to allow disc to swing in the waterway. When valve is full open, body design shall permit a “full flow” thru the valve equal to the nominal pipe diameter. They shall comply with AWWA Standard C-508’s latest revision.

RATING:

Check valves shall be rated at 250 psi water working pressure, 500 psi hydrostatic test for structural soundness (3” thru 36”). Seat tightness at rated working pressure shall be in accordance with and fully conform to AWWA C-508.

END CONFIGURATIONS

Check valves shall be furnished with type of end connection as follows: 150# ANSI flanged ends.

MATERIALS:

All Ductile iron shall conform to ASTM-A-536 GR 65-45-12. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed.

Discs shall be Ductile Iron and rubber-faced for sizes thru 3”-36”.

Hinge pins shall be 304 Stainless Steel rotating in bronze bearings.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563 respectively.

DESIGN:

Check valves shall be constructed to permit top entry for complete removal of internal components without removing the valve from the line. Gaskets shall be conventional in all sizes 3” - 36”.

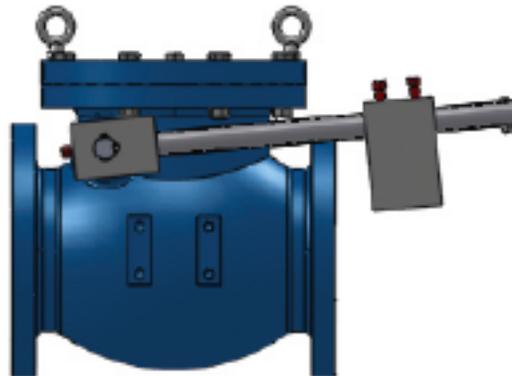
All valves 3”-36” and larger shall have extended hinge pins for addition of levers and springs if required. Valves shall be suitable for installation in either horizontal or vertical position.

PAINTING:

The inside and outside of all valves, together with the working parts except bronze and machined surfaces, shall be coated in accordance with AWWA standards and per the specific project specifications as provided.

MARKING:

Marking shall be in accordance with AWWA C-508 and shall include size, working pressure, and cast arrow to indicate direction of flow, and name of manufacturer.





Swing Check Valve

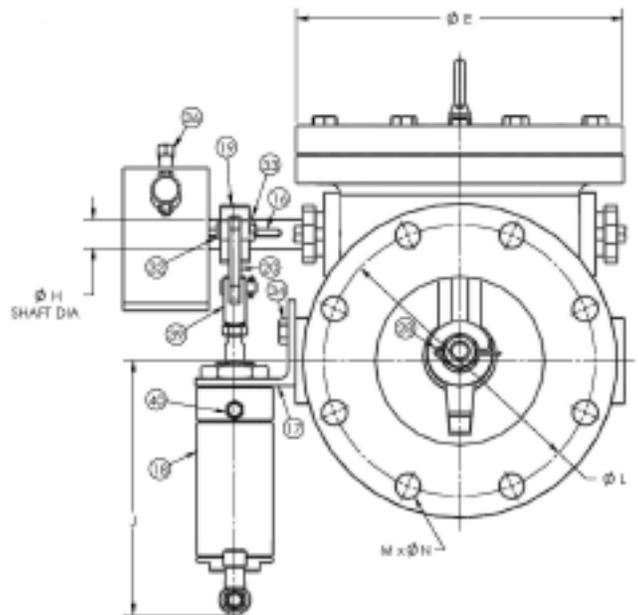
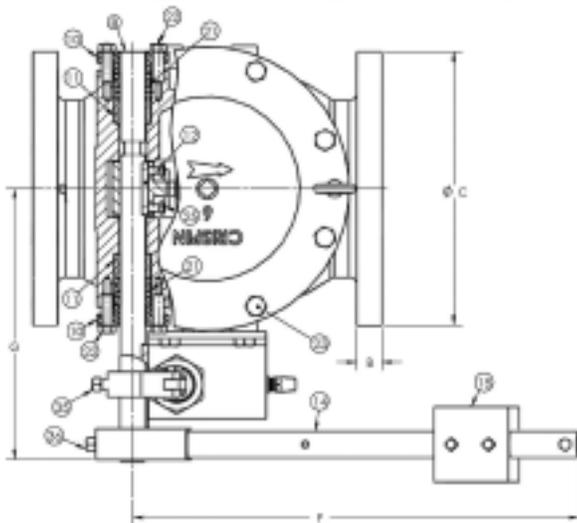
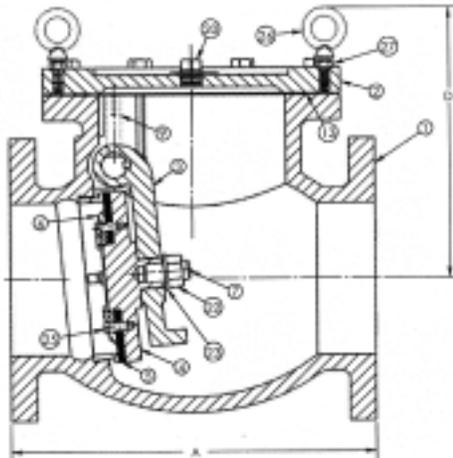
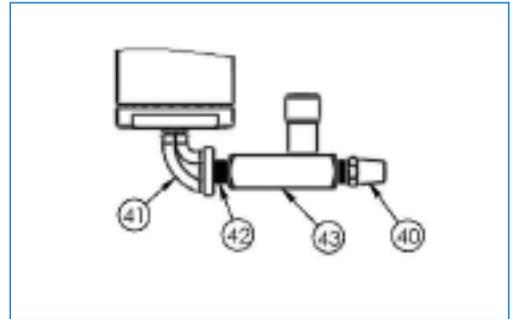
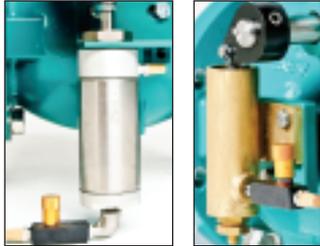
Swing Check Valve w/ Air Cushion

“SWL-AC” Series with Side Air Cushion

SWL-AC SERIES

An external side mounted Air Cushion can be added to the standard Lever/Weight Unit to help reduce slamming of the valve. Easily adjustable and fully enclosed, the Aluminum cylinder allows unrestricted opening and cushioned closure of the valve stroke. A cast bronze cylinder version is also available. Contact the factory for Oil Control Information. ■

Both Aluminum and Bronze cylinders are available on the SWL-AC.



Swing Check Valve w/ Air Cushion

“SWL” Series W/ Air Cushion Dimensions (LW-AC)



SWL-AC SERIES

SIZE	MODEL #	A	B	ØC	D	ØE	F	G	ØH	J	ØL	M x ØN	WT (lb)
3	SWL31-LW-AC	9.50	.75	7.50	8.20	7.31	12.00	8.50	.75	9.00	6.00	4 x .75	81
4	SWL41-LW-AC	11.50	.94	9.00	9.00	8.06	12.00	9.44	.87	9.75	7.50	8 x .75	107
6	SWL61-LW-AC	14.00	1.00	11.00	10.54	11.42	18.00	11.00	1.00	8.88	9.50	8 x .88	195
8	SWL81-LW-AC	19.50	1.12	13.50	12.50	13.19	18.00	12.81	1.25	7.44	11.75	8 x .88	330
10	SWL101-LW-AC	24.50	1.19	16.00	14.94	16.50	18.00	16.62	1.25	7.88	14.25	12 x 1.0	520
12	SWL121-LW-AC	27.50	1.25	19.00	16.63	18.25	18.00	17.75	1.50	8.50	17.00	12 x 1.0	725
14	SWL141-LW-AC	31.00	1.38	21.00	18.94	21.50	24.75	21.50	2.00	5.50	18.75	12 x 1.12	1085
16	SWL161-LW-AC	36.00	1.44	23.50	21.83	24.50	24.75	23.50	2.00	5.50	21.25	16 x 1.12	1440
18	SWL181-LW-AC	40.00	1.56	25.00	22.80	27.25	30.75	25.00	2.00	5.50	22.75	16 x 1.25	1905
20	SWL201-LW-AC	40.00	1.69	27.50	24.82	29.25	30.75	26.50	2.00	6.63	25.00	20 x 1.25	2275
24	SWL241-LW-AC	48.00	1.88	32.00	28.88	33.50	36.68	31.00	2.75	4.63	29.50	20 x 1.38	3555
30	SWL301-LW-AC	60.00	2.18	38.75	35.63	41.75	37.06	35.50	3.12	3.13	36.00	28 x 1.38	6365
36	SWL361-LW-AC	63.00	2.44	46.00	40.31	48.50	44.00	40.00	3.50	5.88	42.75	32 x 1.62	9365

Notes:

1. 250 PSIG Max. Working Pressure
2. 500 PSIG Hydrostatic Shell Test Pressure

SWL-AC Series Parts List

ITEM	DESCRIPTION	MATERIAL	ITEM	DESCRIPTION	MATERIAL
1	Body & Body Seat Assy	A536 GR 65-45-12 & A351 GR CF8M	22	HX KD SCREW	18-8 Stainless Steel
2	Cover	Ductile Iron A536 Gr 65-45-12	23	HHCS	Steel, Gr 5, Zinc-Plated
3	Disc Arm	Ductile Iron A536 Gr 65-45-12	24	Pipe Plug	Carbon Steel
4	Disc	Ductile Iron A536 Gr 65-45-12	25	HHCS	18-8 Stainless Steel
5	Disc Seat	D2000 Buna N Rubber 70 Durometer	26	Finish Hex Nut	18-8 Stainless Steel
6	Disc Seat Retainer	AISI 304	27	Flat Washer	18-8 Stainless Steel
7	Stud	18-8 Stainless Steel	28	Cotter Pin	Steel, Zinc-Plated
8	Pivot Shaft	A276 Type 304	29	HHCS	18-8 Stainless Steel
9	Pivot Shaft Pin	Bearing Bronze Alloy 932 (SAE 660)	30	Eyebolt w/Shoulder	Steel, Zinc-Plated
10	Packing Gland	Carbon Steel	31	Hex Head Jam Nut	Steel, Zinc-Plated
11	Pivot Shaft Bushing	Bearing Bronze Alloy 932 (SAE 660)	32	Clevis Pin	A582 Type 303 S.S.
12	Inner Pivot Shaft Key	A276 TYPE 316	33	Cotter Pin	Steel, Zinc Plated
13	Cover Gasket	Klingersil C-4401	34	HHCS	Steel, Gr 5, Zinc Plated
14	Lever Weldment	Carbon Steel	35	Sq Hd Set Screw	Carbon Steel
15	Lever Weight	ASTM A36	36	Sq hd Set Screw, Cup Point	Carbon Steel
16	Outer Pivot Shaft Key	A276 Type 316	37	HHCS	Steel, GR 5, Zinc-Plated
17	Cylinder Bracket	Carbon Steel	38	Std Hex Head Nut	Steel, Zinc-Plated
18	Air Cylinder	Stainless Steel	39	Rod Clevis w/Pin	Steel, Zinc-Plated
19	Cylinder Lever	Ductile Iron A536 Gr 65-45-12	40	Mini Air-Intake Filter	Brass
20	Cylinder Link	Carbon Steel	41	Street Elbow	Carbon Steel
21	Packing	PTFE impregnated, Interlock Braid	42	Nipple	Carbon Steel
			43	Flow Control Valve	Carbon Steel

Swing Check Valve w/Air Cushion

Manufactured in compliance with ANSI/AWWA C512

Date: July, 2016

Specifications for SWL-AC Swing Check Valves

GENERAL:

Check valves shall be ductile iron body, bronze and stainless mounted, full opening swing type. Valve body shall be enlarged to allow disc to swing in the waterway. When valve is full open, body design shall permit a "full flow" thru the valve equal to the nominal pipe diameter. They shall comply with AWWA Standard C-508's latest revision.

RATING:

Check valves shall be rated at 250 psi water working pressure, 500 psi hydrostatic test for structural soundness (3" thru 36"). Seat tightness at rated working pressure shall be in accordance with and fully conform to AWWA C508.

END CONFIGURATIONS

Check valves shall be furnished with type of end connection as follows: 150# ANSI flanged ends.

MATERIALS:

All Ductile iron shall conform to ASTM-A-536 GR 65-45-12. Castings shall be clean and sound

without defects that will impair their service. No plugging or welding of such defects will be allowed. Valve will be coated externally with phenolic primer (2 Part Epoxy available as an option).

Discs shall be Ductile Iron and rubber faced for sizes thru 3"-36".

Hinge pins shall be 304 Stainless Steel rotating in bronze bearings.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563 respectively.

DESIGN:

Check valves shall be constructed to permit top entry for complete removal of internal components without removing the valve from the line.

Gaskets shall be conventional in all sizes 3" -36".

All valves 3"-36" and larger shall have extended hinge pins for addition of external Air Cushions to dampen final valve closure.

Cushion Cylinders shall be either Aluminum or Bronze per customer request, shall be non-pivoting, and shall be securely attached to the Valve Body. Adjustment of cylinder operation will be by means of a flow control valve.

PAINTING:

The inside and outside of all valves, together with the working parts except bronze and machined surfaces, shall be coated in accordance with AWWA standards and per the specific project specifications as provided.

MARKING:

Marking shall be in accordance with AWWA C-508 and shall include size, working pressure, and cast arrow to indicate direction of flow, and name of manufacturer.

