AECOM Environment

Prepared for:
Superfund Standby Program
NYSDEC
Albany, NY

Prepared by:
AECOM
Latham, NY
January 2021

Field Activities Plan (FAP)

Niagara Sanitation Company Site
NYSDEC Site Code 932054
Wheatfield, New York 14120
Work Assignment D009803-05

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

AECOM USA, Inc.
40 British American Boulevard
Latham, New York 12110

Contents

List of Tables

List of Figures

List of Appendices

1.0 Introduction

This Field Activities Plan (FAP) is designed to provide typical procedures for the field activities on work assignments (WAs) issued under New York State Department of Environmental Conservation (NYSDEC) Contract D009803. It will serve as the field procedures manual for all AECOM USA, Inc. (AECOM) personnel. Adherence to these procedures will ensure the quality and defensibility of the field data collected. In addition to the site-specific field procedures outlined in this document, all personnel performing field activities must do so in compliance with: (1) the Quality Assurance/ Quality Control (QA/QC) measures outlined in the site-specific Quality Assurance Project Plan (QAPP) (Appendix A); (2) the appropriate Health and Safety guidelines found in the site-specific Health and Safety Plan (HASP); (3) the Scope of Work (SOW) outlined in the WA; and (4) the time schedule outlined in the WA.

1.1 Work Assignment Objectives

The objectives of the work assignment were established in WA Issuance/Notice to Proceed-05 issued by NYSDEC under contract D009803 and documented in the SOW (Appendix B).

Field activities are planned and conducted in general accordance with NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010), the United States Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, 1988), and New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006).

The FAP is intended to be a companion document to the SOW prepared for each work assignment. This site-specific FAP was prepared using the Generic FAP to address site-specific conditions and project-specific requirements.

1.2 Site Description and Background Information

Available site information is presented in the SOW (Appendix B) and below in this site-specific FAP. Information presented in this FAP includes the following:

- Site Description
- Site Location
- Site History
- Previous Investigations, Remedial Actions, and Reports
- Current Site Conditions
- Local and Regional Geology and Hydrogeology

1.3 Site Description and Location

The Niagara Sanitation Company Site (site), also known as the Niagara Sanitation Landfill and the Nash Road Landfill, is an inactive landfill located on Nash Road in the Town of Wheatfield, Niagara County, New York (Figure 1 – Site Location). The property is owned by the Town of Wheatfield and is adjacent to the boundary that separates the Town of Wheatfield from the City of North Tonawanda. The landfill is located approximately 1,400 feet east of Nash Road. The portion of the property that is a landfill is rectangular in shape and consists of approximately 18.7 acres of the single 22.63 acre parcel.

The site is bordered by the Society of Catholic Apostolate property to the north which includes an approximate 15 acre agricultural field; a cemetery and property that contains a former motel and livery service to the east; a utility right of way (both overhead electric and underground natural gas and brine lines) and residences to the south; and Nash Road and residences to the west (Figure 2 – Site Plan).

The New York State property class code for this site is 852 Landfills and Dumps, and the property is zoned for Public Service use. Surrounding land use includes residential properties to the south and west, and commercial properties to the north and east. The property is vacant and overgrown with mature trees, dense brush, and patches of phragmites. The site is poorly drained and contains wetlands on the western, northern, and eastern portions of the property. The Town of Wheatfield completed installation of a 6 foot tall perimeter fence with locking gates around the landfill in December 2017. Prior to that time, based upon the presence of walking paths and trails, it appears that trespassers were using the site.

1.4 Site History

The Site is an approximately 18.7-acre inactive landfill owned by the Town of Wheatfield that was operated by the Niagara Sanitation Company from approximately 1955 to 1968. The landfill reportedly accepted both municipal and industrial solid wastes, including caustic materials, plating tank sludge, fly ash, salt solids, graphite, carbon, scrap adhesives, miscellaneous laboratory chemicals, and municipal wastes. NYSDEC records indicate that Bell Aerospace, Carborundum, Graphite Specialties, and others may have disposed of waste at the site. These wastes were reportedly buried in trenches that were excavated to facilitate disposal. In June 1968, shortly before the site's formal disposal operations were discontinued, the NYSDOT discovered waste while constructing the LaSalle Expressway in Niagara Falls, New York. NYSDOT disposed of approximately 1,600 cubic yards of this material in a trench within the northeast end of the Niagara Sanitation Landfill. This material was excavated from the southern end of what later became known as Love Canal. In 2013, Glenn Spring Holdings, an affiliate of the Occidental Chemical Corporation, began an Interim Remedial Measure (IRM) to characterize and remove this material. These wastes were excavated in 2014/2015 and transported out of state for incineration. Prior to the landfilling of waste, the area was predominantly used for agricultural uses (note the property north of the landfill is still used for agricultural purposes). Pesticides/herbicides were historically and currently used during agricultural activities and by adjacent homeowners.

1.5 Previous Investigations, Remedial Actions, and Reports

The NYSDEC completed a Phase I Investigation (historical records review and site walk over) of the site in 1983, a Phase II Investigation (on site data collection) in 1985, and an expanded Phase II Investigation in 1989. The investigations included the collection of surface water, sediment, subsurface soil, and groundwater samples. Fourteen (14) groundwater monitoring wells were installed during these investigations.

In association with these investigations, the NYSDOH completed surface soil sampling in 1991 to evaluate potential exposure risks. At that time, it was determined by NYSDEC and NYSDOH that the site did not pose a significant threat to public health or the environment because the exposure was limited; the materials were buried, contained or sufficiently covered to avoid significant exposure. Groundwater as a potential exposure path was also limited because the area was served by public water and the closest private well was approximately one mile away. As a result, the site was designated as Class 3 (action can be deferred) in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (Registry).

NYSDEC continuously monitors and evaluates sites on the Registry of Inactive Hazardous Waste Sites. In 2013, as part of these efforts, the NYSDEC completed a Site Characterization Study to reevaluate the Class 3 Registry designation for the site, to confirm the location of the wastes from the LaSalle Expressway project, and to reevaluate the potential for direct contact exposures. The Site Characterization was heavily focused on the eastern portion of the site where the wastes associated with the construction of the LaSalle Expressway were placed. Also, in 2013, Glenn Spring Holdings, an affiliate of the Occidental Chemical Corporation, began an IRM to characterize and remove the material excavated during the construction of the LaSalle Expressway. The wastes were excavated from the site during the Fall/Winter of 2014, and the Winter/Spring of 2015 and transported out of state for incineration.

In 2014, the NYSDEC conducted a Supplemental Site Characterization Study to characterize the municipal and industrial waste in the remainder of the landfill. While most of the site contained contaminant concentrations typical of non-hazardous municipal/industrial waste, three areas were identified that contained hazardous concentrations of lead or polychlorinated biphenyls (PCBs). Several surface soil samples exceeded NYSDEC commercial soil cleanup objectives (SCOs) for polycyclic aromatic hydrocarbons (PAHs) and metals. Groundwater within the footprint of the landfill contained elevated concentrations of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and metals that exceeded groundwater standards or guidance values. Based upon this information, NYSDEC reclassified the site to Class 2 (potential significant threat to public health and the environment) and completed a comprehensive remedial investigation (RI) of the landfill property.

An RI was completed in 2017. The RI included the collection of numerous surface water, sediment, surface soil, subsurface soil, and groundwater samples. The RI concluded that contaminants were not migrating from the landfill to surrounding properties and that no complete exposure pathways to

contamination from the landfill exist (a 6-foot tall perimeter fence with locking gates currently encompasses most of the landfill area). However, residual soil, groundwater and surface water contamination (VOCs, SVOCs, pesticides, PCBs, and metals) remains at the site and municipal wastes/debris can be seen at or protruding from the ground surface and extends off-site beyond the western property boundary of the landfill.

This FAP addresses field activities to be performed to address specific data gaps by collecting additional surface soil samples from borings and subsurface soil samples from test trenches.

1.6 Current Site Conditions

Fill Material: Fill material at the site contains PAHs, pesticides (dieldrin), and metals (arsenic, barium, cadmium, copper, lead and mercury) at concentrations that exceeded the NYSDEC Part 375 commercial use SCOs.

Surface Soil: PAHs and metals (arsenic, barium, cadmium, copper and mercury) were detected in surface soil at concentrations that exceeded the NYSDEC Part 375 commercial use SCOs. These exceedances were located primarily near the central portion of the landfill property.

Groundwater: Fill/upper sand groundwater is contaminated with VOCs (chlorobenzenes and petroleum compounds), SVOCs (phenolic compounds), pesticides (aldrin, BHC, chlordane, dieldrin, endrin and lindane) and metals (barium) at concentrations that exceeded NYSDEC groundwater standards.

The only exceedances documented in the deeper groundwater samples were typical lab contaminants (acetone, methylene chloride and bis [2-ethylhexyl] phthalate) and naturally occurring metals (magnesium and sodium).

Sediment: There were no exceedances of NYSDEC freshwater guidance values documented in any of the nine sediment samples collected from on and near the site.

Surface Water: Surface water contains pesticides (BHC, chlordane, dieldrin and toxaphene) at concentrations that exceeded NYSDEC surface water standards.

1.7 Local and Regional Geology and Hydrogeology

There are five distinct geologic units underlying the site, which are described as follows:
(1) a fill/upper sand water bearing zone that ranges in thickness from 0 to 16 feet;
(2) an upper clay aquitard that consists of a gray brown silty clay that ranges in thickness from 3 to 7 feet, and a red gray layered clay that ranges in thickness from 17 to 32 feet. An aquitard is a geologic unit that prevents the downward movement of groundwater and contaminants to lower water bearing units;
(3) a lower sand unit that ranges in thickness from 1 to 6 feet. This deposit is thickest in the northern portion of the site, and thins to the south, east and west;

(4) a till aquitard that is very dense and ranges in thickness from 22 to 42 feet; and
(5) an upper bedrock water bearing zone consisting of dolostone bedrock. Depth to bedrock at the site ranges from 65 to 71 feet below ground surface.

Groundwater in the fill/upper sand water bearing zone is typically encountered several feet below ground surface and generally flows toward the south and east; however, following significant precipitation events flow direction is toward the north.

2.0 General and Preparatory Field Activities

The SOW, established in the WA and subsequent discussions between AECOM and NYSDEC Project Managers, is documented in the SOW (refer to Appendix B for SOW).

Project objectives include:

- Evaluate aerial and vertical extent of contamination, including transport mechanisms;
- Collect additional data (surface soil and subsurface soil) as part of a supplemental RI to support the analysis of alternatives for site remedy design and implementation of remedial actions.

To accomplish these objectives, the field subtasks described in this site-specific FAP will be utilized. Additional methodology information is provided in the site-specific QAPP (Appendix A). Unless otherwise noted, it is assumed that all field work will be completed at Level D personal protection in accordance with the site-specific HASP. Field activities will be performed and monitored by qualified AECOM representatives.

2.1 Mobilization

Following authorization to proceed with the field investigation from NYSDEC, AECOM and its subcontractors will mobilize necessary materials and equipment to the site. As the project involves intrusive work (e.g., surface soil borings, test trenches), a call will be placed to DigSafely New York and will be the responsibility of the subcontractor performing the intrusive work (i.e., test trenches). Utility clearance is detailed in Section 2.3.

This site-specific FAP describes the provisions made for providing all necessary facilities and material, independent of the site owners/occupants. For small field assignments and those of short duration such as this WA, it will be possible to mobilize and store the necessary materials in a vehicle (e.g., cargo van). Site preparation and equipment mobilization will be performed by AECOM's subcontractor under direction by AECOM's Project Manager and field geologist. Remedial investigation activities will be performed by a team of two AECOM field geologists/technicians, mobilizing from Buffalo, New York with support by the AECOM Project Manager (i.e., technical lead) as needed.

The surface soil sampling is anticipated to take approximately two days to complete. Twenty-five surface soil boring locations are scheduled to be completed to further delineate impacts identified at surface soil locations completed in 2017 (i.e., SVOCs/PAHs/metals detections above SCOs) as well as historic sample locations SOIL-10 (i.e., SVOCs/PAHs detections above SCOs) and SB-N (PCBs and pesticides detections above SCOs). Note although SVOCs/PAHs, metals (including mercury), pesticides, and PCBs were not detected at each historical sample location, each of these compounds will be analyzed as requested by NYSDEC Project Manager. Refer to Appendix B for surface soil

sampling details and attached Figure 3 for proposed surface soil boring locations along with historical chemical data. Note exact sample locations may be adjusted slightly in the field if proposed locations are not accessible.

The test trenching portion of the fieldwork is anticipated to take approximately two days to complete; including hand clearing for each trench. Approximately six test trenches will be excavated immediately adjacent to monitoring well OW-36 to determine if there is a source area contributing to the VOCs, SVOCs, pesticides, and metals contaminants previously identified in the groundwater above SCOs at that well. Note although PCBs have not been detected at OW-36, soil samples will also be submitted for PCBs analysis as requested by NYSDEC Project Manager. Refer to Appendix B for test trench details and attached Figure 4 for the location of the test trenches with associated historical chemical data above SCOs.

Mobilization activities that are anticipated to be performed at the site include:

- Identifying historical sample locations with a hand-held global positioning system device and monitoring well OW-36. Siting and demarcating supplemental remedial investigation sample locations will be performed concurrently with site preparation activities.
- Mobilize and perform brush clearing to access sample locations;
- Mobilization and setup of necessary equipment for surface soil sampling;
- Mobilization and setup of necessary excavation equipment for test trenching and sampling; and
- Mobilization of Community Air Monitoring Program (CAMP) equipment for perimeter monitoring at the site.

A project kick-off meeting will be held at the site prior to initiating field work to orient field team members, project engineers, and subcontractors with the site and to familiarize all site workers with site background, potential dangers, health and safety requirements and emergency contingencies and other field procedures. A call-in number will be provided to those who cannot join the meeting at the site.

2.2 Health and Safety

It is anticipated that this work will be performed in Level D personal protection with the potential to upgrade to Level C. Field workers will be instructed to keep Level C equipment available should it be needed. Should health and safety monitoring during field activities indicate a threat to field personnel or warrant an upgrade beyond Level C protection, work will stop, and site conditions will be re-evaluated by NYSDEC and AECOM. An upgrade to Level B protection will require modification of the HASP, review by AECOM's district safety manager, and potential modifications of the CAMP (to be re-evaluated with NYSDEC and NYSDOH).

2.3 Utility Clearance: Callout

Intrusive activities that will be conducted during this site investigation include surface soil borings (using hand auger or trowel) and test trench excavations. Prior to the start of intrusive activities, a call will be placed to New York DIG SAFE CALL CENTER at Dig Safely New York 811

(http://www.digsafelynewyork.com) or 1-800-962-7960for utility mark-outs to minimize the risk of encountering subsurface utilities. Site personnel will be contacted to determine if detailed utility plans are available for the site and/or if they would like to be onsite to oversee intrusive activities.

2.4 Geophysical Surveys

No geophysical surveys are planned for the proposed field work.

2.5 Community Air Monitoring

Community air monitoring will be performed as outlined in the NYSDOH Generic CAMP, unless it is determined by NYSDEC and NYSDOH that a site-specific air monitoring plan is required, or that some of the provisions of the CAMP are not appropriate for a specific work assignment. AECOM's approach to implementing the Generic CAMP is provided in Section 4.0 of this FAP. Note all intrusive activities are scheduled to be performed more than 20 feet from the site boundary, therefore NYSDOH CAMP Special Requirements for Work within 20 Feet of Potentially Exposed Individuals or Structures will not be applicable.

2.6 Site Survey

Project surveying will provide data necessary to plot the locations of test trenches and surface soil boring locations on the existing base map. In addition, NYSDEC requested that monitoring wells in the vicinity of the proposed surface soil boring locations (i.e., monitoring wells LPZ-01S, LPZ-02S, LPZ-11S, OW-33, LPZ-13S, LPZ-06S, and LPZ-07S) be resurveyed (note the top of riser and top of casing elevations at LPZ-07S will also be surveyed once the well is repaired). All surveying will be performed under the supervision of a New York State licensed land surveyor subcontracted by AECOM.

During the survey, the horizontal positions will be tied into the North American Datum 1983 and UTM Zone 18N coordinate systems. The vertical positions will be tied to the North American Vertical Datum 1988 (NAVD88). The measuring point associated with the existing monitoring wells or other site reference features will be recorded to a vertical accuracy of 0.01 ft. The final survey will be supplied in a digital CAD format (i.e., .dwg or .dxf files in the cited coordinate systems). All horizontal data will be converted to World Geodetic System (WGS 84) per NYSDEC EQuIS requirements.

3.0 Soil Sampling Activities

Soil sampling activities which will be conducted include surface soil boring sampling and subsurface soil sampling during test trench excavation. Procedures for these activities are described below.

3.1 Surface Soil Sampling

Surface soil samples (defined as soil samples from the first six inches or fewer of soil) will be taken at 25 locations as identified on Figure 3; exact locations will be determined in the field between NYSDEC Project Manager and AECOM. Discrete surface soil boring samples will be collected at the 0 to 2-inch and 2 to 6-inch depth intervals at each location. Fifty surface soil samples will be collected, not including QA/QC samples as described in Table 1 and the site-specific QAPP. AECOM staff will collect the surface soil samples. Discrete surface soil samples from each the 0- to 2-inch and 2- to 6-inch depth intervals will be placed in their associated sample container and analyzed for target analyte list (TAL) metals using EPA Methods 6010C/7471B, TCL PCBs using EPA Method 8082A, TCL organochlorine pesticides using EPA Method 8081B, and TCL SVOCs using EPA Method 8270D. If elevated photoionization detector (PID) readings or unusual odors or staining are observed in the soil during the sampling, the collection of additional surface soil for TLC VOCs (using EPA Method 8260C) analysis will be discussed with NYSDEC. Sampling equipment will be decontaminated per the QAPP and Section 4.0 of this site-specific FAP prior to advancing the next sample location. Surface soil sampling by hand implements is also discussed in this section.

3.1.1 Surface Soil Sample Collection Procedure (by Hand)

1. Using a decontaminated stainless-steel trowel, or by hand (protected by a chemically resistant glove), remove snow/ice, rocks, stone, grass, and debris to gain access to the surface soils.

2. Using a decontaminated stainless device (teaspoon, trowel, “scoopula,” or similar), transfer the exposed soils directly into the laboratory-provided sample containers and scan soil with PID prior to closing lid. Discrete samples will be collected from the 0 to 2 inch and 2 to 6 inch depth intervals.

3. Complete the label on the sample container and transfer the sample container(s) to an iced cooler.

4. After collection of the sample, screen the hole with a photoionization detector for volatile organic vapors. Record the readings and any significant observations such as staining, oily sheen, or odors.

5. When sampling is complete, place remaining cuttings back in the borehole in the order in which they were removed if possible. Top off with hydrated bentonite pellets.

6. Place a stake in the center of the hole after backfilling the hole with the excavated material to be surveyed under the supervision of a New York State licensed land surveyor. In addition, measure

the location from fixed (permanent) objects using a tape measure or immediately survey using a hand-held global positioning system device.

3.1.2 Surface Soil Sampling (by Hand Auger)

1. Remove snow/ice, stones, vegetation, debris etc. from the ground surface in the sampling area.

2. Lay a section of plastic sheet adjacent to the soil sampling location.

3. Use a clean (decontaminated) bucket auger and "T" handle to collect a soil sample from the desired depth.

4. Turn the auger in a clockwise direction with the "T" handle to remove soil until the desired soil sampling depth is reached. Place the excavated soil on the adjacent plastic. If possible, lay out the cuttings in stratigraphic order and record observations made of the geologic features of the soil.

5. Transfer the exposed soils directly into the laboratory-provided sample containers and scan soil with PID prior to closing lid. Discrete samples will be collected from the 0 to 2 inch and 2 to 6 inch depth intervals. Place sample on ice and ship overnight to the lab under COC custody.

6. Decontaminate the auger bucket and complete the preceding steps for sample collection from deeper depths.

7. After collection of the sample, screen the hole with a photoionization detector for volatile organic vapors. Record the readings and any significant observations such as staining, oily sheen, or odors.

8. When sampling is complete, place remaining cuttings back in the borehole in the order in which they were removed if possible. Top off with hydrated bentonite pellets.

9. Place a stake in the center of the hole after backfilling the hole with the excavated material to be surveyed under the supervision of a New York State licensed land surveyor. In addition, measure the location from fixed (permanent) objects using a tape measure or immediately survey using a hand-held global positioning system device.

Reference: ASTM D6907-05(2016).

3.2 Test Trench Excavation

Six test trenches will be excavated to approximately 5 to 6 feet in depth and 5 to 8 feet in length for observational purposes and to collect one composited subsurface soil sample from 1 to 6 foot interval of each test trench plus associated QA/QC samples as described in Table 1 and the site-specific QAPP. Per Appendix B, subsurface soil samples collected from the test trenches will be analyzed for TAL metals using EPA Method 6010C/7471B, TCL PCBs using EPA Method 8082A, TCL organochlorine pesticides using EPA Method 8081B, TCL SVOCs using EPA Method 8270D, and TLC VOCs using EPA Method 8260C. If elevated PID readings or unusual odors or staining are observed in the soil during the sampling, the collection of additional subsurface soil samples will be discussed with NYSDEC. General guidelines for test trench excavation are presented below. Test

trenches will be excavated using a backhoe by an AECOM subcontractor at locations specified in Figure 4 or determined in the field based on site conditions. During test trench excavation, personnel will stay upwind of the excavation to the extent possible. Air monitoring will be conducted in accordance with the site-specific HASP and CAMP. Under no circumstances will AECOM or subcontractor personnel enter trench excavations. It is assumed that all excavated soil will be placed back in the test trenches (no soil investigative derived waste generated). In addition, safety protocol associated with test trench excavation is addressed in the site-specific HASP.

Procedure:

1. Decontaminate backhoe bucket prior to excavation.

2. Maneuver backhoe into position.

3. Remove subsurface materials in 1-foot lifts. Conduct continuous air monitoring with appropriate air monitoring equipment as indicated in the HASP. Screen soil with PID and place excavated soil on plastic sheeting adjacent to test trench.

4. Upon completion of test trench, visually inspect the soil horizons for discoloration, perched water zones or staining and photo document the test trench.

5. Record the following information in the field book for each test trench:

    - The total length and width of the excavation
    - The depth and thickness of distinct soil or lithologic units
    - A lithologic description of each unit
    - A description of any man-made materials or apparent impacted soil encountered.
    - A Test Trench Log sheet will be completed for each test trench (Appendix C).

6. Collect necessary soil samples, biasing the samples toward “hot spot” locations exhibiting elevated PID readings and/or staining, oily sheen, or odors; note if observed/detected the collection of additional discrete samples will be discussed with NYSDEC. The backhoe will collect a sample from a specific horizon and bring the sample to the ground surface. No personnel will enter the excavation to collect samples. The sampler will remove approximately 2 inches of soil from the outside of the soil sample prior to collecting the sample to prevent cross contamination of the sample.

7. Soil samples will be placed on ice and hand delivered to the laboratory under COC control.

8. The test trench will be backfilled with excavated material immediately after the required information has been recorded and the samples collected. The first soils out should be the last soils in when filling the test trench. Soils will be compacted in 1-foot lifts using the backhoe bucket. No test trenches will be left open overnight.

9. Decontaminate sampling equipment and backhoe bucket.

3.3 Description of Soils

3.3.1 Unified Soil Classification System

Soils are classified for engineering purposes according to the Unified Soil Classification System (USCS) adopted by the U.S. Army Corps of Engineers and U.S. Department of the Interior Bureau of Reclamation. Soil properties that form the basis for the USCS are:

- Percentage of gravel, sand, and fines;
- Shape of the grain-size distribution curve; and
- Plasticity and compressibility characteristics.

According to this system, all soils are divided into three major groups: coarse-grained, fine-grained, and highly-organic (peaty). The boundary between coarse-grained and fine-grained soils is taken to be the 200-mesh sieve (0.074 millimeter (mm)). In the field, the distinction is based on whether the individual particles can be seen with the unaided eye. If more than 50% of the soil by weight is judged to consist of grains that can be distinguished separately, the soil is considered to be coarse-grained.

The coarse-grained soils are divided into gravelly (G) or sandy (S) soils, depending on whether more or less than 50% of the visible grains are larger than the No. 4 sieve (3/16 inch). They are each divided further into four groups:

W: Well graded; fairly clean (<5% finer than 0.074 mm)

P: Poorly graded (gap-graded); fairly clean (<5% finer than 0.074 mm)

C: Clayey (>12% finer than 0.074 mm); plastic (clayey) fines. Fine fraction above the A- line with plasticity index above 7.

M: Silty (>12% finer than 0.074 mm); non-plastic or silty fines. Fine fraction below the A- line and plasticity index below 4.

The soils are represented by symbols such as GW or SP. Borderline materials are represented by a double symbol, as GW-GC.

The fine-grained soils are divided into three groups: inorganic silts (M), inorganic clays (C), and organic silts and clays (O). The soils are further divided into those having liquid limits lower than 50% (L), or higher than 50% (H).

The distinction between the inorganic clays (C), the inorganic silts (M), and organic soils (O) is made on the basis of a modified plasticity chart. Soils CH and CL are represented by points above the A-line, whereas soils OH, OL, and MH correspond to positions below the A-line. Soils ML, except for a few clayey fine sands, are also represented by points below the A-line. The organic soils O are distinguished from the inorganic soils M and C by their characteristic odor and dark color.

Reference: ASTM D2487-17.

If the sample consists of fill, the sample will be identified as fill and described as such in the soil description.

3.3.2 Visual Identification

Soil samples collected during soil sampling will be visually identified. Soil properties required to define the USCS classification of a soil and other observed characteristics normally identified in describing a soil are defined below:

a. Color
b. Moisture conditions
c. Grain size
   i. Estimated maximum grain size
   ii. Estimated percent by weight of fines (material passing No. 200 sieve)
d. Gradation
e. Grain shape
f. Plasticity
g. Predominant soil type
h. Secondary components of soil
i. Classification symbol
j. Other features such as:
   - organic, chemical, or metallic content;
   - compactness;
   - consistency;
   - cohesiveness near plastic limit;
   - dry strength; and
   - source - residual, or transported (aeolian, water borne, glacial deposit, etc.).

Reference: ASTM D2488-17.

3.4 Decontamination

3.4.1 Equipment Decontamination

To avoid cross contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the procedures described below. Field equipment rinsate blanks are generated and analyzed to monitor the effective of field decontamination procedures.

Cross contamination is minimized by the use of vendor-decontaminated, dedicated, disposable equipment to the extent practical.

3.4.1.1 Small Equipment Decontamination

Small equipment decontamination for non-disposable equipment such as hand augers and trowels, will be accomplished using the following procedures:

- Alconox (or equivalent) and potable water wash;
- Potable water rinse; and
- Distilled/deionized water rinse.

Solvents will not be used in the field decontamination of such equipment. Decontamination will include scrubbing/washing with a laboratory grade detergent (e.g. Alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute.

Equipment should be allowed to dry prior to use.

3.4.1.2 Heavy Equipment Decontamination

Excavation equipment will be decontaminated before the first use, between test trenches and prior to demobilization using high-pressure steam. To avoid the unnecessary accumulation of investigation-derived waste (IDW) that require subsequent containerization, characterization, and or disposal, if no gross signs of contamination or elevated PID readings are noted at a test trench location, then equipment decontamination should be performed near the sampling location with any residual solids deposited on the ground surface and decontamination liquids allowed to infiltrate into the ground. A decontamination pad is not expected to be needed for this project.

3.4.1.3 Personnel Decontamination

Details of the personnel decontamination procedures are provided in the site-specific HASP.

3.5 Management of Investigation-Derived Waste

If generated, IDW management will be in accordance with section 3.3(3e) of DER-10 (NYSDEC, 2010). The sampling methods and equipment were selected to eliminate the generation of IDW.

4.0 Community Air Monitoring Program

A Community Air Monitoring Plan (CAMP) is used to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities.

As all sample locations are greater than 20 feet from homes or outbuildings, the requirement of the CAMP Special Requirements for Work within 20 Feet of Potentially Exposed Individuals or Structures will not be applicable.

The protocols cited below are based on the NYSDOH Generic CAMP (May 2010; Appendix 1A to DER-10 [NYSDEC, 2010]) which is typically utilized by NYSDEC as guidance for work conducted under these contracts.

4.1 Monitoring

Real-time air monitoring for VOCs and/or particulate levels at the perimeter and surrounding community of the work area will be conducted during intrusive work activities. Monitoring activities will consist of a combination of continuous and periodic monitoring, which will be performed dependent upon the type of activity being conducted at the site, as discussed below.

4.1.1 Continuous Air Monitoring

Continuous monitoring for VOCs and particulates will be conducted during intrusive work activities associated with the site, including, but not limited to, the installation of surface soil borings and test trench excavation.

VOC monitoring will be conducted at the downwind perimeter of the immediate work area on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. VOC monitoring will be performed using a MiniRAE 2000 or equivalent, which is appropriate to detect a wide range of contaminants typically encountered. The MiniRAE 2000 will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The MiniRAE 2000 is capable of calculating 15-minute running average concentrations, which will be compared to the action levels specified below.

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) such as a Thermo MIE pDR-4000 DataRam or equivalent. The Thermo MIE pDR-4000 DataRam is a real-time monitoring equipment capable of measuring

particulate matter less than 10 microns (µm) in size [PM-10] and capable of integrating over a period of 15 minutes for comparison to the airborne particulate action level. The Thermo MIE pDR is equipped with an audible alarm to indicate exceedance of the action level. In addition to using the Thermo MIE pDR-4000 DataRam, fugitive dust migration will be visually assessed during work activities.

4.2 Action Levels and Response

This subsection identifies the action levels and corresponding responses for concentrations of VOCs and particulates detected during the field activities associated with a site.

4.2.1 Volatile Organic Compounds

If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted, and monitoring will continue. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.

If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be stopped, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 ft downwind of the work zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case less than 20 ft), is below 5 ppm over background for the 15-minute average.

If the organic vapor level is above 25 ppm at the perimeter of the work area, field activities will be shut down and made aware to the Agencies.

All 15-minute readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings (if any) used for decision purposes will also be recorded. All exceedances will be made known to the Agencies as soon as possible.

4.2.2 Particulates

If the downwind PM-10 particulate level is 100 µg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, the Agencies will be informed as soon as possible, and dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, the downwind PM-10 particulate levels are greater than 150 µg/m^3 above the upwind level, work will be stopped, and a re-evaluation of

activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

Similar to the VOC readings, particulate readings will be recorded and be available for state (NYSDEC and NYSDOH) and county health personnel to review as needed. All exceedances will be made known to the Agencies as soon as possible.

5.0 Field Records and Documentation

The objective of this subsection is to provide consistent procedures and formats by which field records will be kept and activities documented, and a methodology by which field records will be managed. Field records and documentation to be used during field activities include Field Log Books and Standard Forms. Standard Forms are provided in Appendix C.

5.1 Field Log Books

Field log books will be prepared and maintained throughout the course of the investigation**.** Only bound, weatherproof field log books will be used by personnel working on NYSDEC projects. The log books will be turned in for copying/filing/tracking when complete.

Each log book will be labeled on the front cover in indelible ink with the following designation: "Niagara Sanitation RI/FS, NYSDEC Work Assignment D009803-05, AECOM Project Number 60628668."

Log book entries will be recorded in indelible, waterproof ink. If errors are made in any field log book, field record (form), Chain-of-Custody (COC) form, or any other field record document, corrections will be made by crossing a single line through the error, entering the correct information, and initialing and dating the correction.

Standard Forms have been adopted in this FAP to facilitate the collection of consistent data (see Appendix C). This will preclude detailed documentation of, for example, lithologic descriptions in the field log book. A reference, however, to use of each specific form must be made in the log book.

The date will be placed at the top of every page in the left-hand corner of the right page. The time of entry recordings will be in columnar form down the left-hand side of the right page. If an entry is made in a non-dedicated log book, then the date, project name, and project number will be entered left to right, respectively, along the top of the right page. Entries should be dated, and time of entry recorded. At the beginning of each day, the first two entries will be "Personnel/Contractors On Site" and "Weather." At the end of each day's entry or particular event, if appropriate, the person entering the field notes should draw a diagonal line originating from the bottom left corner of the page to the conclusion of the entry and sign along the line indicating the conclusion of the entry or the day's activity.

Entries in field log books will be legible (printing is preferable) and will contain accurate and inclusive documentation of project activities (investigation, monitoring remediation, closure, maintenance, etc.). Information pertaining to health and safety aspects, personnel on site, visitor's names, association, and time of arrival/departure, etc., should also be recorded.

Language should be objective, factual, and free of personal feelings or other terminology that might prove inappropriate, since field records are the basis for later written reports. Once completed, these field log books become accountable documents and must be maintained as part of the project files.

Sample collection and handling activities, as well as visual observations, will be documented in the field log books. The sample collection equipment (where appropriate), field analytical equipment, and equipment used to make physical measurements will be identified in the field log books. Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment will also be recorded in the field log books, except where these are referenced as being recorded on approved field forms. Field analyses and measurements must be traceable to the specific piece of field equipment utilized and to the field investigator collecting the sample, making the measurement, or conducting analyses. Log books will be updated as field work progresses.

On a periodic basis (i.e., daily, weekly, etc.), or at the end of each field event, the pages of the field log book that were filled out during that time will be scanned into PDF format. The resulting PDF files will then be uploaded to the project folder located office servers.

At the completion of the fieldwork, the log book will be submitted to the AECOM project manager for final cataloging and filing. The log books will be stored in the Project File. Copies of specific sections will be made available to personnel upon request.

5.2 Standard Forms

All non-bound field records (e.g., boring and test trench logs, sampling logs, etc.) will be completed the day the associated activity occurs. Field data collected using electronic data loggers or computer entry forms, will be downloaded as soon as practical onto CDs or uploaded to office servers. If possible, the person collecting the data will download electronic data on a daily basis. This person will be responsible for verifying that the data collected are adequately represented in electronic media and in the file. Examples of forms typically used are provided in Attachment C of this FAP.

On a periodic basis (i.e., daily, weekly, etc.), or at the end of each field event, the field forms that were completed during that time will be scanned into PDF format. The resulting PDF files will then be uploaded to the project folder located office servers.

5.3 Sample Identification

During this project, a unique sample identifier will designate each sample collected. The following system may be used to assign unique sample identification numbers; however, modifications should be made as needed to clearly and appropriate identify samples for each site or project. Each sample will be identified by an alphanumeric character identifier, as described below.

The following codes will be used for identifying other sample types:

CODE	Sample Type
SS	Surface Soil Boring
TT	Test Trench
FB	Field (Rinsate) Blank
N + 50	Field Duplicate (e.g., field duplicate of SS-02 will be SS-52)
TB	Trip Blank
MS/MSD	Matrix Spike/ Matrix Spike Duplicate

Field blanks and trip blanks will be labeled for the day of collection. For MS/MSD samples, the MS/MSD will be added to the sample ID and included on the COC as a note.

An example of the sample numbering system is provided below.

Sample Identifier	Description
TT-02-0106	Soil sample from 1 to 6 ft interval from test trench -02.
SS-01-0002	Surface soil boring sample from location SS-01, 0 to 2 inch interval.
FBW210502	Field blank associated with water samples collected on 1/2/21
TB210503	Trip blank associated with samples shipped 5/3/21.

5.4 Sample Labeling

A non-removable label will be affixed to each sample container. Labels will be marked with permanent marker pens. The following information will be contained on each label:

Project name;

Sample identifier;

Company (AECOM);

Sample date and time;

Sampler's initials;

Sample preservation; and

Analysis required.

5.5 Sample Management

Proper documentation of sample collection and the methods used to control these documents are referred to as COC procedures. COC procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. COC procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures follow the COC guidelines outlined in NEIC Policies and Procedures, prepared by the National Enforcement Investigations Center (NEIC) of the U.S. Environmental Protection Agency Office of Enforcement.

Procedure:

1. The COC (Appendix C) should be completely filled out, with all relevant information.
2. The original COC goes with the samples. It should be placed in a Ziploc bag and taped inside the sample cooler. The sampler should retain a copy of the COC.
3. Place inert cushioning material such as bubble-wrap in the bottom of the cooler.
4. Place the bottles in the cooler in such a way that they do not touch (use cardboard dividers or bubble-wrap).
5. Wrap volatile organic analysis vials securely in bubble-wrap and tape. Place them in the center of the cooler.
6. Pack the cooler with ice in doubled Ziploc plastic bags.
7. Pack the cooler with cushioning material such as bubble-wrap.
8. Tape the drain shut.
9. Wrap the cooler completely with strapping tape at two locations securing the lid. Do not cover any labels.
10. Place the lab address on top of cooler. For shipping, add the following: Put "This side up" labels on all four sides and "Fragile" labels on at least two sides. Affix numbered custody seals on front right and left of cooler. Cover seals with wide, clear tape.
11. Ship samples via overnight carrier or transport directly to the designated laboratory (Eurofins TestAmerica, in Amherst, NY, NYSDEC call-out laboratory) the same day that they are collected. Samples must be maintained at 4 degrees Celsius (C) ± 2ºC throughout the shipping duration.

6.0 References

ASTM D2487-17. *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*.

ASTM D2488-17. *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

ASTM D6907-05(2016). *Standard Practice for Sampling Soils and Contaminated Media with Hand-Operated Bucket Auger*s.

Liro Engineers, Inc, 2019. Final Remedial Investigation Report for Niagara Sanitation / Nash road Landfill Site. February 2019.

NYSDEC, 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3, 2010.

United States Environmental Protection Agency (USEPA), 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final. USEPA Office of Emergency and Remedial Response. EPA/540/G-89/004. October.

Table

Table 1
Analytical Sampling Program
Niagara Sanitation Company Site
Site ID: 932054
Wheatfield, New York 14120

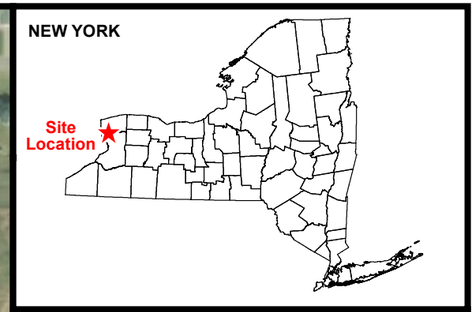
Location	Matrix	TCL VOC (8260C)	TCL SVOCs (8270D)	TAL Inorganics[(1)] (6010C)	Mercury (7471B)	PCBs (8082A)	Pesticides (8081B)
Surface Soil							
SS-1 (0-2")	Soil	0	1	1	1	1	1
SS-1 (2-6")	Soil	0	1	1	1	1	1
SS-2 (0-2")	Soil	0	1	1	1	1	1
SS-2 (2-6")	Soil	0	1	1	1	1	1
SS-3 (0-2")	Soil	0	1	1	1	1	1
SS-3 (2-6")	Soil	0	1	1	1	1	1
SS-4 (0-2")	Soil	0	1	1	1	1	1
SS-4 (2-6")	Soil	0	1	1	1	1	1
SS-5 (0-2")	Soil	0	1	1	1	1	1
SS-5 (2-6")	Soil	0	1	1	1	1	1
SS-6 (0-2")	Soil	0	1	1	1	1	1
SS-6 (2-6")	Soil	0	1	1	1	1	1
SS-7 (0-2")	Soil	0	1	1	1	1	1
SS-7 (2-6")	Soil	0	1	1	1	1	1
SS-8 (0-2")	Soil	0	1	1	1	1	1
SS-8 (2-6")	Soil	0	1	1	1	1	1
SS-9 (0-2")	Soil	0	1	1	1	1	1
SS-9 (2-6")	Soil	0	1	1	1	1	1
SS-10 (0-2")	Soil	0	1	1	1	1	1
SS-10 (2-6")	Soil	0	1	1	1	1	1
SS-11 (0-2")	Soil	0	1	1	1	1	1
SS-11 (2-6")	Soil	0	1	1	1	1	1
SS-12 (0-2")	Soil	0	1	1	1	1	1
SS-12 (2-6")	Soil	0	1	1	1	1	1
SS-13 (0-2")	Soil	0	1	1	1	1	1
SS-13 (2-6")	Soil	0	1	1	1	1	1
SS-14 (0-2")	Soil	0	1	1	1	1	1
SS-14 (2-6")	Soil	0	1	1	1	1	1
SS-15 (0-2")	Soil	0	1	1	1	1	1
SS-15 (2-6")	Soil	0	1	1	1	1	1
SS-16 (0-2")	Soil	0	1	1	1	1	1
SS-16 (2-6")	Soil	0	1	1	1	1	1
SS-17 (0-2")	Soil	0	1	1	1	1	1
SS-17 (2-6")	Soil	0	1	1	1	1	1
SS-18 (0-2")	Soil	0	1	1	1	1	1
SS-18 (2-6")	Soil	0	1	1	1	1	1
SS-19 (0-2")	Soil	0	1	1	1	1	1
SS-19 (2-6")	Soil	0	1	1	1	1	1
SS-20 (0-2")	Soil	0	1	1	1	1	1
SS-20 (2-6")	Soil	0	1	1	1	1	1
SS-21 (0-2")	Soil	0	1	1	1	1	1
SS-21 (2-6")	Soil	0	1	1	1	1	1
SS-22 (0-2")	Soil	0	1	1	1	1	1
SS-22 (2-6")	Soil	0	1	1	1	1	1
SS-23 (0-2")	Soil	0	1	1	1	1	1
SS-23 (2-6")	Soil	0	1	1	1	1	1
SS-24 (0-2")	Soil	0	1	1	1	1	1
SS-24 (2-6")	Soil	0	1	1	1	1	1
SS-25 (0-2")	Soil	0	1	1	1	1	1
SS-25 (2-6")	Soil	0	1	1	1	1	1
SS-FD	Soil	0	3	3	3	3	3
SS-MS	Soil	0	3	3	3	3	3
SS-MSD	Soil	0	3	3	3	3	3
SS-EB	Soil	0	3	3	3	3	3

Table 1
Analytical Sampling Program
Niagara Sanitation Company Site
Site ID: 932054
Wheatfield, New York 14120

Location	Matrix	TCL VOC (8260C)	TCL SVOCs (8270D)	TAL Inorganics[(1)] (6010C)	Mercury (7471B)	PCBs (8082A)	Pesticides (8081B)
Test Trench							
TT-1	Soil	1	1	1	1	1	1
TT-2	Soil	1	1	1	1	1	1
TT-3	Soil	1	1	1	1	1	1
TT-4	Soil	1	1	1	1	1	1
TT-5	Soil	1	1	1	1	1	1
TT-6	Soil	1	1	1	1	1	1
TT-FD	Soil	1	1	1	1	1	1
TT-MS	Soil	1	1	1	1	1	1
TT-MSD	Soil	1	1	1	1	1	1
TT-EB	Soil	1	1	1	1	1	1

Notes:
TT - Test Trench
SS - Surface Soil Boring
FD - Field Duplicate
EB - Equipment (or Rinse) Blank
TB - Trip Blank
-MS - Matrix Spike Duplicate
-MSD - Matrix Spike Duplicate
[1]Target Analyte List (23 Metals); does not include Mercury

Figures



Legend

Site Location

SOURCES:
ESRI World Imagery
ESRI World Street Map

300 0 300
Feet

AECOM

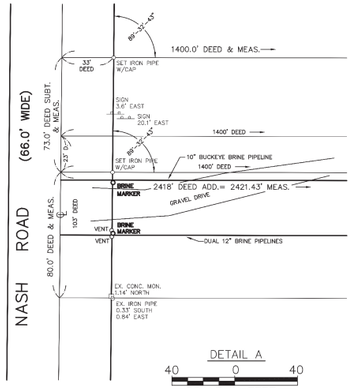
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NIAGARA SANITATION COMPANY SITE (NYSDEC SITE NO. 932054)

SITE LOCATION

7415 NASH ROAD
TOWN OF WHEATFIELD, NIAGARA COUNTY, NEW YORK

FILE NAME:	DRAWN:	PROJECT NO.:	DATE:	FIGURE NO.:
01 SITE LOCATION.mxd	ML	60628668	9/1/2020	1

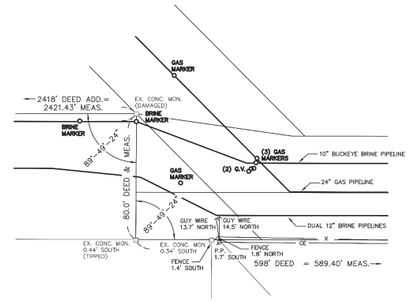
J:\Projects\60628668_NiagaraSan\900_CAD_GIS\920_GIS\MAPS\FAP\01 SITE LOCATION.mxd 9/1/2020



DETAIL A

40 0 40

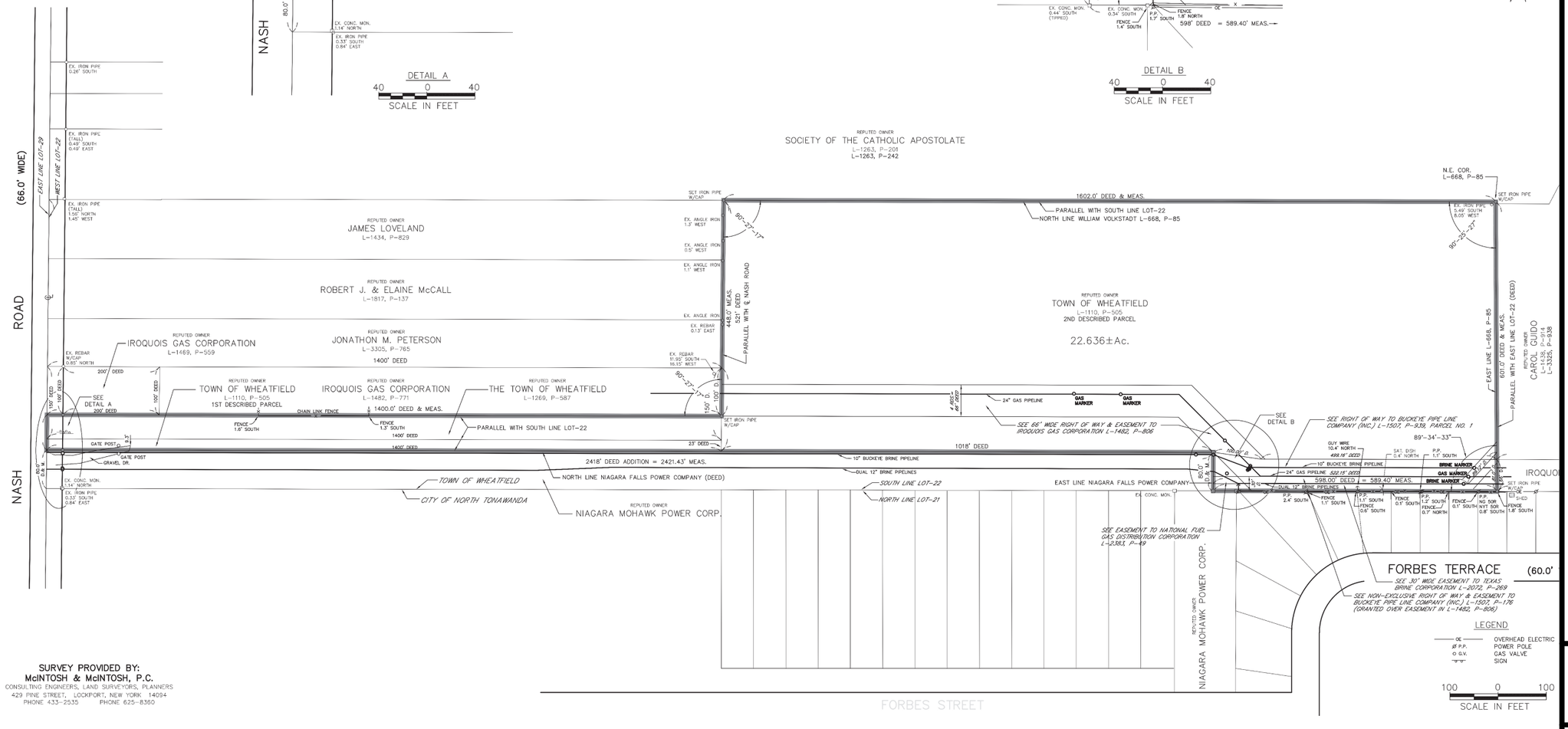
SCALE IN FEET



DETAIL B

40 0 40

SCALE IN FEET



LEGEND

OE — OVERHEAD ELECTRIC
ø P.P. — POWER POLE
G.V. — GAS VALVE
— SIGN

100 0 100

SCALE IN FEET

SURVEY PROVIDED BY:
McINTOSH & McINTOSH, P.C.
CONSULTING ENGINEERS, LAND SURVEYORS, PLANNERS
429 PINE STREET, LOCKPORT, NEW YORK 14094
PHONE 433-2535 PHONE 625-8360

SOURCE:
Figure is from Final Remedial Investigation Report dated February 2019 (Figure 2-1 Site Plan)

AECOM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NIAGARA SANITATION COMPANY SITE (NYSDEC SITE NO. 932054)

SITE PLAN

7415 NASH ROAD
TOWN OF WHEATFIELD, NIAGARA COUNTY, NEW YORK

FILE NAME:	DRAWN:	PROJECT NO.:	DATE:	FIGURE NO.:
02 SITE PLAN.mxd	ML	60628668	8/18/2020	2

J:\Projects\60628668_NiagaraSan\900_CAD_GIS\920_GISIMAPS\FAP\02 SITE PLAN.mxd 8/18/2020

LSS-006		3/29/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	3.1	1.0

LSS-006		3/29/2017	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Barium	0-2	501	400
Cadmium	0-2	17.0	9.3
Mercury	0-2	2.9	2.8

LSS-005		3/29/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	11.0	5.6
Benzo(A)Pyrene	0-2	12.0	1.0
Benzo(B)Fluoranthene	0-2	14.0	5.6
Indeno(1,2,3-C,D)Pyrene	0-2	6.8	5.6

LSS-004		3/29/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	17.0	5.6
Benzo(A)Pyrene	0-2	20.0	1.0
Benzo(B)Fluoranthene	0-2	30.0	5.6
Dibenz(A,H)Anthracene	0-2	4.3	0.56
Indeno(1,2,3-C,D)Pyrene	0-2	12.0	5.6

LSS-004		3/29/2017	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Arsenic	0-2	17.9	16
Barium	0-2	892	400
Cadmium	0-2	21.3	9.3
Copper	0-2	5,800	270
Lead	0-2	5,860	1,000
Mercury	0-2	3.1	2.8

NS-North		11/7/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	4.8	1.0
Benzo(B)Flouranthene	0-2	6.0	5.6
Dibenz(A,H)Anthracene	0-2	0.8	0.56
NS-North-D		**11/7/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 376 Commercial SCO*
Dibenz(A,H)Anthracene	2-12	0.7	0.56
NS-North		**11/7/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	1.9	5.6
Benzo(A)Pyrene	2-12	1.7	1.0
Benzo(B)Flouranthene	2-12	1.9	5.6
Indeno(1,2,3-C,D)Pyrene	2-12	1.2	5.6

SB-NR		11/7/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	1.6	1.0

NS-East		5/11/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	12.0	5.6
Benzo(A)Pyrene	2-12	10.0	1.0
Benzo(B)Flouranthene	2-12	13.0	5.6
Dibenz(A,H)Anthracene	2-12	2.5	0.56
Indeno(1,2,3-C,D)Pyrene	2-12	7.0	5.6
NS-East		**11/7/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	3.7	1.0

NS-West		11/7/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	2-12	2.4	1.0

SOIL-10		5/29/2013	
SVOCs/PAHs	*Depth (ftbg)*	*mg/kg*	*Part 375 Commercial SCO*
Dibenz(A,H)Anthracene	0-0.17	0.6	0.56

LSS-011		3/28/2017	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Barium	0-2	691	400
LSS-011		**3/28/2017**	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Cadmium	6-12	9.8	9.3
Copper	6-12	350	270

LSS-019		5/11/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	16.0	5.6
Benzo(A)Pyrene	0-2	14.0	1.0
Benzo(B)Flouranthene	0-2	20.0	5.6
Dibenz(A,H)Anthracene	0-2	3.6	0.56
Indeno(1,2,3-C,D)Pyrene	0-2	92.0	5.6

LSS-013		3/28/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	22.0	5.6
Benzo(A)Pyrene	0-2	18.0	1.0
Benzo(B)Flouranthene	0-2	24.0	5.6
Dibenz(A,H)Anthracene	0-2	3.6	0.56
Indeno(1,2,3-C,D)Pyrene	0-2	11.0	5.6
LSS-013		**3/28/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	18.0	5.6
Benzo(A)Pyrene	2-12	14.0	1.0
Benzo(B)Flouranthene	2-12	20.0	5.6
Indeno(1,2,3-C,D)Pyrene	2-12	9.1	5.6

LSS-013		3/28/2017	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Arsenic	0-2	17.7	16

SB-N		4/14/2014	
Pesticides	*Depth (ftbg)*	*mg/kg*	*Part 375 Commercial SCO*
Dieldrin	0-2	2.6	1.4
PCBs	*Depth (ftbg)*	*mg/kg*	*Part 375 Commercial SCO*
Total PCbs	0-2	68.0	1.0

SOIL-3		5/29/2013	
SVOCs/PAHs	*Depth (ftbg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-0.17	1.3	1.0

LSS-018		3/29/2017	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Barium	0-2	872	400
LSS-018		**3/29/2017**	
Metals	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Barium	2-12	506	400

NS-South		11/7/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	3.2	1.0

LSS-016		3/28/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	22.0	5.6
Benzo(A)Pyrene	0-2	20.0	1.0
Benzo(B)Flouranthene	0-2	26.0	5.6
Dibenz(A,H)Anthracene	0-2	2.1	0.56
Indeno(1,2,3-C,D)Pyrene	0-2	12.0	5.6
LSS-016		**3/28/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	22.0	5.6
Benzo(A)Pyrene	2-12	17.0	1.0
Benzo(B)Flouranthene	2-12	23.0	5.6
Indeno(1,2,3-C,D)Pyrene	2-12	10.0	5.6

LSS-021		5/11/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Pyrene	0-2	4.5	1.0
Benzo(B)Flouranthene	0-2	5.8	5.6

LSS-014		3/28/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	20.0	5.6
Benzo(A)Pyrene	0-2	18.0	1.0
Benzo(B)Flouranthene	0-2	23.0	5.6
Indeno(1,2,3-C,D)Pyrene	0-2	12.0	5.6
LSS-014		**3/28/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	29.0	5.6
Benzo(A)Pyrene	2-12	23.0	1.0
Benzo(B)Flouranthene	2-12	34.0	5.6
Dibenz(A,H)Anthracene	2-12	2.3	0.56
Indeno(1,2,3-C,D)Pyrene	2-12	14.0	5.6

LSS-015		3/28/2017	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	0-2	17.0	5.6
Benzo(A)Pyrene	0-2	14.0	1.0
Benzo(B)Flouranthene	0-2	22.0	5.6
Indeno(1,2,3-C,D)Pyrene	0-2	10.0	5.6
LSS-015		**3/28/2017**	
SVOCs/PAHs	*Depth (inches bg)*	*mg/kg*	*Part 375 Commercial SCO*
Benzo(A)Anthracene	2-12	6.4	5.6
Benzo(A)Pyrene	2-12	5.5	1.0
Benzo(B)Flouranthene	2-12	8.2	5.6

SET IRON PIPE W/CAP
EX. ANGLE IRON 1.3' WEST
EX. ANGLE IRON
EX. REBAR 0.13' EAST
EX. REBAR 11.95' SOUTH 16.15' WEST
REPUTED OWNER
–1269, P–587
SOUTH LINE LOT-22
NORTH LINE NIAGARA FALLS POWER COMPANY (DEED)
4 RODS 66' DEED
24" GAS PIPELINE
GAS MARKER
SEE 66' WIDE RIGHT OF WAY & EASEMENT TO IROQUOIS GAS CORPORATION L-1482, P-806
1018' DEED
EAST LINE NIAGARA FALLS POWER COMPANY
EX. CONC. MON.
E EASEMENT TO NATIONAL FUEL S DISTRIBUTION CORPORATION
SET IRON PIPE W/CAP
SAT. DISH
P.P. .1' SOUTH
499.76' DEED
BRINE MARKER
GAS MARKER
522.15' DEED
P.P. 2.4' SOUTH
FENCE 1.1' SOUTH
P.P. 1.1' SOUTH
FENCE 0.6' SOUTH
FENCE .1' SOUTH
P.P. 1.2' SOUTH
FENCE 0.7' NORTH
P.P. 0.1' SOUTH
P.P. NG 50R NYT 50R 0.8' SOUTH
SHED
FENCE 1.8' SOUTH
P.P. NG 62R NYT 62
L–1496, P–986
(60.0' WIDE)
EXAS
-269

SS-01 SS-02 SS-03 SS-04 SS-05 SS-06 SS-07 SS-08 SS-09 SS-10 SS-11 SS-12 SS-13 SS-14 SS-15 SS-16 SS-17 SS-18 SS-19 SS-20 SS-21 SS-22 SS-23 SS-24 SS-25

LSS-001 LSS-002 LSS-003 LSS-004 LSS-005 LSS-006 LSS-007 LSS-008 LSS-009 LSS-010 LSS-011 LSS-012 LSS-013 LSS-014 LSS-015 LSS-016 LSS-017 LSS-018 LSS-019 LSS-020 LSS-021 LSS-022

SOIL-1 SOIL-2 SOIL-3 SOIL-4 SOIL-5 SOIL-6 SOIL-7 SOIL-8 SOIL-9 SOIL-10 SOIL-11

NS-NORTH NS-EAST NS-WEST NS-SOUTH SB-NR SB-N

RSS LSED-1

0 75 150 300
SCALE IN FEET

N

LEGEND:

SS-19 PROPOSED SURFACE SOIL SAMPLE LOCATION

LSS-018 SURFACE SOIL SAMPLING LOCATIONS WITH NO EXCEEDANCE OR APPLICABLE STANDARDS OR CRITERIA

LSS-016 SURFACE SOIL SAMPLING LOCATIONS WITH ONE OR MORE COMPOUNDS REPORTED AT CONCENTRATIONS ABOVE APPLICABLE STANDARDS OR CRITERIA

WELL ACCESS PATHWAY

GRAVEL ROAD

AECOM
257 West Genesee Street
Suite 400, Buffalo, NY 14202, USA
T: (716) 856-5636
www.aecom.com

FIGURE 3
PROPOSED SURFACE SOIL LOCATIONS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NIAGARA SANITATION COMPANY SITE (NYSDEC SITE NO. 932054)
7415 NASH ROAD
TOWN OF WHEATFIELD, NIAGARA COUNTY, NEW YORK

JANUARY 2021 60628668

L:\Group\earth\Latham NY Work\NYSDEC Niagara Sanitation\900_CAD_GIS\910_CAD\60628668_001 Surface Soil_SVOC_PAHs_2017.dwg, 1/8/2021 2:58:29 PM, Splawnm

N

SET IRON PIPE W/CAP

LDP-04

EX. ANGLE IRON 1.3' WEST

TT-01 TT-02 TT-06 SB-DD/OW-36 TT-05 TT-03 TT-04

OW-36		5/19/2014	8/29/2017
VOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
Benzene	1.0	3.1	4.0
Chlorobenzene	5.0	19	16
Ethylbenzene	5.0	200	28
Isopropylbenzene	5.0	13	ND
Xylene (Total)	5.0	1,700	460
2-Hexanone	50	NA	9.6
SVOCs			
4-Chloro-3-Methylphenol	1.6	7.5	ND
4-Methylphenol (P-Cresol)	1.0	2.7	ND
Biphenyl	5.0	17	39
Bis[2-ethylhexyl]phthalate	5.0	5.4	4.2
Phenol	1.6	2.8	4.6

LPZ-12S

LPZ-12S		9/21/2017
VOCs	NYSDEC AWQSGVs	*ug/L*
Benzene	1.0	1.9

OW-4

OW-15

SB-11/OW-37

OW-37		5/20/2014	8/29/2017
SVOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
4-Methylphenol (P-Cresol)	1.0	1.8	ND

OW-35

OW-35		5/19/2014	8/30/2017
VOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
Benzene	1.6	3.8	4.9
Chlorobenzene	5.0	80	78
SVOCs			
4-Methylphenol (P-Cresol)	1.0	2.8	ND

LPZ-09S

SB-W/OW-33

OW-33		5/20/2014	8/29/2017
SVOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
4-Methylphenol (P-Cresol)	1.0	1.4	ND

EX. ANGLE IRON

EX. REBAR 0.13' EAST

OW-6

OW-16

OW-16		2/18/1988	8/2/2013	5/19/2014	8/30/2017
VOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*	*ug/L*	*ug/L*
1,4-Dichlorobenzene	3.0	ND	ND	3.4	4.4
Benzene	1.0	12	2.9	3.2	3.5
Chlorobenzene	5.0	25	15	16	18
Ethylbenzene	5.0	55	ND	ND	ND
Tetrachloroethene	5.0	67	ND	ND	ND
Toluene	3.0	5.2	ND	ND	ND
Total Xylenes	5.0	30	ND	ND	ND

SB-T/OW-32

OW-5

OW-32		5/19/2014	8/30/2017
SVOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
4-Methylphenol (P-Cresol)	1.0	1.8	ND

REPUTED OWNER

L–1269, P–587

4 RDS.= 66' DEED

24" GAS PIPELINE

GAS MARKER

SET IRON PIPE W/CAP

SB-Y/OW-34

OW-34		5/19/2014	8/22/2017
SVOCs	NYSDEC AWQSGVs	*ug/L*	*ug/L*
4-Methylphenol (P-Cresol)	1.0	2.2	ND

SEE 66' WIDE RIGHT OF WAY & EASEMENT

0 40 80 160

SCALE IN FEET

LEGEND:

- TT-01 — PROPOSED TEST TRENCH LOCATION
- OW-5 — MONITORING WELL AND PIEZOMETER LOCATIONS (NOT ANALYZED)
- LPZ-09S — GROUNDWATER SAMPLING LOCATIONS WITH NO EXCEEDANCE OF APPLICABLE STANDARDS OR CRITERIA FOR VOCs AND SVOCs
- OW-35 — GROUNDWATER SAMPLING LOCATIONS WITH ONE OR MORE COMPOUNDS REPORTED AT CONCENTRATIONS ABOVE APPLICABLE STANDARDS OR CRITERIA FOR VOCs AND SVOCs
- WELL ACCESS PATHWAY
- GRAVEL ROAD

AECOM
257 West Genesee Street
Suite 400, Buffalo, NY 14202, USA
T: (716) 856-5636
www.aecom.com

FIGURE 4
PROPOSED TEST TRENCH LOCATIONS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NIAGARA SANITATION COMPANY SITE (NYSDEC SITE NO. 932054)
7415 NASH ROAD
TOWN OF WHEATFIELD, NIAGARA COUNTY, NEW YORK

JANUARY 2021 60628668

L:\Group\earth\Latham NY Work\NYSDEC Niagara Sanitation\900_CAD_GIS\910_CAD\60628668_002a Proposed Test Trench Locations_Jan2021 (Zoomed).dwg, 1/6/2021 9:00:59 AM, Splawnm

Appendix A

Quality Assurance Project Plan

AECOM Environment

Prepared for:
Superfund Standby Program
NYSDEC
Albany, NY

Prepared by:
AECOM
Latham, NY
January 2021

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Remedial Investigation/Feasibility Study
Niagara Sanitation Company
Wheatfield, New York 14120
Work Assignment# D009803-05

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

AECOM USA, Inc.
40 British American Boulevard
Latham, New York 12110

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Remedial Investigation/Feasibility Study
Niagara Sanitation Company
Wheatfield, New York 14120
Work Assignment# D009803-05

Prepared By: Robert Montione,
Quality Assurance Officer

Reviewed By: George Kisluk
Project Chemist

Contents

List of Tables

List of Attachments

ACRONYMS AND ABBREVIATIONS

ASP	Analytical Services Protocol
°C	degrees Celsius
CLP	Contract Laboratory Program
COC	chain of custody
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
FAP	Field Activities Plan
FD	field duplicate
IDL	instrument detection limit
ITR	independent technical review
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MD	matrix duplicate
MDL	method detection limit
mg/L	milligrams per liter
mg/kg	milligrams per kilograms
MS	matrix spike
MSB	matrix spike blank
MSD	matrix spike duplicate
NEIC	National Enforcement Investigations Center
NIST	National Institute of Standards and Technology
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PARCCS	precision, accuracy, representativeness, comparability, completeness, and sensitivity
PCB	polychlorinated biphenyl
PMWP	Project Management Work Plan
PQO	Project Quality Objective
QA	Quality Assurance
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	relative percent difference
µg/kg	micrograms per kilograms
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

1.1 PURPOSE AND OBJECTIVE

The purpose of this site-specific Quality Assurance Project Plan (QAPP) is to document planned investigative activities and establish the criteria for performing these activities at a predetermined quality for the work conducted completed by AECOM USA, Inc. (AECOM) under NYSDEC Standby Engineering Contract D009803.

Project work will be conducted in general accordance with the NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010a), DER's Spill Response Guidance Manual, as applicable, technical requirements in Contract D009803 between NYSDEC and AECOM (NYSDEC and AECOM, 2019), and United States Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, 1988).

The QAPP is intended to be a companion document to the site-specific Field Activities Plan (FAP) prepared for this work assignment.

1.2 PROJECT MANAGEMENT AND ORGANIZATION

1.2.1 Personnel

The general responsibilities of key project personnel are listed below.

Program Manager – Michael L. Spera, PE will have responsibility for overall program management and coordination of AECOM personnel and subcontractors to complete the work.

Project Manager – Dino Zack, PG, STS will have responsibility for overall project management and coordination with NYSDEC and will coordinate the initiation and implementation of the work assignment activities. The AECOM Project Manager will serve as the initial and primary contact with NYSDEC throughout the project and will be responsible for successful implementation of the project's QA/QC activities. The AECOM Project Manager may delegate a portion of the tasks required for successful implementation of the project to a qualified individual, the Site Manager, who will be on site during field activities (i.e., investigations, remedial action, operation and maintenance activities, etc.). The Site Manager will work under the direction of the AECOM Project Manager, and will be responsible for implementing applicable QC procedures in the field and verifying that all other AECOM field personnel adhere to these procedures and perform all activities as described in the site-specific FAP.

Task Leaders/Field Team Leaders – Sean Connelly (AECOM) will share the responsibility of implementing and coordinating the field and office project activities.

Program QA Officer – Mr. Robert Montione (AECOM) is the Program Quality Assurance Officer (QAO) for work assignments issued under this contract. The QAO is responsible for oversight of the data validation and laboratory subcontractors, as well as data usability reports.

The QAO will work with the AECOM database manager to assure that electronic deliverables provided by the laboratory are accurate and are formatted consistent with AECOM and NYSDEC requirements. The Program QAO may designate another qualified individual to serve as project QA officer to oversee the data-to-day quality assurance aspects of specific work assignments.

Project Chemist/QA Officer – George Kisluk (AECOM) is responsible for verifying that the analytical laboratories adhere to the QA/QC requirements specified in the site-specific QAPP. The AECOM QA Officer will be the point of contact for the Laboratory's Project Manager and will personally communicate with the Laboratory's Project Manager to verify that all sample analyses are being performed such that the resulting data will be of sufficient quality for its intended purpose.

H & S Officer – Mr. Peter Wray (AECOM) will be responsible for oversight of the preparation of the project health and safety plan, approving it, and tracking of its implementation.

Database Manager – Angela Toma-Eisele (AECOM), or an assigned qualified individual, will serve as database manager. The database manager is responsible for verifying that laboratory deliverables meet AECOM and NYSDEC electronic deliverable specifications, and for preparing the final EQuIS deliverable for submission to NYSDEC.

Resumes for AECOM personnel have previously been submitted to the Bureau of Program Management. Resumes of individuals which have not been previously submitted to the NYSDEC. Resumes of the third-party data validator is included in Attachment 1.

1.2.2 Specific Tasks and Services

AECOM has obtained the following subcontractor specialists for services relating to laboratory/analytical services and data validation services.

Laboratory Analysis – Eurofins TestAmerica, a NYSDEC call-out laboratory has been assigned for the project. Eurofins TestAmerica is certified for aqueous and non-aqueous matrices.

All laboratories to be used for the work assignment shall hold applicable New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certifications for the analyses to be performed. Copies of the applicable ELAP certifications for the laboratory is provided in Attachment 2. The laboratory maintains its own QA/QC program and employs the required staff to implement this program. The QA Officer for the laboratory is responsible for verifying that all sample analyses are performed in accordance the analytical methods, laboratory QA/QC procedures and this site-specific QAPP.

Data Validation – Validata Chemical Service, Inc., a third-party data validator will be assigned for data quality review and Data Usability Summary Report (DUSR) preparation as needed for this project, selected from firms subcontracted by AECOM based on a solicitation conducted in 2020. As noted in the Standby Contract (D009803), independent third-party validation is preferred when data validation is required. Data validation is performed to establish the data quality for all data which are to be considered when making project decisions.

Resumes of the third-party data validator is included in Attachment 1.

1.3 SITE DESCRIPTION AND LOCATION

Background data on the site, including the site description and location, site history, previous investigations, and current conditions, are summarized in the site-specific FAP. Site maps showing proposed sampling locations are included in the site-specific FAP.

2.0 SITE INVESTIGATION

Site investigation procedures are provided below.

2.1 FIELD SAMPLING PROCEDURES

Field activities are detailed in the site-specific FAP and SOW and are not repeated in this QAPP. Proposed sampling procedures to be utilized are identified in the site-specific FAP.

2.2 EQUIPMENT DECONTAMINATION

To avoid cross contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the procedures specified in the site-specific FAP.

The procedures discussed here are general and will be superseded by project-specific requirements (as documented in the Section 3.4 of the site-specific FAP). However, these procedures are provided for guidance in developing those plans.

Field equipment rinsate blanks (see Section 4.3.1) are generated and analyzed to monitor the effective of field decontamination procedures.

Cross contamination is minimized by the use of vendor-decontaminated, dedicated, or disposable equipment to the extent practical.

2.2.1 Decontamination Procedures

If needed, a decontamination pad may be constructed on the site. The pad will be appropriately sized and large enough to handle the equipment used on site (e.g., rubber-tire backhoe). The pad will also be used for small equipment decontamination as well as personnel decontamination. A decontamination pad is not expected to be needed for this project.

2.2.2 Small Equipment Decontamination

Small equipment decontamination for non-disposable equipment such as such as hand augers and trowels will be accomplished using the following procedures:

- Alconox (or equivalent) and potable water wash;
- Potable water rinse; and
- Distilled/deionized water rinse.

Solvents will not be used in the field decontamination of such equipment. Decontamination will include scrubbing/washing with a laboratory grade detergent (e.g., Alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute.

Equipment should be allowed to dry prior to use. Steam cleaning or high pressure hot water cleaning may be used in the initial removal of gross, visible contamination.

2.2.3 Heavy Equipment Decontamination

Excavation equipment will be decontaminated before the first use during this project, between test trenches and prior to demobilization using high-pressure steam. Decontamination will be conducted near the sampling location with any residual solids deposited on the ground surface and decontamination liquids allowed to infiltrate into the ground as indicated in the site-specific FAP.

2.2.4 Personnel Decontamination

Details of the personnel decontamination procedures are provided in the site-specific HASP.

3.0 SAMPLE HANDLING

3.1 SAMPLE IDENTIFICATION, LABELING, AND MANAGEMENT

Samples will be assigned a unique identification using the sample location or other sample-specific identifier. Sample identification, labeling, and management requirements are presented in Section 5 of the site-specific FAP and are not repeated here.

The procedures discussed here are general and will be superseded by project-specific requirements (as documented in the site-specific FAP). However, these procedures are provided for guidance when developing site-specific FAP. Sample identification may be limited to a specific number of alphanumeric characters to be consistent with the limitations of the laboratory tracking/reporting software. The general sample identification format follows (other designations may be used to accommodate the requirements of specific projects). It should be noted that the field sample IDs shown below are not those required for the EQuIS deliverable; AECOM will coordinate with the analytical laboratory so that the sample types and codes are entered properly for each field and QC sample, and that the codes are consistent with the most recent NYSDEC Valid Values.

SS = Surface Soil Boring

TT = Test Trench

FB = Field (Equipment Rinsate) Blank

TB = Trip Blank

XX = Numerical sample identifier (up to five characters). This will ordinarily be the number of the monitoring well or soil boring location from which the sample was obtained.

As part of the unique identifier, the sample date will be included following any location that may have more than one sample collected. The format will be MMDDYY. For example, TT-01 that is sampled on May 24, 2021 will be TT-01_052421.

QC field duplicate samples will be submitted blind to the laboratory; a fictitious sample ID will be created using the same system as the original by adding 50 to the original sample ID (e.g., TT-51_052421 would be a field duplicate of TT-01_052421). The sample identifications (of the original sample and its field duplicate) will be marked in the field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager. As the field duplicates are blind to the laboratory, the NYSDEC Valid Value for a field duplicate (FD) along with the identification of the parent sample will be done by AECOM after the EQuIS deliverable is received from the laboratory.

Affixed to each sampling container will be a non-removable label on which the following information will be recorded with permanent water-proof ink:

- Project name;
- Sample identifier;
- Company (AECOM);
- Sample date and time;

- Sampler's initials;
- Sample preservation; and
- Analysis required

3.2 SAMPLE BOTTLES, PRESERVATION, AND HOLDING TIME

Table 1 identifies the sample preparation and analytical method, matrix, holding time, containers, and preservatives for the typical analyses to be performed under this contract. Sample bottle requirements, preservation, and holding times are discussed further below.

3.2.1 Sample Containers

The selection of sample containers used to collect samples is based on the criteria of sample matrix, analytical method, potential contaminants of concern, reactivity of container material with the sample, QA/QC requirements and any regulatory protocol requirements.

Sample bottles will be provided by the analytical laboratory and will conform to the requirements of the USEPA Specifications and Guidance for Contaminant-Free Sample Containers. Aqueous samples for volatile organic compound (VOC) analysis will be collected in 40-mL vials with Teflon septa.

3.2.2 Sample Preservation

Samples will be preserved as indicated below and summarized on Table 1.

Aqueous Samples:

Volatile organics – cooled to 4º C; HCl added to pH ≤ 2.

Metals – cooled to 4º C; HNO_3 added to pH ≤ 2.

Other organic fractions (semi-volatiles, pesticides, PCBs) – no chemical preservation.

Chemical preservatives will be added to the sample bottles (prior to sample collection) by the analytical laboratory. Sample preservation is checked upon sample receipt by the laboratory; this information is reported to the AECOM Quality Assurance Officer (QAO). If it appears that the level of chemical preservation added is not adequate, laboratory preservative preparation and addition will be modified, or additional preservative will be added in the field by the sampling team.

Non-Aqueous (e.g., soil and sediment) Samples:

No chemical preservatives are added to non-aqueous samples

3.2.3 Holding Times

Holding times (see Table 1) are calculated from the time of sample collection; samples will be hand-delivered from the field to arrive at the lab no later than 48 hours from the time of sample collection except for instances with shorter holding time parameters. Holding time requirements will be those specified in the analytical method.

Although trip blanks are prepared in the analytical laboratory and shipped to the site prior to the collection of environmental samples, for the purposes of determining holding time conformance, trip blanks will be considered to have been generated on the same day as the environmental samples with which they are shipped and delivered. Procurement of bottles and blanks will be scheduled to prevent trip blanks from being stored for excessive periods prior to their return to the laboratory; the goal is that trip blanks should be held for no longer than one week prior to use.

3.2.4 Sample Custody

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody (COC) procedures. Chain-of-custody procedures are essential for presenting sample analytical results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in this work assignment will follow the COC guidelines of National Enforcement Investigations Center (NEIC) Policies and Procedures, prepared by the NEIC of the USEPA Office of Enforcement.

3.2.4.1 Custody Definitions

Chain-of-Custody Officer - The employee responsible for oversight of all COC activities is the Project Manager (or his/her designee).

Under Custody - A sample is “Under Custody” if:

- It is in one's possession, or
- It is in one's view, after being in one's possession, or
- It was in one's possession and one placed it under lock, or
- It is in a designated secure area.

3.2.4.2 Responsibilities

The Project Manager will be responsible for monitoring all COC activities and for collecting legally admissible COC documentation for the permanent project file, and will perform to following tasks:

- Review sample labels or tags, closure tapes, and COC records.
- Train all field sampling personnel in the methodologies for carrying out COC activities and the proper use of all COC and record documents.
- Monitor the implementation of COC procedures.
- Submit copies of the completed COC records to the Project Chemist.

A COC form will trace the path of sample containers from the project site to the laboratory. Chain-of-custody forms are typically provided by the analytical laboratory.

Sample bottle tracking sheets or the chain-of-custody will be used to track the containers from the laboratory to the containers’ destination. The Project Manager will notify the laboratory of upcoming field sampling events and the subsequent transfer of samples. This notification will include information concerning the number and type of samples, and the anticipated date of arrival. Insulated sample shipping containers (typically coolers) will be provided by the laboratory for shipping samples. Sample bottles within each shipping container will be individually labeled with an adhesive identification label provided by the laboratory. Project personnel receiving the sample containers from the laboratory will check each cooler for the condition and integrity of the bottles prior to field work.

Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at 4º C. The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain of custody forms will be signed and placed in a sealed plastic Ziploc bag in the cooler. The completed shipping container will be closed for transport with nylon strapping, or a similar shipping tape, and two paper seals will be affixed to the lid. The seals must be broken to open the cooler and will indicate tampering if the seals are broken before receipt at

the laboratory. A label may be affixed identifying the cooler as containing “Environmental Samples” and the cooler will be shipped by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked and lab personnel will sign the chain-of-custody form.

3.3 LABORATORY SAMPLE RECEIPT

Upon receipt at the laboratory, a laboratory representative inspects the samples for integrity and checks the shipment against the COC/analytical task order form. Discrepancies are addressed at this point and documented on the COC form and the cooler checklist (an example will be provided in each of the project-specific Field Sampling and Analysis Plans). Discrepancies are reported to the Laboratory Project Manager who contacts the AECOM Project Manager or QAO for resolution.

When the shipment and the COC are in agreement, the custodian enters the samples into the Laboratory Information Management System and assigns each sample a unique laboratory number. This number is affixed to each sample bottle. The custodian then enters the sample and analysis information into the laboratory computer system.

3.3.1 Laboratory Sample Custody

The laboratory must satisfy the sample chain-of-custody requirements by implementing the following procedures for laboratory/sample security:

- Samples are stored in a secure area
- Access to the laboratory is through a monitored area
- Visitors sign a visitor’s log and are escorted while in the laboratory
- Only the designated sample custodians have keys to sample storage area(s)
- Transfers of samples in and out of storage are documented.

3.3.2 Sample Storage, Security, and Disposal

While in the laboratory, the samples and aliquots that require storage at 4°C ± 2°C are maintained in a locked refrigerator unless they are being used for analysis. The laboratory is responsible for sample storage and security so that:

- Samples and extracts are stored for 60 days after the final analytical data report has been submitted to AECOM. The samples, extracts, and digestates are then disposed by the laboratory in accordance with laboratory SOPs and applicable regulations.
- Samples are not stored with standards or sample extracts.

4.0 DATA QUALITY REQUIREMENTS

4.1 ANALYTICAL METHODS

Soil and water sample analyses for these contracts will typically utilize USEPA SW-846 methods as listed below.

Analytical and extraction/sample preparation methods typically used are shown on Table 1 and summarized below.

Volatile Organics - SW-846 Method 8260C

Semivolatile Organics – SW-846 Method 8270D

Pesticides – SW-846 Method 8081B

PCBs – SW 846 Method 8082A

Mercury – SW-846 Methods 7470A (water) and 7471B (soil)

Other target analyte list metals – SW-846 Method 6010C.

Analytical methods are presented in the NYSDEC Analytical Services Protocol (ASP), 2005 (February 2008 supplement for TO-15). It is the laboratory's responsibility to be familiar with this document and procedures and deliverables within it pertaining to New York State work. Full Category B deliverables will be required unless specified otherwise in specific work assignments.

Eurofins TestAmerica, a NYSDEC call-out laboratory, will analyze the soil samples to be collected for this WA. The laboratory is certified by the NYSDOH ELAP (see Section 1.2). The laboratory is in good standing for the applicable parameter groups.

4.2 QUALITY ASSURANCE OBJECTIVES

Data quality objectives (DQOs) for measurement data in terms of sensitivity and the PARCC parameters (precision, accuracy, representativeness, comparability, and completeness) are established so that the data collected are sufficient and of adequate quality for their intended uses. Data collected and analyzed in conformance with the DQO process described in this site-specific QAPP will be used in assessing the uncertainty associated with decisions related to this site.

Project quality objectives (PQOs), such as those described in the *Uniform Federal Policy for Quality Assurance Project Plans* (USEPA, 2005), define the type, quantity, and quality of data that are needed to answer specific environmental questions and support proper environmental decisions.

More specifically, the PQOs:

- Define the environmental problem;
- Identify target analytes/contaminants of concern and concentration levels;
- Establish the analytical techniques to be used (field-screening, on-site, and/or off-site);
- Establish the appropriate sampling techniques to be used;

- Establish project sampling/analytical measurement performance criteria (where applicable) for precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity; and
- Determine the number of samples needed for each analytical group/matrix/concentration level.

PQOs are provided in the site-specific FAP.

4.2.1 Sensitivity

The sensitivity or detection limit desired for each analysis or compound is based on the DQOs established for the project. The method detection limit is determined in accordance with the procedure in ASP Exhibit A, Section 4.9.2.12, which is consistent with the procedure in 40 CFR Part 136 Appendix B.

The reporting limit (RL) for nondetected analytes will be the lowest calibration standard associated with the analysis. Reporting limits will be equal to or lower than those presented in Exhibit C of ASP 2005 for the applicable method. Analytes detected analytes at concentrations below the RL but above the MDL will be flagged "J" (estimated) by the laboratory. Typical RLs are summarized on Table 2.

The RLs and MDLs of the laboratory will be reviewed by AECOM's QAO for each project to verify that the laboratory sensitivity is sufficient to meet the project objectives. These will typically include meeting the applicable standards, criteria, and guidance (SCGs) including soil cleanup objectives (6 NYCRR 375-6.8), and supplemental soil cleanup objectives (NYSDEC, 2010b).

For soil, the RL goal is [e.g., 5] µg/kg for most VOCs (before adjustment for reporting on a dry weight basis) and [e.g., 330] µg/kg for most SVOCs.

4.2.2 Precision

The laboratory objective for precision is to equal or exceed the precision demonstrated for the applied analytical methods on similar samples. Precision is evaluated by the analyses of laboratory and field duplicates. Matrix spike duplicate analyses will be performed once for every 20 samples for VOCs.

Relative Percent Difference (RPD) criteria determined from laboratory performance data are used to evaluate precision between duplicates. A matrix spike duplicate will be performed once for every twenty samples for volatile organics.

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. Precision is usually stated in terms of standard deviation but other estimates such as the coefficient of variation, relative standard deviation, range (maximum value minus minimum value), and relative range are common, and may be used pending review of the data.

The overall precision of measurement data is a mixture of sampling and analytical factors. Analytical precision is easier to control and quantify than sampling precision; there are more historical data related to individual method performance and the "universe" is not limited to the samples received in the laboratory. In contrast, sampling precision is unique to each site or project.

Overall system (sampling plus analytical) precision will be determined by analysis of field duplicate samples. Analytical results from laboratory duplicate samples will provide data on measurement (analytical) precision.

Precision will be determined from field duplicates, as well as laboratory matrix duplicate samples for metals analyses, and matrix spikes and matrix spike duplicates for organic analyses; it will be expressed as the RPD:

$RPD = 100 \times 2(|X_1 - X_2|) / (X_1 + X_2)$

where:

X_1 and X_2 are reported concentrations for each duplicate sample and subtracted differences represent absolute values.

Criteria for evaluation of laboratory duplicates are specified in the applicable methods. The objective for field duplicate precision is ≤ 50% RPD for all matrices for analytes detected at concentrations at least 2 times the RL. Where one or both analytes are detected at less than 2 times the RL, the criterion is the absolute difference "D" ($X_1 - X_2$), and D should be less than the RL for the analyte.

4.2.3 Accuracy

The laboratory objective for accuracy is to equal or exceed the accuracy demonstrated for the applied analytical method on similar samples. Percent method recovery criteria and those determined from laboratory performance data, are used to evaluate accuracy in matrix (sample) spike and blank spike quality control samples. A matrix spike and blank spike or laboratory control will be performed once for every analytical batch or as specified in the method or ASP. Other method-specific laboratory QC samples (such as continuing calibration standards) may also be used in the assessment of analytical accuracy. Sample (matrix) spike recovery is calculated as:

$\% \text{ Recovery} = 100 \times (SSR-SR)/SA$

Where:

SSR = Spiked sample Result

SR = Sample Result, and

SA = Spike Added

Accuracy measures the bias in a measurement system. It is difficult to measure accuracy for the entire data collection activity. Accuracy will be assessed through use of known QC samples. Accuracy values can be presented in a variety of ways. For projects under this NYSDEC contract, accuracy will be normally presented as percent recovery.

Routine organic analytical protocol requires a surrogate spike in each sample. Surrogate recovery will be defined as:

$\% \text{ Recovery} = (R/S) \times 100$

Where:

S = surrogate spike concentration

R = reported surrogate compound concentration

Recovery criteria for laboratory spikes and other laboratory QC samples through which accuracy may be evaluated are established in the applicable analytical method.

4.2.4 Representativeness

The representativeness of data is only as good as the representativeness of the samples collected. Sampling and handling procedures, and laboratory practices are designed to provide a standard set of performance-driven criteria to provide data of the same quality as other analyses of similar matrices

using the same methods under similar conditions. Representativeness will be determined by a comparison of the quality controls for these samples against data from similar samples analyzed at the same time.

4.2.5 Comparability

Comparability of analytical data among laboratories becomes more accurate and reliable when all labs follow the same procedure and share information for program enhancement. Some of these procedures include:

- Instrument standards traceable to National Institute of Standards and Technology (NIST), the US Environmental Protection Agency (USEPA), or the New York State Departments of Health or Environmental Conservation;
- Using standard methodologies;
- Reporting results for similar matrices in consistent units;
- Applying appropriate levels of quality control within the context of the laboratory quality assurance program; and,
- Participation in inter-laboratory studies to document laboratory performance.

By using traceable standards and standard methods, the analytical results can be compared to other labs operating similarly. The QA Program documents internal performance. Periodic laboratory proficiency studies are instituted as a means of monitoring intra-laboratory performance.

Comparability within any specific project is also assessed by comparison of the project data to data generated previously; and, if available, comparison of the data for multiple sampling events conducted for the project. Comparability (consistency) of sampling techniques is also assessed, to some extent, by analysis of field duplicates; although it should be noted that large differences between field duplicates may result from a wide variety of causes, not just inconsistent sampling.

4.2.6 Completeness

The goal of completeness is to generate the maximum amount possible of valid data for all planned samples. Completeness of 100 percent indicates that all planned samples were collected; and the resultant data were fully valid and acceptable. As completeness is a function of both field activities and laboratory activities, separate completeness goals are established for each.

The default goal for sampling completeness is 95 percent, as is calculated as

Sampling Completeness (%) = (Sc/Sp) × 100

Where:

Sc = Samples collected (submitted) for analysis (documented from field records or COC)

Sp = Samples planned (as documented in the site-specific FAP)

The default goal for analytical completeness is also set at 95 percent. Analytical completeness may be less than 100 percent either due to systemic failures that result in the rejection or loss of data for an entire sample; or compound-specific rejection (e.g., 2-hexanone) within an otherwise valid analysis.

For typical work assignments, the default overall completeness goal is 90 percent usable data. The impact of rejected or unusable data will be made on a case-by-case basis. If the goals of the project can be achieved without the missing datum or data, or if data from a different sampling event can be used to fill the data gap, no further action would be necessary. However, loss of critical data may require resampling or reanalysis.

4.3 FIELD QUALITY ASSURANCE

Blank water generated for use during this project must be “demonstrated analyte-free.” The criteria for analyte-free water are based on the USEPA-assigned values for the Contract Required Quantitation Limits (CRQLs) for CLP analyses, or the RL for SW-846 or other methods.

However, specifically for the common laboratory contaminants (acetone and 2-butanone), the allowable limits are five times the CRQL (or RL). For methylene chloride, the limit is 2.5 times the CRQL. For common SVOC contaminants (phthalate esters such as bis(2-ethylhexyl) phthalate), the limit is 5 times the CRQL.

The analytical testing required for the water to be demonstrated as analyte-free must be performed prior to the start of sample collection; thus, blank water will be supplied by the laboratory.

Table 2 of this QAPP shows typical QA/QC samples and RLs. QA/QC samples are discussed below.

4.3.1 Field Equipment (Rinsate) Blanks

Equipment blanks consist of demonstrated, analyte-free water that show if sampling equipment has the potential for contaminant carryover to give a false impression of contamination in an environmental sample. When blank water is used to rinse a piece of sampling equipment (before it is used to sample), the rinsate is collected and analyzed to see if sampling could be biased by contamination from the equipment.

Rinsate blanks are not required when samples are collected directly into laboratory-provided sample containers.

Field Equipment (Rinsate) blanks for bailers: For initial sampling, as well as at subsequent rounds of sampling when bailers are reused, at least one of the bailers used per decontamination batch, will be used to generate equipment (rinsate) blanks during groundwater sampling. Disposable bailers will be obtained from a single vendor for this project. One rinsate blank will be collected for each groundwater sampling event to verify that the vendor decontamination was adequate, and that contamination has not occurred during shipment and storage.

Typically, one rinsate blank will be collected for every 20 field samples collected or one per week, whichever is more frequent, for each type of sampling equipment. The rinsate blanks will be collected from the soil and groundwater sampling equipment. Refer to Table 2 for the specific frequency indicated in the work assignment and site-specific FAP.

Equipment blanks are not collected or submitted in association with air (Summa canister) samples.

4.3.2 Field Duplicate Samples

Field duplicate samples are used to assess the variability of a matrix at a specific sampling point and to assess the reproducibility of the sampling method.

Soil duplicate samples are collected from a single location and device (e.g., hand auger or backhoe bucket). Soil duplicates for VOC analysis are collected first, without homogenization. If other parameters are being analyzed, the remaining soil is homogenized (e.g., by mixing in a clean stainless steel bowl) and prior to generating the sample and duplicate.

The default field duplicate precision (RPD) objective is ≤50% percent RPD for all matrices where the sample concentration is at least two times the RL. Where the analyte is detected in both samples, but the concentration is less than 2 times the RL, precision is assessed by the absolute difference, which should be less than the RL. The RPD is not calculable when the analyte is not detected in one or both analyses. A more detailed discussion of the calculation is provided in Section 4.2.2 (Precision), above.

Field duplicates will be collected at a frequency of one per 20 environmental samples for aqueous and non-aqueous sample for [specify analyses] analyses. The default field duplicate frequency for air samples is 10 percent (one per 10 environmental samples).

4.3.3 Split Samples

Split samples are used for performance audits or inter-laboratory comparability of data. Split samples may also be generated if a site owner or PRP requests them. A split sample will be defined as at least two separate sub-samples taken from a single original sample which has been thoroughly mixed or homogenized prior to the formation of the split samples. The exception to this is samples for volatile organics analysis which will not be homogenized. Collection of split samples may be conducted only when specifically requested by NYSDEC. No split samples are currently scheduled to be collected.

4.3.4 Trip Blanks

The purpose of a VOC trip blank (using demonstrated analyte-free water) is to place a mechanism of control on sample bottle preparation and blank water quality, and sample handling. The trip blank travels from the lab to the site with the empty sample bottles and back from the site with the collected samples. There will be a minimum of one trip blank per shipment containing aqueous samples for VOC analysis.

Trip blanks will be collected only when aqueous volatile organics are being sampled and shipped; except that a trip blank is not required when the only aqueous samples in a shipment are QC samples (rinsate blanks). No aqueous samples are included in the SOW.

4.3.5 Temperature Blanks

The laboratory will use either an infrared instrument to measure the temperature of liquid samples, or a temperature blank will be used to measure the temperature of liquid samples. If used, temperature blanks will be supplied by the analytical laboratory. If multiple coolers are necessary to store and transport aqueous samples, then each cooler will contain an individual temperature blank (if used).

4.4 FIELD TESTING QC

No field testing of groundwater will be performed under this SOW.

4.5 LABORATORY QUALITY ASSURANCE

4.5.1 Method Blanks

A method blank is laboratory water on which every step of the method is performed and analyzed along with the samples. Method blanks are used to assess the background variability of the method and to assess the introduction of contamination to the samples by the method, technique, or instruments as the sample is prepared and analyzed in the laboratory. Method blanks will be analyzed at a frequency of one for every twenty samples analyzed or as otherwise specified in the analytical protocol.

4.5.2 Laboratory Duplicates

Laboratory duplicates are sub-samples taken from a single aliquot of sample after the sample has been thoroughly mixed or homogenized (except for volatile organics), to assess the precision or reproducibility of the analytical method on a sample of a particular matrix. Laboratory duplicates will be performed on spiked samples as a matrix spike and a matrix spike duplicate (MS/MSD) for volatile organics.

4.5.3 Spiked Samples

Two types of spiked samples will be prepared and analyzed as quality controls: matrix spikes and matrix spike duplicates (MS/MSD), which are analyzed to evaluate instrument and method performance and performance on samples of similar matrix. MS/MSD samples will be analyzed at a frequency of one (pair) for every 20 samples. In addition, matrix spike blanks (MSBs) will also be prepared and analyzed by the laboratory as required by NYSDEC ASP.

4.5.4 Laboratory Control Sample

A fortified clean matrix (laboratory control sample, or LCS) is analyzed with each analysis. In some cases, a “Laboratory-Fortified Blank” (LFB) may serve as the LCS. These samples generally consist of a standard aqueous or solid matrix fortified with the analytes of interest for single-analyte methods and selected analytes for multi-analyte methods according to the appropriate analytical method. The LCS may be analyzed in duplicate for some methods (LCSD). The analyte recovery from each analysis (LCS and LCSD) is used to monitor analytical accuracy; analytical precision can be assessed from evaluation of the LCS/LCSD in the same manner as the MS/MSD.

5.0 FIELD DATA DOCUMENTATION

Field reporting documentation, including field log books and field data reporting forms, is discussed in Section 5 of the site-specific FAP; therefore, it is not repeated here.

6.0 EQUIPMENT CALIBRATION AND MAINTENANCE

Quality assurance for instrumentation and equipment used for a project is controlled by a formal calibration program, which verifies that equipment is of the proper type, range, accuracy, and precision to provide data compatible with specified requirements. Instruments and equipment that measure a quantity, or whose performance is expected at a stated level, are subject to calibration. Calibration is performed using reference standards or externally by calibration agencies or equipment manufacturers.

6.1 STANDARD AIR QUALITY FIELD EQUIPMENT

Field equipment used during the collection of environmental samples under this SOW will include photoionization detector.

The organic vapor analyzer (MultiRAE, or equivalent organic vapor analyzer) used for soil screening and health and safety air monitoring will be calibrated following the manufacturer's instructions, at the beginning of the day, whenever the instrument is shut off for more than two hours, and at the field technician's discretion.

6.2 LABORATORY EQUIPMENT CALIBRATION

Laboratory equipment will be calibrated according to the method-specific requirements of the 2005 NYSDEC ASP**,** Exhibit E, Parts II and III, and maintained following professional judgment and the manufacturer's specifications, and additional requirements as specified in the ELAP certification manual.

6.2.1 Analytical Support Areas

Prior to generating quality data, several analytical support areas must be considered:

Standard/Reagent Preparation - Primary reference standards and secondary standard solutions shall be obtained from sources traceable to National Institute of Standards and Technology, or other reliable commercial sources to ensure the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished as per the referenced methods referenced. All standards and standard solutions are to be formally documented (i.e., in a bound logbook) and should identify the supplier, lot number, purity/concentration, receipt/preparation date, preparer's name, method of preparation, expiration date, and any other pertinent information. All standard solutions shall be validated prior to use. Care shall be exercised in the proper storage and handling of standard solutions (e.g., separating volatile standards from nonvolatile standards). The laboratory shall continually monitor the quality of the standards and reagents through well-documented procedures.

Balances - The analytical balances shall be calibrated and maintained in accordance with manufacture specifications. Calibration is conducted with two American Society of Testing Materials Class 1 weights that bracket the expected balance use range. The laboratory shall check the accuracy of the balances daily and properly document results in permanently bound logbooks.

Refrigerators/Freezers - The temperature of the refrigerators and freezers within the laboratory shall be monitored and recorded daily. This will verify that the quality of the standards and reagents is

not compromised and the integrity of the analytical samples is upheld. Appropriate acceptance ranges (e.g., 4°C ± 2°C for refrigerators) shall be clearly posted on each unit in service.

Water Supply System – Laboratories performing water/solid/waste sample analyses must maintain a sufficient supply of analyte-free water for all project needs. The grade of the water must be of the highest quality in order to eliminate false-positives from the analytical results. Ultraviolet cartridges or carbon absorption treatments are recommended for organic analyses, and ion-exchange treatment is recommended for inorganic tests. Appropriate documentation of the quality of the water supply system(s) will be performed on a regular basis by the laboratory.

Air Supply System – Laboratories performing air/soil vapor sample analyses must maintain a sufficient supply of analyte-free air for all project needs. The grade of air must be of the highest quality in order to eliminate false-positives from the analytical results. Appropriate documentation of the quality of the air supply system(s) will be performed on a regular basis by the laboratory.

6.2.2 Calibration Procedure

Written procedures are used for all instruments and equipment subject to calibration. For chemical analyses typically performed for these contracts, the calibration procedures are specified in the methods as compiled in the ASP. If established procedures are not available, a procedure is developed considering the type of equipment, stability characteristics of the equipment, required accuracy, and the effect of operational error on the quantities measured.

6.2.3 Calibration Frequency

Calibration frequency is based on the type of equipment, inherent stability, manufacturer's recommendations, values provided in recognized standards, intended data use, specified analytical methods, effect of error upon the measurement process, and prior experience.

6.2.4 Calibration Reference Standards

Two types of reference standards will be used by the standby laboratories for calibration:

Physical standards, such as weights for calibrating balances and certified thermometers for calibrating working thermometers, refrigerators and ovens, are generally used for periodic calibration.

Chemical standards, such as Standard Reference Materials (SRMs) provided by the National Institute of Standards and Technology (NIST) or USEPA, may also include vendor-certified materials traceable to NIST or USEPA SRMs. These are primarily used for operational calibration.

6.2.5 Calibration Failure

Equipment that cannot be calibrated or becomes inoperable is removed from service. Such equipment must be repaired and satisfactorily recalibrated before re-use. For laboratory equipment that fails calibration, analysis cannot proceed until appropriate corrective action is taken and the analyst achieves an acceptable calibration.

Laboratory managers are responsible for development and implementation of a contingency plan for major equipment failure. The plan includes guidelines on waiting for repairs, use of other instrumentation, subcontracting analyses, and evaluating scheduled priorities.

6.2.6 Calibration Records

Records are prepared and maintained for each piece of equipment subject to calibration. Records demonstrating accuracy of preparation, stability, and proof of continuity of reference standards are also maintained. Copies of the raw calibration data are kept with the analytical sample data.

6.3 OPERATIONAL CALIBRATION

Operational calibration is generally performed as part of the analytical procedure and refers to those operations in which instrument response (in its broadest interpretation) is related to analyte concentration. Included are the preparation of a standard response (calibration) curve and often the analysis of blanks.

Preparation of a standard calibration curve is accomplished by the analysis of calibration standards, which are prepared by adding the analyte(s) of interest to the solvent that is introduced into the instrument. The concentrations of the calibration standards are chosen to cover the working range of the instrument or method. For most methods, five calibration standards are used, with the concentration of the lowest calibration standard being the reporting or quantitation limit for that analysis. Sample measurements are made and reported within this working range; apparent concentrations which exceed the high end of the calibrated range (“E”-flagged data for organic analyses) are diluted (or a smaller sample is used) and re-analyzed. The calibration curve is prepared by plotting or performing a linear regression of the instrument responses against the analyte concentration.

7.0 DATA REDUCTION, VALIDATION, AND REPORTING

The guidance followed to perform quality data validation, and the methods and procedures outlined herein and in the site-specific FAP, pertain to initiating and performing data validation, as well as reviewing data validation performed by others (if applicable). An outline of the data validation process is presented here, followed by a description of data validation review summaries. As requested by the NYSDEC Project Manager, all sampling data generated for the FAP will be shared with the Agencies prior to its validation so they can be aware of any possible exceedances and can begin to address any possible issues before the validation procedure is complete.

7.1 LABORATORY DATA REPORTING AND REDUCTION

Data reduction is the process by which raw analytical data generated from laboratory instrument systems is converted into usable concentrations. The raw data, which may take the form of area counts, instrument responses, or observations, are processed by the laboratory and converted into concentrations expressed in the parts per million (milligrams per kilogram [mg/kg] or milligrams per liter [mg/L]), parts per billion (micrograms per kilogram [µg/kg] or micrograms per liter [µg/L]), or parts per trillion (ng/L) range. Raw data from these systems include compound identifications, concentrations, retention times, and data system print-outs. Raw data are usually reported in graphic form, bar graph form, or tabular form. The laboratory will follow standard operating procedures consistent with the data handling requirements of the applicable methods.

The laboratory will meet the applicable documentation, data reduction, and reporting protocols as specified in the 2005 revision of the NYSDEC ASP. ASP Deliverables are either Category B (full deliverables; similar to USEPA CLP requirements) or Category A (a reduced deliverable level). For this contract, Category B deliverables are the default and will be provided for all deliverables generated under the contract unless explicitly indicated otherwise on a site-specific basis. Laboratory data reports will conform to NYSDEC Category B deliverable requirements, as specified in Exhibit B, Part II.E, Sections 2 and 3, respectively.

Copies of the laboratory's generic Quality Assurance Management Plan (QAMP, as defined in ASP 2005 Exhibit E, Part I) will be maintained at AECOM's principal contact office (Latham, NY). The laboratory's QAMP will indicate the standard methods and practices for obtaining and assessing data, and how data are reduced from the analytical instruments to a finished report, indicating levels of review along the way.

To meet NYSDEC electronic data deliverable (EDD) requirements, laboratories subcontracted by AECOM for this work will be required to submit electronic deliverables in an EQuIS 4-file format consistent with AECOM standards. AECOM's database manager will be responsible verifying that the file submitted meets these specifications including verifying that current NYSDEC Valid Values were used for sample coding; providing an Excel (or Access) file to the data validator; uploading the validated data into the database; overseeing the uploading of any other data (field data, boring log information, etc.), and submitting a final EQuIS deliverable to NYSDEC that meets NYSDEC EDD requirements.

In addition to the hard copy of the data report, the laboratory will be asked to provide the sample data in spreadsheet form (submitted electronically). The data spreadsheet will be generated to the extent possible directly from the laboratory's electronic files or information management system to minimize possible transcription errors resulting from the manual transcription of data.

7.2 DATA VALIDATION

As discussed in the Standby Contract (D009803), independent third-party validation is preferred when data validation is required. Data generated for work assignments under this contract will typically be validated by a third-party subcontractor (not affiliated with the laboratory or with AECOM). The validator [Validata Chemical Services, Inc.] will follow guidelines established in the USEPA Region 2 SOPs applicable to the analytical method(s) being reviewed. These SOPs are checklists which are designed to formally and rigorously assess the quality and completeness of SW-846 and air sample TO-15 analysis data packages. The use of these USEPA SOPs will be adapted to conform to the specific requirements of the NYSDEC ASP (e.g., NYSDEC/ASP holding times; matrix spike blank requirements). Where necessary and appropriate, supplemental validation criteria may be derived from the EPA Functional Guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540-R-10-011, January 2010, and the National Functional Guidelines for Organic Data Review, EPA-540-R-08-01, June 2008).

As discussed in the Standby Contract (D009803 – Attachment 1, Work Element V), a DUSR provides a thorough evaluation of analytical data without the costly and time-consuming process of third-party validation. The primary objective of a DUSR is to determine whether the data, as presented, meet the site-specific criteria for data quality and data use. Appendix 2B of NYSDEC's DER-10 provides guidance on data deliverables and development of a DUSR.

Validation reports and DUSRs will consist of text results of the review and marked up copies of Form I (results with qualifiers applied by the validator). Validation will consist of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data will be documented in the report text. Where QC failures caused the laboratory to perform a re-analysis, the data validator will make a recommendation as to which of the two analyses should be used. Data review will also include an assessment of sensitivity (i.e., are RLs appropriate to determine if contaminants are present at or above action levels or other applicable threshold values).

There may be some analyses for which there is no established USEPA or NYSDEC data validation protocol. In such cases, validation will be based on the Region 2 SOPs and EPA Functional Guidelines as much as possible, as well as the laboratory's adherence to the technical requirements of the method, and the professional judgment of the validator. The degree of rigor in such validation will correspond to the nature of the data and the significance of the data and its intended use.

7.3 DATA USABILITY

Subsequent to review of the items evaluated in the subcontractor data validator reports (DUSRs) and accompanying tables, AECOM's QA staff then prepares a brief data usability summary. The data usability summary, which will be provided as part of the project report, encompasses both quantitative and qualitative aspects, although the qualitative element is the most significant.

The quantitative aspect is a summary of the data quality as expressed by qualifiers applied to the data; the percent rejected, qualified (i.e., estimated), missing, and fully acceptable data are reported. As appropriate, this quantitative summary is broken down by matrix, laboratory, or analytical fraction or method.

The qualitative element of the data usability summary is the QA officer's translation and summary of the validation reports into a discussion useful to data users. The qualitative aspect will discuss the significance of the qualifications applied to the data, especially in terms of those most relevant to the

intended use of the data. The usability report will also indicate whether there is a suspected bias (high or low) in qualified data and will also provide a subjective overall assessment of the data quality.

If similar analyses are performed by more than one method, a discussion of the extent of agreement among the various methods will be included, as well as discussion of any discrepancies among the data sets.

The QAO will also indicate if there is a technical basis for selecting one data type over another for multiple measurements which are not in agreement.

Data which has not been validated and field data used for the project will be discussed in the data usability summary, including any limitations on the use of such data.

7.4 FIELD DATA VERIFICATION

Field personnel will record all field data in bound field logbooks and on standard forms. After checking the validity of the data in the field notes, the Project Manager or his/her designee will reduce the data to tabular form, when possible, by entering the data into data files. Where appropriate, the data files will be set up for direct input into the project database. Subjective data will be filed as hard copies for later review by the Project Manager and incorporation into technical reports, as appropriate.

Verification of field data will be performed at two different levels. The first level of data verification will be performed at the time of collection by following standard procedures and QC checks. The second level of review consists of the Project Manager, Task Manager, or other competent personnel, reviewing the data to confirm that the correct codes and units have been included. After data reduction into tables and arrays is complete, the Site Manager will review data sets for anomalous values. The Project Manager, who will review field reports for reasonableness and completeness, will validate subjective field and technical data.

8.0 PERFORMANCE AND SYSTEM AUDITS

Audits are systematic checks to determine the quality of operation of some activity or function in the field or laboratory. Field audits are conducted to verify adherence to proper field and sampling procedures. Audits are of two types, as described below.

- Performance audits are independent safety and health, procedure, and/or sample checks made by a supervisor or auditor to arrive at a quantitative measure of the quality of the data produced by one section or the entire measurement process.
- System audits are onsite qualitative inspections and reviews of the QA system used by some part of or the entire measurement system. The audits are performed against the QAPP. A checklist is typically generated from the requirements and becomes the basis for the audit. The results of any deficiencies noted during the audit are summarized in an audit report.

Laboratory performance and system audits are performed by the laboratory's QA staff to assess the effectiveness of the quality system. These internal audits are performed on a routine basis. Audits are also performed by certifying agencies. Audit reports and corrective actions are available to NYSDEC for review.

8.1 RESPONSIBILITY, AUTHORITY, AND TIMING

QA audits to be conducted for the project may include system, performance, and data audits. The Project QA Officer will keep a tentative schedule on record that details the number and types of audits.

8.2 FIELD AUDITS

The need for field audits will be determined on a project-specific basis as required by the WA or in the approved site-specific FAP for the project. Not all the aspects listed below will be necessary or appropriate for projects for which field audits are specified.

Field performance audits, if specified, will be conducted during the project as field data are generated, reduced, and analyzed. Numerical manipulations, including manual calculations, will be documented. Records of numerical analyses will be legible, of reproduction quality, and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator.

Indicators of the level of field performance include the analytical results of the blank and replicate samples. Each blank analysis will be considered an indirect audit of the effectiveness of measures taken in the field to maintain sample integrity (e.g., field decontamination procedures).

The results of the field replicate analyses are an indirect audit of the ability of each field team to collect representative sample portions of each matrix type.

System audits of site activities will be accomplished by an inspection of all field site activities. During this audit, the auditor(s) will compare current field practices with standard procedures. The following elements will be evaluated during a field system audit:

- Field activities conducted in substantial compliance with the site-specific FAP
- Procedures and analyses conducted according to procedures outlined in the QAPP
- Sample documentation
- Working order of instruments and equipment
- Level of QA conducted by field personnel

- Contingency plans in case of equipment failure or other event preventing the planned activity from proceeding
- Decontamination procedures
- Level of efficiency with which each team conducts planned activities at one site and proceeds to the next
- Sample packaging and shipment.

After completion of the audit, any deficiencies will be discussed with the field staff and corrections identified. If any of these deficiencies could affect the integrity of the samples being collected, the auditor(s) will inform the field staff and corrections will be implemented immediately. The audit will be performed by the Project QA/QC Coordinator or the Site Manager.

8.3 LABORATORY PERFORMANCE AND SYSTEM AUDITS

As part of the laboratory subcontractor procurement process under the AECOM/NYSDEC Standby Engineering Contract, the laboratory assigned to this project will been verified to be certified by the NYSDOH Environmental Laboratory Approval Program for the matrices and analytical protocols to be used. Therefore, no project-specific audit of the laboratory(s) will be performed unless warranted by a problem(s) that cannot be resolved by any other means, or at the discretion of AECOM and NYSDEC.

8.4 AUDIT PROCEDURES

Prior to an audit, the designated lead auditor prepares an audit checklist. During an audit and upon its completion, the auditor(s) will discuss the findings with the individuals audited and discuss and agree on corrective actions to be initiated. The auditor will then prepare and submit an audit report to the manager of the audited group and the project manager.

The manager of the audited group will then prepare and submit, to the Project QA Officer and the Project Manager, a plan for implementing the corrective action to be taken on non-conformances indicated in the audit report, the date by which such corrective action will be completed, and actions taken to prevent reoccurrence. If the corrective action has been completed, supporting documentation should be attached to the reply. The auditor will ascertain (by re-audit or other means) if appropriate and timely corrective action has been implemented.

Records of audits will be maintained in the project files.

8.5 AUDIT DOCUMENTATION

A checklist will be completed during each audit so that the previously defined scope of the individual audits is accomplished and that the audits follow established procedures. The checklist will detail the activities to be executed as part of the auditing plan. Audit checklists will be prepared in advance and will be available for review. Following each system, performance, and data audit, the auditor or QAO will prepare a report to document the findings of the specific audit.

9.0 CORRECTIVE ACTIONS

If instrument performance or data fall outside acceptable limits, then corrective actions will be taken. These actions may include recalibration or standardization of instruments, acquiring new standards, replacing equipment, repairing equipment, and reanalyzing samples or redoing sections of work.

Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

Situations related to this project requiring corrective action will be documented and made part of the project file. For each measurement system identified requiring corrective action, the responsible individual for initiating the corrective action and the individual responsible for approving the corrective action, if necessary, will be identified.

As part of its quality management system (QMS) program, AECOM provides relevant excerpts and conclusions from data validation reports to the analytical laboratories. The laboratories are therefore made aware of non-critical items and areas where improvement may be made in subsequent NYSDEC ASP work.

The objectives of the corrective action procedures presented below are to ensure that recognized errors in performance of sample and data acquisition lead to effective remedial measures and that those steps are documented to provide assurance that any data quality deficiencies are recognized in later interpretation and are not recurrent.

9.1 RATIONALE

Many times, corrective measures are undertaken in a timely and effective fashion but go undocumented. In other cases, corrective actions are of a complex nature and may require scheduled interactions between departmental groups. In either case, documentation in a formal or informal sense can reinforce the effectiveness and duration of the corrective measures taken.

9.2 CORRECTIVE ACTION METHODS

9.2.1 Immediate Corrective Actions

Immediate corrective actions are of a minor or routine nature such as correcting malfunctioning equipment, correction of data transcription errors, and other such activities routinely made in the field, laboratory, or office by technicians, analysts, and other project staff.

9.2.2 Long-Term Corrective Actions

Long-term corrective action will be used to identify and eliminate causes of non-conformances which are of a complex nature and that are formally reported between management groups.

9.2.3 Corrective Action Steps

For long-term corrective actions, steps comprising closed-loop corrective action system are as follows:

- Define the problem
- Assign responsibility for investigating the problem
- Investigate and determine the cause of the problem
- Determine a corrective action to eliminate the problem
- Assign and accept responsibility for implementing the corrective action

Verify that the corrective action has eliminated the problem.

Non-conformance events associated with analytical work are documented by the laboratories' Non-Conformance Records, which are reviewed and approved by the laboratory's Quality Assurance Manager.

9.2.4 Audit-Based Non-Conformances

Following audits, corrective action is initiated by documenting the audit finding and recommended corrective action on an Audit Finding Report.

9.3 CORRECTIVE ACTION REPORT REVIEW AND FILING

Immediate and long-term corrective actions require review to assure that, during the time of non-conformance, erroneous data were not generated or that, if possible, correct data were acquired instead. Such confirmation and review are the responsibility of the supervisor of the staff implementing the corrective action. Confirmation will be acknowledged by notation and dated signature on the affected data record or appropriate form or by memorandum to the AECOM QAO and Project Manager.

10.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

Fundamental to the success of this QA/QC is the active participation of the Project Manager and the Project QA Officer. The Program QA Officer will be advised of project activities and will participate in development, review, and operation of the project. Project management will be informed of QA activities through the receipt, review, and/or approval of:

- Project-specific QA project plans
- Corporate and project-specific QA/QC plans and procedures
- Corrective action notices
- Non-conformance records.

Periodic assessment of field and laboratory QA/QC activities and data accuracy, precision, and completeness will be conducted and reported by the laboratory. Items to be included in the QA reports are the summary of results for the performance or the system audit and, where applicable:

- Assessment of adherence to work scope and schedule for the audited task
- Assessment of the precision, accuracy, and completeness of sample batches and subsequent status of data processing and analyses
- Significant QC problems and the status of any ongoing corrective actions
- Changes to the site-specific FAP
- Status of implementation of the site-specific FAP.

Monthly project status reporting to the NYSDEC will include aspects of quality control that were pertinent during the month’s activities. Problems revealed during review of the month’s activities will be documented and addressed. These reports will include a description of completed and on-going activities, and an indication how each task is progressing relative to the project schedule.

The Project Manager will be responsible for verifying that records and files related to the work assignment are stored appropriately and are retrievable.

The laboratory will submit any memoranda or correspondence related to quality control of this project's samples as part of its deliverables package.

11.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 2005. *Analytical Services Protocol (ASP) Manual*. July.

NYSDEC, 2008. *NYSDEC Modifications to EPA Region 9 TO-15 QA/QC Criteria provided in the July 2005 ASP*. February 2008.

NYSDEC, 2010a. *Technical Guidance for Site Investigation and Remediation. DER-10*. Division of Environmental Remediation. May.

NYSDEC, 2010b. CP-51 / *Soil Cleanup Guidance*. October.

NYSDEC and AECOM USA Inc. (AECOM), 2019. Standby Contract No. D009803 between the State of New York Department of Environmental Conservation and AECOM for Engineering Services. October.

New York State Department of Health (NYSDOH) Wadsworth Laboratory Environmental Laboratory Approval Program Certification Manual. Accessed online at http://www.wadsworth.org/labcert/elapcert/index.html. Revisions through April 2011; accessed May 2011.

NYSDOH ELAP Web site. http://www.wadsworth.org/labcert/elap/

NYSDOH Center for Environmental Health Bureau of Environmental Exposure Investigation, 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. Final. October.

NYSDOH, 2007. Letter from Gary Litwin (Director) to Dale Desnoyers (NYSDEC DER) re: Soil Vapor/Indoor Air Matrices. (Adds additional chlorinated VOCs to the original matrices in the 2006 SVI guidance). June 25.

USEPA Region 2, Standard Operating Procedures for Data Review. Available at http://www.epa.gov/region02/qa/documents.htm#sop. Accessed May 2011.

USEPA Region 2, 1998. *Ground Water Sampling Procedure – Low Stress (Low Flow) Purging and Sampling*. Final. March 16.

USEPA, 2010. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA 540/R-10-011. January.

USEPA, 2008. *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, EPA/540/R-08-01. June.

USEPA, 1999. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air – Second Edition*. USEPA Center for Environmental Research Information. EPA/625/R-96/010b. January.

USEPA, 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, Third edition. EPA SW-846. With revisions and updates through May 2019. Accessed on line (at “SW-846 On-Line”) May 2011 at http://www.epa.gov/epaoswer/hazwaste/test/main.htm

USEPA, 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. USEPA Office of Emergency and Remedial Response. OSWER Directive No. 355.3-01. October.

Tables

Table 1
Niagara Sanitation Company Quality Assurance Project Plan
Wheatfield, New York
NYSDEC Standby Engineering Contract (D009803-05)

Sample Bottle, Volume, Preservation, and Holding Time Summary

MATRIX/ANALYSIS	Sample Prep Method [1]	Analytical Method [2]	Sample Bottles [3]				Minimum Vol Rqd	Preservation [3]	Holding Time [3,4]		Comment
			Mat'l	Size	Qty	Source			Extraction	Analysis	
Surface Soil and Test Pit Soil Samples											
Semivolatile Organics	SW 846 3540C/3541/3545C	SW 846 8270D	G	8 oz [5]	1	Lab	30 g	None	14 days	40 days	
Volatile Organics	SW 846 5035	SW 846 8260C	G	40 ml	2	Lab	5g	None	NA	14 days	
Pesticides	SW 846 3540C/3541/3545C	SW 846 8081B	G	8 oz [5]	1	Lab	30 g	None	14 days	40 days	
PCBs	SW 846 3540C/3541/3545C	SW 846 8082A	G	8 oz [5]	1	Lab	30 g	None	14 days	40 days	
Metals (except mercury)	SW 846 3050B/3051/3052	SW 846 6010C	G	8 oz [5]	1	Lab	10 g	None	NA	180 days	180 days for TAL metals except Hg.
Mercury	SW 846 7471B	SW 846 7471B	G	8 oz [5]	1	Lab	2 g	None	NA	28 days	28 days for Hg.

Notes
(1) Laboratory may propose alternate extraction/preparation methods, subject to AECOM approval.
(2) More recent versions of SW-846 methods may be used subject to AECOM approval.
(3) All samples for chemical analysis should be held at 4 degrees C in addition to any chemical preservation required.
(4) Holding time calculated from day of collection, unless noted as being from time of extraction. Laboratory holding times (ASP 2005, Exhibit I) are two days shorter to allow for field handling and shipping.
(5) A single 8-oz sample is sufficient for SVOCs, pesticides, PCBs, and metals.

G = Glass
P = Plastic

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. USEPA SW-846. Complete through Update IV, March 2009.

Table 2
Niagara Sanitation Company Quality Assurance Project Plan
Wheatfield, New York
NYSDEC Standby Engineering Contract (D009803-05)

Reporting Limits and QA/QC Sample Quantity Summary

MATRIX/ANALYSIS	Analytical Method	Laboratory	Reporting Limit -Typical (units as specified)	Field Sample Quantity [1]	Matrix Spike (MS) or LCS	MS Duplicate or Matrix Duplicate	Field Duplicate	Equipment Blank [3]	Trip Blank	Total Billable Analyses
Test Trench Soil Samples										
Volatile Organics	SW 846 8260C	Eurofins TestAmerica	5 µg/kg (typical) [2]	6	1	1	1	1	0	10
Semivolatile Organics	SW 846 8270D	Eurofins TestAmerica	330 µg/kg (typical) [2]	6	1	1	1	1	0	10
Pesticides	SW 846 8081B	Eurofins TestAmerica	1.7-3.3 µg/kg (typical) [2]	6	1	1	1	1	0	10
PCBs	SW 846 8082A	Eurofins TestAmerica	57 - 70 µg/kg [2]	6	1	1	1	1	0	10
Metals (TAL except Hg)	SW 846 6010C	Eurofins TestAmerica	Analyte-specific	6	1	1	1	1	0	10
Mercury	SW 846 7471B	Eurofins TestAmerica	0.2 µg/kg [2]	6	1	1	1	1	0	10
Surface Soil Samples										
Semivolatile Organics	SW 846 8270D	Eurofins TestAmerica	330 µg/kg (typical) [2]	50	3	3	3	1	0	60
Pesticides	SW 846 8081A	Eurofins TestAmerica	1.7-3.3 µg/kg (typical) [2]	50	3	3	3	1	0	60
PCBs	SW 846 8082	Eurofins TestAmerica	57 - 70 µg/kg [2]	50	3	3	3	1	0	60
Metals (TAL except Hg)	SW 846 6010C	Eurofins TestAmerica	Analyte-specific	50	3	3	3	1	0	60
Mercury	SW 846 7471B	Eurofins TestAmerica	0.2 µg/kg [2]	50	3	3	3	1	0	60

TAL = Target Analyte List (23 Metals)

Notes
(1) Field sample quantity shown (20) is for illustration only. QC quantities shown are typical requirements for each group of 20 or fewer field samples.
(2) Reporting limits for soils, when adjusted for dry weight, will be higher. Detections above the MDL but less than reporting limits will be reported and flagged estimated (J).
(3) Field equipment rinsate blank quantity will vary depending on sample collection rate and types of sampling equipment used; quantity may be greater or less than that shown. See FAP.

ATTACHMENT 1

THIRD-PARTY DATA VALIDATOR RESUMES

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
4070 Balleycastle Lane, Duluth, GA 30097
www.datavalidator.com

Douglas M. Chatham

EDUCATION: M.S., Chemistry, Georgia Institute of Technology, Atlanta, Georgia, 1973

B.S., Chemistry, University of Georgia, Athens, Georgia, 1963

EXPERIENCE:

2007 - Present **Senior Chemist, Validata Chemical Services, Atlanta, GA**
Writes project Quality Assurance Project Plans (QAPPs) to properly delineate sampling and analysis activities in order to insure project data quality. Responsible for data validation, interpretation and reporting. Performs audits of environmental laboratories. Provides technical project oversight, coordinating the efforts of the QAPP team, and adding special insight into field quality control aspects of projects.

2004 - 2007 **Contract Chemist, USEPA Region IV, Atlanta, GA**
Provided technical assistance in the Toxics Release Inventory (TRI) division. Generated reports from the Risk Screening Environmental Indicators (RSEI) program using Excel Pivot tables and charts supporting pollution prevention efforts. Developed a Visual Basic program processing Excel Pivot tables to produce a series of charts. Developed and presented a series of seminars on TRI and RSEI and "Basic Environmental Chemistry".

1998 - 2002 **Environmental Chemist, J.M Waller Associates**
Worked with the U.S. Army Reserve Command at Ft. McPherson. Responsible for Clean Air Act Compliance at Army Reserve Command Installations, Regional Service Commands, and Facilities in the United States. Point of contact for the Voluntary Ozone Action Program. Developed database and Visual Basic front end for cultural and natural resources and environmental compliance issues for the US Army Reserves. Developed J.M. Waller Associates employees database and contracts database in MS Access.

1996 - 1998 **Environmental Specialist III, State of Georgia, Department of Natural Resources, Environmental Protection Division, Air Monitoring Group**
Responsible for establishing and maintaining a data management system for the Pollutant Air Monitoring Stations (PAMS), evaluation and routing of volatile organic compound data from generation to EPA report. Responsible for operation and data reporting for the carbonyl sampling system.

1990-1995 **Senior Chemist, Parsons Engineering Science, Inc.**
Responsible for laboratory audits, review of CLP data packages, development, approval, and auditing of QA plans, and training other employees on field GC methods. Data review instructor in GC/MS training. Established SOPs for data review and soil gas analysis. Project Quality Assurance Manager for IRP activities and preparation of the Quality Assurance Project Plans (QAPPs) for RCRA Facility Investigations. Responsible for various phases of the quality assurance/quality control process including data reviews and laboratory audits at various DOD sites

and preparation of a laboratory manual for the WWTP laboratory at an Air Force Base. Performed on-site GC analysis of water samples by direct injection and head-space analysis. Negotiated consent decree and Quality Assurance Project Plan (QAPP) modifications with EPA project manager and NEIC, Denver allowing a significant reduction of analytical costs by elimination of unnecessary field QC samples and an improved method of integration of GC chromatograms for weathered PCBs.

Established comprehensive series of training seminars on Environmental Chemistry. Conducted Continuing Education training to scientists and engineers in the areas of QA/QC of analytical data, field sampling methodologies, and fate and transport of contaminants.

1987 - 1990 **Section Leader, Organic Chemistry Section, NUS Corporation. Atlanta, GA**
Reviewed and validated QA Level III and contract laboratory program (CLP) data packages and audited laboratory procedures. Participated in construction and start-up of a base station laboratory in a trailer and two mobile laboratories in modified step vans. Project Manager for several preliminary assessments (PA) evaluating sites on the basis of historical data, off-site reconnaissance, potential targets affected, and geology; Screening Site Inspections (SSI), which included sampling soil and water for the presence of contaminants; and Listing Site Inspections (LSI) leading to placement of a site on the National Priorities List.

1974 - 1984 **Development Chemist**, **USS Agri-Chemicals Atlanta, Georgia. (now LaRoche Industries)**
Principal investigator conducting laboratory scale evaluations of defoamers for use in wet-process phosphoric acid plants. Developed an improved laboratory procedure for evaluating defoamers. Developed method for removal and treatment of foam produced during production of wet-process acid, resulting in significant reductions in defoamer consumption during a full-scale plant test. Provided extensive technical support for ammonia and ammonium nitrate sales groups. Determined parameters necessary for distillation of agricultural grade ammonia to produce refrigerant and metallurgical grade ammonia. Participated in development, scale-up, and production of Lithium Hexafluoro Arsenate, a specialty battery electrolyte. Conducted evaluations of solvent extraction purification. Assisted in stack sampling activities at several fertilizer plants for EPA regulations covering fluoride emissions.

1965 - 1968 **Development Chemist / Shift Supervisor. E.I. duPont de Nemours & Co., Savannah River Plant**
Essential materials lab, separations area QC lab, shift supervisor in heavy water QC lab.

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
4070 Balleycastle Lane, Duluth, GA 30097
www.datavalidator.com

Amy L. Hogan

EDUCATION: B.S. Biology, 1992
Oglethorpe University, Atlanta, GA

EXPERIENCE:

1994 - Present **Associate Chemist, Validata Chemical Services, Atlanta, GA**
Responsible for data validation, interpretation and reporting. Has validated and overseen the validation of organics and inorganics data analyzed by GC/MS, GC, ICP, ICP-MS, GFAA, CVAA, radiological and wet chemistry techniques. Reviews client QAPPs to set up data validation protocols to meet all client requirements. Manages, coordinates, and monitors projects to ensure timely completion of the work. Assists with computer statistical analysis of QC data. Writes specialized reports including data usability reports. Provides technical assistance with GC/MS analysis project oversight and problem-solving.

1993 - 1994 **Gas Chromatography/ Mass Spectroscopy (GC/MS) Chemist, Kiber Environmental Services Inc., Atlanta, GA**
Performed analyses of water, soil, sediment and waste samples for volatile and semivolatile organic compounds. Other responsibilities included generating final reports for clients, performing secondary review of final reports, and updating report formats.

1992 - 1993 **Inductively Couples Plasma (ICP) Chemist, Kiber Environmental Services Inc., Atlanta, GA**
Responsible for the analysis and reporting of trace metals in water, soil, and waste samples. Also responsible for insuring that all sample preparation procedures were performed correctly and for performing a secondary review of mercury analysis results.

1992 - 1992 **Sample Clerk, Kiber Environmental Services Inc., Atlanta, GA**
Responsibilities included logging in all samples accepted by the laboratory, verifying the correctness of all information contained on the chain of custodies, checking holding times and sample preservation. Other duties included arranging for subcontracted work, generating and finalizing client reports, and other tasks for laboratory management.

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
4070 Balleycastle Lane, Duluth, GA 30097
www.datavalidator.com

Mary Ann Brookshire

EDUCATION: B.S. Chemistry, 1987
University of Georgia, Athens, GA

EXPERIENCE:

2002 - Present **Senior Chemist, Validata Chemical Services, Atlanta, GA**
Responsible for secondary technical review of data validation reports. Validation includes organics and inorganics data analyzed by GC/MS, GC, ICP, ICP-MS, GFAA, CVAA and wet chemistry techniques. Occasionally validates radiological data. Provides technical assistance with organics analysis project oversight. Reviews and provides input on data validation issues in light of field and laboratory aspects of the project.

1994 - 2001 **Project Manager/Senior Scientist, LawGibb Group, Kennesaw, GA**
Performed data validation of project data. Managed environmental projects for federal and industrial clients under RCRA and CERCLA regulations. Primary federal clients included the Air Force Center of Environmental Excellence and the US Army Corps of Engineers. Prepared cost proposals, negotiated contracts, set schedules budgets, and managed subcontractors and internal resources. Diverse project experience including site investigations, natural attenuation studies, long-term monitoring projects, corrective measures studies, RCRA, and interim removal actions. Evaluated fire training area, debris sites, USTs, landfills, pesticide storage facilities, dry cleaning facilities, wood treatment facilities, and EOD range. Evaluated environmental sites to determine the most cost-effective field and analytical procedures to collect data for site closure or determination of remedial measures. Wrote work plans to facilitate regulatory concurrence of the scope of work and prepared technical reports documenting the results of environmental studies. Negotiated site closures and remedial measures with federal and state regulators.

1991 - 1994 **Project Scientist, LawGibb Group, Inc., Kennesaw, GA**
Prepared work plans and technical reports for environmental assessments. Subcontracted and performed quality assurance evaluations of analytical laboratories including laboratory/field audits and data validation. Managed field efforts at hazardous waste sites. Responsible for health and safety of

workers and execution of field activities. Implemented training courses for staff scientists and prepared data validation standard operating procedures to enhance the quality of the chemistry department. Served as manager of a chemistry department, managing 14 staff scientists and technicians.

1988 - 1991 **Analytical Chemist, LawGibb Group, Inc., Kennesaw, GA**
Analyzed environmental samples using gas chromatography, inductively coupled plasma spectroscopy, atomic absorption spectroscopy, titrametric, and colorimetric procedures. Managed the gas chromatography/volatile organic group. Responsible for production and quality.

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
4070 Balleycastle Lane, Duluth, GA 30097
www.datavalidator.com

Timothy H. Morris

EDUCATION:

M.S. Chemistry, 1989
Tennessee Technological University

B.A. Chemistry, 1985
Tennessee Technological University

EXPERIENCE:

2002 - Present **Associate Chemist, Validata Chemical Services, Atlanta, GA**
Responsible for data validation, interpretation and reporting. Has validated and overseen the validation of organic and inorganic data analyzed by GC/MS, GC, ICP, ICP/MS, AA, wet chemistry and radiochemistry techniques. Provides technical assistance with inorganics and organics analysis project oversight.

1998 - 2001 **Technical Director, Parsons Engineering Science, Inc., Atlanta, GA**
Responsible for oversight of the laboratory. Managed daily operations of the laboratory and data generation activities. Performed training of personnel, methods development, maintenance of laboratory instrumentation, troubleshooting, and data review.

1998 **Technical Director, TEG Southeast Inc., Atlanta, GA**
Responsible for the management of every facet of the mobile laboratory. Performed review of data generated by the laboratory. Operated GC/MS instrumentation for VOCs and SVOCs. Performed instrument maintenance, training of personnel, methods development, and troubleshooting. Assigned personnel for all necessary tasks.

1997 - 1998 **Senior Chemist, Quantum Resources, Inc., Richmond, VA**
Worked with formulations (liquids and solids), LIMS data retrieval, writing research reports, chemical analysis.

1991 - 1997 **Chemist II, Lockheed Martin Energy Systems, Oak Ridge, TN**
Analyzed samples by ICP, AA and radiochemistry techniques. Supervised inorganics laboratories. Performed methods development in HPLC, GPC and IC, performed material characterization, troubleshooting, PCB analysis by GC/MS/FTIR, FTIR and FTIR Microscopy. Wrote laboratory procedures and provided project support.

1988 - 1991 **Principal Technologist, Fleetguard, Inc., Cookville, TN**
Performed instrumental analysis and instrument maintenance for HPLC, IC, UV/VIS, ICP, GC, and X-Ray Fluorescence. Performed research and development, trouble shooting, project support and analytical methods development.

ATTACHMENT 2

EUROFINS TESTAMERICA ELAP CERTIFICATIONS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Metals I	
Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
Metals I	
Zinc, Total	EPA 200.8 Rev. 5.4
Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Metals III	
Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Microextractables	
1,2-Dibromo-3-chloropropane, Low Level	EPA 504.1
1,2-Dibromoethane, Low Level	EPA 504.1
Miscellaneous	
Endothall	EPA 548.1

Serial No.: 60966

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Miscellaneous	
Methyl iodide	EPA 524.2
Organic Carbon, Dissolved	SM 21-23 5310C (-00)
Organic Carbon, Total	SM 21-23 5310C (-00)
Non-Metals	
Alkalinity	EPA 310.2
	SM 21-23 2320B (-97)
Calcium Hardness	EPA 200.7 Rev. 4.4
	SM 18-22 2340B (-97)
Chloride	EPA 300.0 Rev. 2.1
	SM 21-23 4110B (-00)
	SM 21-22 4500-Cl- E (-97)
Color	SM 21-23 2120B (-01)
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 21-23 4110B (-00)
	SM 21-23 4500-F C (-97)
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	SM 19, 21-23 4500-P E (-99)
Solids, Total Dissolved	SM 21-23 2540C (-97)
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	ASTM D516-07, 11, 16
	EPA 300.0 Rev. 2.1
	SM 21-23 4110B (-00)
Trihalomethanes	
Bromodichloromethane	EPA 524.2

Trihalomethanes	
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2

Serial No.: 60966

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Volatile Aromatics

tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2

Volatile Halocarbons

Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

Serial No.: 60966

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260C
	EPA 624.1
Acrylonitrile	EPA 8260C
	EPA 624.1
Ethyl methacrylate	EPA 8260C
Methyl acrylonitrile	EPA 8260C
Methyl methacrylate	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 625.1
	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 625.1
	EPA 8270D
Carbazole	EPA 625.1
	EPA 8270D
Diphenylamine	EPA 8270D
Methapyrilene	EPA 8270D
Pronamide	EPA 8270D

Amines	
Propionitrile	EPA 8260C
Pyridine	EPA 625.1
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 625.1
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 625.1
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B
	EPA 608.3
4,4'-DDE	EPA 8081B
	EPA 608.3
4,4'-DDT	EPA 8081B
	EPA 608.3
Aldrin	EPA 8081B
	EPA 608.3
alpha-BHC	EPA 8081B
	EPA 608.3
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
	EPA 608.3
Chlordane Total	EPA 8081B
	EPA 608.3

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Chlorobenzilate	EPA 8270D
delta-BHC	EPA 8081B
	EPA 608.3
Diallate	EPA 8270D
Dieldrin	EPA 8081B
	EPA 608.3
Endosulfan I	EPA 8081B
	EPA 608.3
Endosulfan II	EPA 8081B
	EPA 608.3
Endosulfan sulfate	EPA 8081B
	EPA 608.3
Endrin	EPA 8081B
	EPA 608.3
Endrin aldehyde	EPA 8081B
	EPA 608.3
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
	EPA 608.3
Heptachlor epoxide	EPA 8081B
	EPA 608.3
Isodrin	EPA 8270D
Kepone	EPA 8270D
Lindane	EPA 8081B
	EPA 608.3

Chlorinated Hydrocarbon Pesticides	
Methoxychlor	EPA 8081B
	EPA 608.3
Mirex	EPA 8081B
PCNB	EPA 8270D
Toxaphene	EPA 8081B
	EPA 608.3
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 625.1
	EPA 8270D
2-Chloronaphthalene	EPA 625.1
	EPA 8270D
Hexachlorobenzene	EPA 625.1
	EPA 8270D
Hexachlorobutadiene	EPA 625.1
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625.1
	EPA 8270D
Hexachloroethane	EPA 625.1
	EPA 8270D
Hexachloropropene	EPA 8270D
Pentachlorobenzene	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorophenoxy Acid Pesticides	
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
	EPA 8270D
Pentachlorophenol	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 5210B-2011
Carbonaceous BOD	SM 5210B-2011
Chemical Oxygen Demand	EPA 410.4, Rev. 2.0 (1993)
Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260C
Ethanol	EPA 8015D
Methyl tert-butyl ether	EPA 8260C
	EPA 624.1
tert-amyl methyl ether (TAME)	EPA 8260C
tert-butyl alcohol	EPA 8260C
	EPA 8015D
tert-butyl ethyl ether (ETBE)	EPA 8260C
Haloethers	
2,2'-Oxybis(1-chloropropane)	EPA 625.1
	EPA 8270D
4-Bromophenylphenyl ether	EPA 625.1
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625.1
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625.1
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625.1
	EPA 8270D
Low Level Halocarbons	
1,2-Dibromo-3-chloropropane, Low Level	EPA 8011
1,2-Dibromoethane, Low Level	EPA 8011
Metals I	
Barium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Cadmium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Metals I	
Cadmium, Total	EPA 200.8, Rev. 5.4 (1994)
Calcium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Chromium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Copper, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Iron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Lead, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Magnesium, Total	EPA 200.7, Rev. 4.4 (1994)

Metals I	
Magnesium, Total	EPA 6010C
	EPA 6010D
Manganese, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Nickel, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Potassium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Silver, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Sodium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Metals I	
Strontium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Metals II	
Aluminum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Antimony, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Arsenic, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Beryllium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

Metals II	
Beryllium, Total	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Chromium VI	EPA 7196A
	SM 3500-Cr B-2011
Mercury, Total	EPA 245.1, Rev. 3.0 (1994)
	EPA 7470A
Selenium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Vanadium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Zinc, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Metals III

Cobalt, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Molybdenum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Thallium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Tin, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Titanium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

Mineral

Alkalinity	EPA 310.2 (Rev. 1974)
	SM 2320B-2011
Calcium Hardness	EPA 200.7, Rev. 4.4 (1994)
Chloride	EPA 300.0, Rev. 2.1 (1993)
	SM 4110B-2011
	SM 4500-Cl- E-2011
	EPA 9056A
Fluoride, Total	EPA 300.0, Rev. 2.1 (1993)
	SM 4110B-2011
	SM 4500-F- C-2011
	EPA 9056A
Hardness, Total	SM 2340C-2011
	SM 2340B-2011
Sulfate (as SO4)	ASTM D516-11
	EPA 300.0, Rev. 2.1 (1993)
	SM 4110B-2011
	EPA 9056A

Miscellaneous

Boron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Bromide	EPA 300.0, Rev. 2.1 (1993)
	SM 4110B-2011
	EPA 9056A
Color	SM 2120B-2011

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Miscellaneous	
Cyanide, Total	LACHAT QuikChem 10-204-00-1-X
	EPA 335.4, Rev. 1.0 (1993)
	EPA 9012B
non-Polar Extractable Material (TPH)	EPA 1664A
	EPA 1664B
Organic Carbon, Total	SM 5310C-2011
	EPA 9060A
Phenols	EPA 420.1 (Rev. 1978)
	EPA 420.4, Rev. 1.0 (1993)
	EPA 9065
	EPA 9066
Specific Conductance	EPA 120.1 (Rev. 1982)
	SM 2510B-2011
	EPA 9050A
Sulfide (as S)	SM 4500-S2- F-2011
Surfactant (MBAS)	SM 5540C-2011
Turbidity	EPA 180.1, Rev. 2.0 (1993)
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
1,3-Dinitrobenzene	EPA 8270D
1,4-Naphthoquinone	EPA 8270D
2,4-Dinitrotoluene	EPA 625.1
	EPA 8270D
2,6-Dinitrotoluene	EPA 625.1
	EPA 8270D
Nitroaromatics and Isophorone	
Isophorone	EPA 625.1
	EPA 8270D
Nitrobenzene	EPA 625.1
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 625.1
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625.1
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625.1
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrient	
Ammonia (as N)	EPA 350.1, Rev. 2.0 (1993)
Kjeldahl Nitrogen, Total	EPA 351.2, Rev. 2.0 (1993)
Nitrate (as N)	EPA 353.2, Rev. 2.0 (1993)
	EPA 300.0, Rev. 2.1 (1993)
	SM 4110B-2011
	SM 4500-NO3 F-2011
	EPA 9056A

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Nutrient	
Nitrate-Nitrite (as N)	EPA 353.2, Rev. 2.0 (1993)
Nitrite (as N)	EPA 353.2, Rev. 2.0 (1993)
	SM 4500-NO3 F-2011
Orthophosphate (as P)	SM 4500-P E-2011
Phosphorus, Total	SM 4500-P E-2011
Organophosphate Pesticides	
Atrazine	EPA 8270D
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Famphur	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Simazine	EPA 8270D
Thionazin	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 625.1
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625.1
	EPA 8270D
Diethyl phthalate	EPA 625.1
Phthalate Esters	
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 625.1
	EPA 8270D
Di-n-butyl phthalate	EPA 625.1
	EPA 8270D
Di-n-octyl phthalate	EPA 625.1
	EPA 8270D
Polychlorinated Biphenyls	
Aroclor 1016 (PCB-1016)	EPA 8082A
	EPA 608.3
Aroclor 1221 (PCB-1221)	EPA 8082A
	EPA 608.3
Aroclor 1232 (PCB-1232)	EPA 8082A
	EPA 608.3
Aroclor 1242 (PCB-1242)	EPA 8082A
	EPA 608.3
Aroclor 1248 (PCB-1248)	EPA 8082A
	EPA 608.3
Aroclor 1254 (PCB-1254)	EPA 8082A
	EPA 608.3
Aroclor 1260 (PCB-1260)	EPA 8082A
	EPA 608.3
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Polynuclear Aromatics	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 625.1
	EPA 8270D
Acenaphthylene	EPA 625.1
	EPA 8270D
Anthracene	EPA 625.1
	EPA 8270D
Benzo(a)anthracene	EPA 625.1
	EPA 8270D
Benzo(a)pyrene	EPA 625.1
	EPA 8270D
Benzo(b)fluoranthene	EPA 625.1
	EPA 8270D
Benzo(g,h,i)perylene	EPA 625.1
	EPA 8270D
Benzo(k)fluoranthene	EPA 625.1
	EPA 8270D
Chrysene	EPA 625.1
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625.1
	EPA 8270D
Fluoranthene	EPA 625.1
	EPA 8270D
Fluorene	EPA 625.1

Polynuclear Aromatics	
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625.1
	EPA 8270D
Naphthalene	EPA 625.1
	EPA 8270D
Phenanthrene	EPA 625.1
	EPA 8270D
Pyrene	EPA 625.1
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 625.1
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625.1
	EPA 8270D
2,4-Dichlorophenol	EPA 625.1
	EPA 8270D
2,4-Dimethylphenol	EPA 625.1
	EPA 8270D
2,4-Dinitrophenol	EPA 625.1
	EPA 8270D
2,6-Dichlorophenol	EPA 8270D
2-Chlorophenol	EPA 625.1
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625.1

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Priority Pollutant Phenols	
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 625.1
	EPA 8270D
3-Methylphenol	EPA 625.1
	EPA 8270D
4-Chloro-3-methylphenol	EPA 625.1
	EPA 8270D
4-Methylphenol	EPA 625.1
	EPA 8270D
4-Nitrophenol	EPA 625.1
	EPA 8270D
Cresols, Total	EPA 625.1
	EPA 8270D
Pentachlorophenol	EPA 625.1
	EPA 8270D
Phenol	EPA 625.1
	EPA 8270D
Residue	
Settleable Solids	SM 2540 F-2011
Solids, Total Dissolved	SM 2540 C-2011
Solids, Total Suspended	SM 2540 D-2011
Solids, Volatile	EPA 160.4 (Issued 1971)
	SM 2540 E-2011

Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 625.1
	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
n-Decane	EPA 625.1
n-Octadecane	EPA 625.1
O,O,O-Triethyl phosphorothioate	EPA 8270D
p-Dimethylaminoazobenzene	EPA 8270D
Phenacetin	EPA 8270D
Safrole	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260C

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Aromatics	
1,2-Dichlorobenzene	EPA 8260C
	EPA 624.1
	EPA 524.2
1,3,5-Trimethylbenzene	EPA 8260C
1,3-Dichlorobenzene	EPA 8260C
	EPA 624.1
1,4-Dichlorobenzene	EPA 8260C
	EPA 624.1
2-Chlorotoluene	EPA 8260C
4-Chlorotoluene	EPA 8260C
Benzene	EPA 8260C
	EPA 624.1
	EPA 524.2
Bromobenzene	EPA 8260C
Chlorobenzene	EPA 8260C
	EPA 624.1
	EPA 524.2
Ethyl benzene	EPA 8260C
	EPA 624.1
Isopropylbenzene	EPA 8260C
	EPA 8021B
m/p-Xylenes	EPA 8260C
	EPA 624.1
Naphthalene, Volatile	EPA 8260C
n-Butylbenzene	EPA 8260C
	EPA 8021B

Volatile Aromatics	
n-Propylbenzene	EPA 8260C
	EPA 8021B
o-Xylene	EPA 8260C
	EPA 624.1
p-Isopropyltoluene (P-Cymene)	EPA 8260C
	EPA 8021B
sec-Butylbenzene	EPA 8260C
	EPA 8021B
Styrene	EPA 8260C
	EPA 624.1
tert-Butylbenzene	EPA 8260C
	EPA 8021B
Toluene	EPA 8260C
	EPA 624.1
	EPA 524.2
Total Xylenes	EPA 8260C
	EPA 624.1
Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260C
Epichlorohydrin	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260C
1,1,1-Trichloroethane	EPA 8260C
	EPA 624.1
1,1,2,2-Tetrachloroethane	EPA 8260C

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Halocarbons	
1,1,2,2-Tetrachloroethane	EPA 624.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
	EPA 624.1
1,1-Dichloroethane	EPA 8260C
	EPA 624.1
1,1-Dichloroethene	EPA 8260C
	EPA 624.1
1,1-Dichloropropene	EPA 8260C
1,2,3-Trichloropropane	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260C
1,2-Dibromoethane	EPA 8260C
1,2-Dichloroethane	EPA 8260C
	EPA 624.1
	EPA 524.2
1,2-Dichloropropane	EPA 8260C
	EPA 624.1
1,3-Dichloropropane	EPA 8260C
2,2-Dichloropropane	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260C
	EPA 624.1
3-Chloropropene (Allyl chloride)	EPA 8260C
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
	EPA 624.1

Volatile Halocarbons	
Bromoform	EPA 8260C
	EPA 624.1
Bromomethane	EPA 8260C
	EPA 624.1
Carbon tetrachloride	EPA 8260C
	EPA 624.1
Chloroethane	EPA 8260C
	EPA 624.1
Chloroform	EPA 8260C
	EPA 624.1
	EPA 524.2
Chloromethane	EPA 8260C
	EPA 624.1
cis-1,2-Dichloroethene	EPA 8260C
	EPA 624.1
cis-1,3-Dichloropropene	EPA 8260C
	EPA 624.1
Dibromochloromethane	EPA 8260C
	EPA 624.1
Dibromomethane	EPA 8260C
Dichlorodifluoromethane	EPA 8260C
	EPA 624.1
Hexachlorobutadiene, Volatile	EPA 8260C
Methyl iodide	EPA 8260C
Methylene chloride	EPA 8260C
	EPA 624.1

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Halocarbons

Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 8260C
	EPA 624.1
trans-1,2-Dichloroethene	EPA 8260C
	EPA 624.1
trans-1,3-Dichloropropene	EPA 8260C
	EPA 624.1
trans-1,4-Dichloro-2-butene	EPA 8260C
Trichloroethene	EPA 8260C
	EPA 624.1
Trichlorofluoromethane	EPA 8260C
	EPA 624.1
Vinyl chloride	EPA 8260C
	EPA 624.1

Volatiles Organics

1,4-Dioxane	EPA 8260C
	EPA 8260C SIM
	EPA 8270D
	EPA 8270D SIM
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260C
2-Nitropropane	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260C
	EPA 524.2
Acetone	EPA 8260C

Volatiles Organics

Acetone	EPA 624.1
	EPA 524.2
Acetonitrile	EPA 8260C
Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260C
Di-ethyl ether	EPA 8260C
Ethyl Acetate	EPA 8260C
Ethylene Glycol	EPA 8260C
	EPA 8015D
Isobutyl alcohol	EPA 8260C
	EPA 8015D
Isopropanol	EPA 8260C
Methanol	EPA 8015D
Methyl acetate	EPA 8260C
Methyl cyclohexane	EPA 8260C
n-Butanol	EPA 8260C
o-Toluidine	EPA 8270D
Tetrahydrofuran	EPA 8260C
Vinyl acetate	EPA 8260C
	EPA 624.1

Sample Preparation Methods

	SM 4500-P B(5)-2011
	EPA 5030C
	EPA 200.2
	EPA 3015A

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020
Revised September 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Sample Preparation Methods

EPA 3010A
EPA 3005A
EPA 3510C
EPA 3020A

Serial No.: 62131

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260C
Acrylonitrile	EPA 8260C
Ethyl methacrylate	EPA 8260C
Methyl acrylonitrile	EPA 8260C
Methyl methacrylate	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D
Diphenylamine	EPA 8270D
Methapyrilene	EPA 8270D
Pronamide	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 8270D

Characteristic Testing	
Corrosivity (pH)	EPA 9040C
	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
2,4'-DDD (Mitotane)	EPA 8081B
4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270D
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
Chlorobenzilate	EPA 8270D
delta-BHC	EPA 8081B
Diallate	EPA 8270D
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Kepone	EPA 8270D
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
Pentachloronitrobenzene	EPA 8270D
Toxaphene	EPA 8081B
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D
Hexachlorophene	EPA 8270D
Hexachloropropene	EPA 8270D
Pentachlorobenzene	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A

Chlorophenoxy Acid Pesticides	
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Pentachlorophenol	EPA 8151A
Haloethers	
2,2'-Oxybis(1-chloropropane)	EPA 8270D
4-Bromophenylphenyl ether	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270D
Metals I	
Barium, Total	EPA 6010C
	EPA 6010D
Cadmium, Total	EPA 6010C
	EPA 6010D
Calcium, Total	EPA 6010C
	EPA 6010D
Chromium, Total	EPA 6010C
	EPA 6010D
Copper, Total	EPA 6010C
	EPA 6010D
Iron, Total	EPA 6010C
	EPA 6010D
Lead, Total	EPA 6010C

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Metals I	
Lead, Total	EPA 6010D
Magnesium, Total	EPA 6010C
	EPA 6010D
Manganese, Total	EPA 6010C
	EPA 6010D
Nickel, Total	EPA 6010C
	EPA 6010D
Potassium, Total	EPA 6010C
	EPA 6010D
Silver, Total	EPA 6010C
	EPA 6010D
Sodium, Total	EPA 6010C
	EPA 6010D
Strontium, Total	EPA 6010C
	EPA 6010D
Metals II	
Aluminum, Total	EPA 6010C
	EPA 6010D
Antimony, Total	EPA 6010C
	EPA 6010D
Arsenic, Total	EPA 6010C
	EPA 6010D
Beryllium, Total	EPA 6010C
	EPA 6010D
Lithium, Total	EPA 6010C

Metals II	
Lithium, Total	EPA 6010D
Mercury, Total	EPA 7471B
Selenium, Total	EPA 6010C
	EPA 6010D
Vanadium, Total	EPA 6010C
	EPA 6010D
Zinc, Total	EPA 6010C
	EPA 6010D
Metals III	
Cobalt, Total	EPA 6010C
	EPA 6010D
Molybdenum, Total	EPA 6010C
	EPA 6010D
Thallium, Total	EPA 6010C
	EPA 6010D
Tin, Total	EPA 6010C
	EPA 6010D
Titanium, Total	EPA 6010C
	EPA 6010D
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9251
	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9038

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Minerals	
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010C
	EPA 6010D
Cyanide, Total	EPA 9012B
Organic Carbon, Total	EPA 9060A
Phenols	EPA 9065
Specific Conductance	EPA 9050A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
1,3-Dinitrobenzene	EPA 8270D
1,4-Dinitrobenzene	EPA 8270D
1,4-Naphthoquinone	EPA 8270D
2,4-Dinitrotoluene	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D
4-Dimethylaminoazobenzene	EPA 8270D
Hydroquinone	EPA 8270D
Isophorone	EPA 8270D
Nitrobenzene	EPA 8270D
Pyridine	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrients	
Nitrate (as N)	EPA 9056A
Organophosphate Pesticides	
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Famphur	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Sulfotepp	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 8270D

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Phthalate Esters	
Di-n-butyl phthalate	EPA 8270D
Di-n-octyl phthalate	EPA 8270D
Polychlorinated Biphenyls	
Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1016 (PCB-1016) in Oil	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1221 (PCB-1221) in Oil	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1232 (PCB-1232) in Oil	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1242 (PCB-1242) in Oil	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1248 (PCB-1248) in Oil	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1254 (PCB-1254) in Oil	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1260 (PCB-1260) in Oil	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1262 (PCB-1262) in Oil	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
Aroclor 1268 (PCB-1268) in Oil	EPA 8082A
Polynuclear Aromatic Hydrocarbons	
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 8270D

Polynuclear Aromatic Hydrocarbons	
Acenaphthylene	EPA 8270D
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8270D
Benzo(a)pyrene	EPA 8270D
Benzo(b)fluoranthene	EPA 8270D
Benzo(g,h,i)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 8270D
Chrysene	EPA 8270D
Dibenzo(a,e)pyrene	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270D
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D
Naphthalene	EPA 8270D
Phenanthrene	EPA 8270D
Pyrene	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2,6-Dichlorophenol	EPA 8270D
2-Chlorophenol	EPA 8270D

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Priority Pollutant Phenols	
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenol	EPA 8270D
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
Semi-Volatile Organics	
O,O,O-Triethyl phosphorothioate	EPA 8270D
Phenacetin	EPA 8270D
Safrole	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260C
1,2-Dichlorobenzene	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260C
1,3-Dichlorobenzene	EPA 8260C
1,4-Dichlorobenzene	EPA 8260C
2-Chlorotoluene	EPA 8260C
4-Chlorotoluene	EPA 8260C
Benzene	EPA 8260C
Bromobenzene	EPA 8260C
Chlorobenzene	EPA 8260C
Ethyl benzene	EPA 8260C
Isopropylbenzene	EPA 8260C
m/p-Xylenes	EPA 8260C
Naphthalene, Volatile	EPA 8260C
n-Butylbenzene	EPA 8260C
n-Propylbenzene	EPA 8260C
o-Xylene	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260C
sec-Butylbenzene	EPA 8260C
Styrene	EPA 8260C

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Aromatics	
tert-Butylbenzene	EPA 8260C
Toluene	EPA 8260C
Total Xylenes	EPA 8260C
Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260C
Epichlorohydrin	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260C
1,1,1-Trichloroethane	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
1,1-Dichloroethane	EPA 8260C
1,1-Dichloroethene	EPA 8260C
1,1-Dichloropropene	EPA 8260C
1,2,3-Trichloropropane	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260C
1,2-Dibromoethane	EPA 8260C
1,2-Dichloroethane	EPA 8260C
1,2-Dichloropropane	EPA 8260C
1,3-Dichloropropane	EPA 8260C
2,2-Dichloropropane	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260C
3-Chloropropene (Allyl chloride)	EPA 8260C
Volatile Halocarbons	
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
Bromoform	EPA 8260C
Bromomethane	EPA 8260C
Carbon tetrachloride	EPA 8260C
Chloroethane	EPA 8260C
Chloroform	EPA 8260C
Chloromethane	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260C
Dibromochloromethane	EPA 8260C
Dibromomethane	EPA 8260C
Dichlorodifluoromethane	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260C
Methyl iodide	EPA 8260C
Methylene chloride	EPA 8260C
Tetrachloroethene	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260C
Trichloroethene	EPA 8260C
Trichlorofluoromethane	EPA 8260C
Vinyl chloride	EPA 8260C
Volatile Organics	
1,4-Dioxane	EPA 8260C

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Organics	
1,4-Dioxane	EPA 8270D
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260C
2-Nitropropane	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260C
Acetone	EPA 8260C
Acetonitrile	EPA 8260C
Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260C
Di-ethyl ether	EPA 8260C
Ethyl Acetate	EPA 8260C
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8260C
	EPA 8015D
Isopropanol	EPA 8260C
Methyl acetate	EPA 8260C
Methyl cyclohexane	EPA 8260C
Methyl tert-butyl ether	EPA 8260C
n-Butanol	EPA 8260C
Propionitrile	EPA 8260C
tert-butyl alcohol	EPA 8015D
Vinyl acetate	EPA 8260C

Sample Preparation Methods
EPA 5035A-L
EPA 5035A-H

Sample Preparation Methods
EPA 3580A
EPA 3010A
EPA 3005A
EPA 3050B
EPA 3550C
EPA 3020A
EPA 3546

Serial No.: 60968

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2021
Issued April 01, 2020

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. GARY RUDZ
EUROFINS TESTAMERICA INC. - BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Paint	EPA 6010C
	EPA 6010D

Sample Preparation Methods

	EPA 3050B

Serial No.: 60969

ATTACHMENT 3

AECOM ELECTRONIC DATA DELIVERABLE SPECIFICATION

AECOMFSample

Field Name	Data Type	Key	Required	Default	Parent	Lookup	Database Mapping(s)	Comment	Checks
sys_sample_code	Text(40)	PK	Y				dt_sample.sys_sample_code	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. Sample IDs for field samples must be reported exactly as found on the chain of custody form, and may not be changed for subsequent tests (dilution, re-analysis, leachate, etc.)	
sample_name	Text(50)						dt_sample.sample_name	Additional sample identification information as necessary. Is not required to be unique (i.e., duplicates are OK).	
sample_matrix_code	Text(10)		Y			rt_matrix.matrix_code	rt_matrix.matrix_desc dt_sample.matrix_code	Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g. leachates), so this field is required at both the sample and test level. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
sample_type_code	Text(10)		Y			rt_sample_type.sample_type_code	rt_sample_type.sample_type_desc dt_sample.sample_type_code	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc. I Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
sample_source	Text(10)		Y	Field		(Enumeration: sample_source_values)	dt_sample.sample_source	"Field" for field samples or "Lab" for internally generated lab QC samples No other values are allowed.	
parent_sample_code	Text(40)				AECOMFSample.sys_sample_code		dt_sample.parent_sample_code	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.).	
sample_delivery_group	Text(20)						dt_sdg.sdg_name dt_field_sample.field_sdg	Sample delivery group as defined by AECOM project manager. Required for all field samples, optional for samples originating in the laboratory.	
sample_date	Date							Date sample was collected in the field or sample was originated in the lab. Date information must be identical with the date from the chain of custody form.	
sample_time	Time							Time sample was collected in the field or sample was originated in the lab. Time information must be identical with the date from the chain of custody form.	
sys_loc_code	Text(20)						dt_sample.sys_loc_code	Sample collection location.	
start_depth	Numeric						dt_sample.start_depth	Beginning depth (top) of soil sample. This is an optional field for the laboratory EDD unless otherwise specified by the AECOM project manager.	
end_depth	Numeric						dt_sample.end_depth	Ending depth (bottom) of soil sample. This is an optional field for the laboratory EDD unless otherwise specified by the AECOM project manager.	
depth_unit	Text(15)					rt_unit.unit_code	dt_sample.depth_unit	Unit of measurement for the sample begin and end depths. This is an optional field for the laboratory EDD unless otherwise specified by the AECOM project manager. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
chain_of_custody	Text(40)						dt_chain_of_custody.chain_of_custody dt_field_sample.chain_of_custody	Chain of custody identifier. A single sample may be assigned to only one chain of custody. This is an optional field for laboratory EDD unless otherwise specified by the AECOM project manager.	
sent_to_lab_date	Date						dt_field_sample.sent_to_lab_date	Date sample was sent to lab (in MM/DD/YY format for EDD).	
sample_receipt_date	Date							Date that sample was received at laboratory (in MM/DD/YY format for EDD).	
sampler	Text(50)						dt_field_sample.sampler	Name or initials of sampler.	
sampling_company_code	Text(20)						dt_field_sample.sampling_company_code	Name or initials of sampling company (no controlled vocabulary).	
sampling_reason	Text(30)						dt_field_sample.sampling_reason	Optional reason for sampling. No controlled vocabulary is enforced.	
sampling_technique	Text(40)					rt_sample_method.method_code	dt_sample.sample_method	Sampling technique. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
task_code	Text(40)						dt_task.task_code dt_sample.task_code	Code used to identify the task under which the field sample was retrieved. This is an optional field for laboratory EDD unless otherwise specified by the Chem project manager.	
collection_quarter	Text(6)						dt_field_sample.collection_quarter	Quarter of the year sample was collected (e.g., "1Q96").	
composite_yn	Text(1)					(Enumeration: yes_no_values)	dt_field_sample.composite_yn	Used to indicate whether a sample is a composite sample. "Y" for composite, "N" for not composite.	
composite_desc	Text(255)						dt_field_sample.composite_desc	Description of composite sample (if composite_yn is "Y").	
sample_class	Text(10)						dt_sample.sample_class	Sample class code. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
custom_field_1	Text(255)						dt_sample.custom_field_1	Custom sample field.	
custom_field_2	Text(255)						dt_sample.custom_field_2	Custom sample field.	
custom_field_3	Text(255)						dt_sample.custom_field_3	Custom sample field.	
comment	Text(255)						dt_sample.remark	Sample comments as necessary (optional).	
sample_receipt_time	Time							Time of lab receipt sample in 24-hr (military) HH:MM format	

Method Mappings

GetSampleDate	dt_sample.sample_date
GetSampleReceiptDate	dt_field_sample.sample_receipt_date

AECOMLabSMP

Field Name	Data Type	Key	Required	Default	Parent	Lookup	Database Mapping(s)	Comment	Checks
sys_sample_code	Text(40)	PK	Y				dt_sample.sys_sample_code	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. Sample IDs for field samples must be reported exactly as found on the chain of custody form, and may not be changed for subsequent tests (dilution, re-analysis, leachate, etc.)	
sample_type_code	Text(20)		Y			rt_sample_type.sample_type_code	rt_sample_type.sample_type_desc dt_sample.sample_type_code	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
sample_matrix_code	Text(10)		Y			rt_matrix.matrix_code	rt_matrix.matrix_desc dt_sample.matrix_code	Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g. leachates), so this field is required at both the sample and test level.	
sample_source	Text(10)		Y	Lab		(Enumeration: sample_source_values)	dt_sample.sample_source	"Field" for field samples or "Lab" for internally generated lab QC samples No other values are allowed.	
parent_sample_code	Text(40)				AECOMLabSMP.sys_sample_code		dt_sample.parent_sample_code	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Field duplicates may be submitted blind to the laboratory, so this field is not required in the laboratory EDD for field "clones". Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.).	
comment	Text(255)						dt_sample.remark	Sample comments as necessary (optional).	
sample_date	Date							Date sample was collected in the field or sample was originated in the lab. Date information must be identical with the date from the chain of custody form.	
sample_time	Time							Time sample was collected in the field or sample was originated in the lab. Time information must be identical with the date from the chain of custody form.	
sample_receipt_date	Date							Date that field sample was received at laboratory (in MM/DD/YY format for EDD).	
sample_delivery_group	Text(20)						dt_sdg.sdg_name dt_field_sample.field_sdg	Sample delivery group as defined by AECOM project manager. Required for all field samples, optional for samples originating in the laboratory	
standard_solution_source	Text(20)						dt_sample.lab_solution_source	Relevant only for lab-generated samples. Description of the source of standard solutions for certain laboratory samples (e.g., LCS).	
sample_receipt_time	Time							Time of lab receipt sample in 24-hr (military) HH:MM format.	

Method Mappings

GetSampleDate	dt_sample.sample_date
GetSampleReceiptDate	dt_field_sample.sample_receipt_date

AECOMLabTST

Field Name	Data Type	Key	Required	Default	Parent	Lookup	Database Mapping(s)	Comment	Checks
sys_sample_code	Text(40)	PK	Y		AECOMFSample.sys_sample_code AECOMLabSMP.sys_sample_code			Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. Sample IDs for field samples must be reported exactly as found on the chain of custody form, and may not be changed for subsequent tests (dilution, re-analysis, leachate, etc.)	
lab_anl_method_name	Text(20)	PK	Y			rt_analytic_method.analytic_method	dt_test.analytic_method	Laboratory analytic method name or description. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD. The method name should be sufficient to reflect operation of the laboratory.	
analysis_date	Date	PK	Y					Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by AECOM project manager.	
analysis_time	Time	PK	Y					Time of sample analysis in 24-hr (military) HH:MM format. Time zone and daylight savings must be same as analysis_date.	
total_or_dissolved	Text(10)	PK	Y	N		rt_fraction.fraction	dt_test.fraction	Sample fraction tested. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
column_number	Text(2)	PK	Y	NA		(Enumeration: column_number_values)	dt_test.column_number	Either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. If any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table.	
test_type	Text(10)	PK	Y	Initial		rt_test_type.test_type	dt_test.test_type	Type of test in the laboratory. This field is used to distinguish between initial runs, re-extractions, reanalysis and dilutions. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
lab_matrix_code	Text(10)					rt_matrix.matrix_code	rt_matrix.matrix_desc dt_test.lab_matrix_code	Code which describes the matrix as analyzed by the lab. May differ from sample_matrix_code. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
analysis_location	Text(2)		Y			(Enumeration: analysis_location_values)	dt_test.analysis_location	Note where was sample analyzed. "FL" for mobile Field Laboratory analysis, "LB" for fixed_Based Laboratory analysis or "FI" for Field Instrument.	
basis	Text(10)		Y	NA		(Enumeration: basis_values)	dt_test.basis	Must be either "Wet" for wet weight basis reporting, "Dry" for dry weight basis reporting, or "NA" for tests for which this distinction is not applicable.	
container_id	Text(30)						dt_test.container_id	Sample container identifier.	
dilution_factor	Numeric		Y	1.0			dt_test.dilution_factor	Dilution factor at which the analyte was measured effectively. Enter "1" if not diluted.	
lab_prep_method_name	Text(20)					rt_prep_method.prep_method	dt_test.prep_method	Laboratory sample preparation method code. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD. If preparation is part of the analytic method, use the code "METHOD".	
prep_date	Date							Date sample preparation began in MM/DD/YYYY format.	
prep_time	Time							Time sample preparation began in 24-hr (military) format. Time zone and daylight savings must be same as analysis_date.	
leachate_method	Text(15)						dt_test.leachate_method	Laboratory leachate generation method name or description. The method name should be sufficient to reflect operation of the laboratory. Required for tests on leachate (TCLP, SPLP, etc.)	
leachate_date	Date							Date of leachate preparation in MM/DD/YYYY format. Required for tests on leachate (TCLP, SPLP, etc.)	
leachate_time	Time							Time of leachate preparation in 24-hr (military) format. Time zone and daylight savings must be same as analysis_date. Required for tests on leachate (TCLP, SPLP, etc.)	
lab_name_code	Text(20)		Y			rt_company.company_code	rt_company.company_name dt_test.lab_name_code	Unique identifier of the laboratory. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
qc_level	Text(10)					(Enumeration: qc_level_values)	dt_test.qc_level	Quality control level of analysis. May be either "screen" or "quant" (definitive).	
lab_sample_id	Text(20)		Y				dt_test.lab_sample_id	Laboratory LIMS sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event).	
percent_moisture	Numeric						dt_test.percent_moisture	Percent moisture of the sample portion used in this test; this value may vary from test to test for any sample. Report 70.1% as 70.1 not as 70.1%. Required for tests on solid matrices (soil, sediment, etc.)	
subsample_amount	Text(14)						dt_test.subsample_amount	Amount of sample used for test. Required for tests on field samples.	
subsample_amount_unit	Text(15)					rt_unit.unit_code	dt_test.subsample_amount_unit	Unit of measurement for subsample amount. Required when reporting subsample_amount. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
analyst_name	Text(50)						dt_test.analyst_name	Name or initials of laboratory analyst.	
instrument_id	Text(60)						dt_test.instrument_id	Instrument identifier.	
comment	Text(255)						dt_test.remark	Comments about the test as necessary.	
preservative	Text(20)					rt_preservative.preservative	dt_test.preservative	Sample preservative used. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
final_volume	Text(15)						dt_test.final_volume	The final volume of the sample after sample preparation. Include all dilution factors.	
final_volume_unit	Text(15)					rt_unit.unit_code	dt_test.final_volume_unit	The unit of measure that corresponds to the final_volume. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	

Method Mappings

	CompanyType_LAB	rt_company.company_type
	GetSampleId	dt_test.sample_id
	GetAnalysisDate	dt_test.analysis_date
	GetSDG	dt_test.lab_sdg
	GetPrepDate	dt_test.prep_date
	GetLeachateDate	dt_test.leachate_date

AECOMLabRES

Field Name	Data Type	Key	Required	Default	Parent	Lookup	Database Mapping(s)	Comment	Checks
sys_sample_code	Text(40)	PK	Y		AECOMLabTST.sys_sample_code AECOMLabSMP.sys_sample_code AECOMFSample.sys_sample_code			Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. Sample IDs for field samples must be reported exactly as found on the chain of custody form, and may not be changed for subsequent tests (dilution, re-analysis, leachate, etc.)	
lab_anl_method_name	Text(20)	PK	Y		AECOMLabTST.lab_anl_method_name	rt_analytic_method.analytic_method		Laboratory analytic method name or description. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD. The method name should be sufficient to reflect operation of the laboratory.	
analysis_date	Date	PK	Y		AECOMLabTST.analysis_date			Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by AECOM project manager.	
analysis_time	Time	PK	Y		AECOMLabTST.analysis_time			Time of sample analysis in 24-hr (military) HH:MM format. Time zone and daylight savings must be same as analysis_date.	
total_or_dissolved	Text(10)	PK	Y	N	AECOMLabTST.total_or_dissolved	rt_fraction.fraction		Sample fraction tested. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
column_number	Text(2)	PK	Y	NA	AECOMLabTST.column_number	(Enumeration: column_number_values)		Either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. If any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table.	
test_type	Text(10)	PK	Y	Initial	AECOMLabTST.test_type	rt_test_type.test_type		Type of test in the laboratory. This field is used to distinguish between initial runs, re-extractions, reanalysis and dilutions. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
cas_rn	Text(15)	PK	Y			rt_analyte.cas_rn	dt_result.cas_rn dt_result_qc.cas_rn	CAS Registry Number for this analyte. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
chemical_name	Text(255)		Y				rt_analyte.chemical_name	Chemical Name	
result_value	Numeric						dt_result.result_text dt_result.result_numeric	Analytic result reported at an appropriate number of significant digits. Must be identical with values presented in the hard copy. Leave blank for non-detects. Coeluting congeners must all be reported with the same value.	
result_error_delta	Text(20)						dt_result.result_error_delta	Error range applicable to the result value; typically used only for radiochemistry results.	
result_type_code	Text(10)		Y			rt_result_type.result_type_code	dt_result.result_type_code	Must be either "TRG" for a target or regular result, "TIC" for tentatively identified compounds, "SUR" for surrogates, "IS" for internal standards, or "SC" for spiked compounds.	
reportable_result	Text(3)		Y			(Enumeration: reportable_result_values)	dt_result.reportable_result	Must be "Yes" for results considered to be reportable, or "No" for other results. Used to distinguish most appropriate result when multiple results are generated due to dual-column tests or re-tests. Exactly one result (cas_rn) for each sample should have reportable_result = "Yes".	
detect_flag	Text(2)		Y			(Enumeration: detect_flag_values)	dt_result.detect_flag	Must be either "Y" for detected analytes or "N" for non_detects.	
lab_qualifiers	Text(20)						dt_result.lab_qualifiers	Qualifier flags assigned by the laboratory. The lab is not restricted to using the qualifers in the reference values file; however, if a particular qualifier is used, the definition must be consistent with that in the reference values. The lab must provide an electronic key of laboratory-specific qualifiers used. Where a coeluting congener result is being reported, whether or not it is a detected result, this field will ALSO contain a "C", immediately followed by the lowest numbered congener of the coeluting set.	
organic_yn	Text(1)		Y	Y		(Enumeration: yes_no_values)		Must be either "Y" for organic constituents or "N" for inorganic constituents.	
method_detection_limit	Text(20)						dt_result.method_detection_limit	Use the Method Detection Limit (MDL) for Organic compounds with the following exceptions; use the EDL for single component organics analyzed by isotope dilution methods; the highest EDL in the homolog for PCB homologs; the EDL of a single compent for Alkyl PAH homologs; and the instrument detection limit (IDL) for Inorganic compounds, per the contract. It must reflect such factors as dilution factors and moisture content.	
reporting_detection_limit	Numeric						dt_result.reporting_detection_limit	Use the value of the quantitation_limit except in the following cases: use the EDL for single component organics analyzed by isotope dilution methods; the highest EDL in the homolog for PCB homologs; the EDL of a single compent for Alkyl PAH homologs; and the result_value for radionuclides. Reflects conditions such as dilution factors and moisture content. Required for all results for which such a limit is appropriate. Must be identical to the non-detect value in the hard-copy report.	
quantitation_limit	Text(20)						dt_result.quantitation_limit	Concentration level above which results can be quantified with 95% confidence limit. Must reflect conditions such as dilution factors and moisture content. Required for all results for which such a limit is appropriate.	
result_unit	Text(15)		Y			rt_unit.unit_code	dt_result.result_unit	Units of measurement for the result unit. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
detection_limit_unit	Text(15)					rt_unit.unit_code	dt_result.detection_limit_unit	Units of measurement for the detection limit(s). Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
tic_retention_time	Text(8)						dt_result.tic_retention_time	TIC Retention Time in units of decimal minutes.	
result_comment	Text(254)						dt_result.remark	Result specific comments.	
qc_original_conc	Numeric						dt_result_qc.qc_original_conc	The concentration of the analyte in the original (unspiked) sample. Required for spikes. Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero).	
qc_spike_added	Numeric						dt_result_qc.qc_spike_added	The concentration of the analyte added to the original sample. Required for spikes, surrogate compounds, LCS and any spiked sample.	
qc_spike_measured	Numeric						dt_result_qc.qc_spike_measured	The measured concentration of the analyte. Use zero for spiked compounds that were not detected in the sample. Required for spikes, surrogate compounds, LCS and any spiked sample.	
qc_spike_recovery	Numeric						dt_result_qc.qc_spike_recovery	The percent recovery calculated as specified by the laboratory QC program. Required for spikes, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	
qc_dup_original_conc	Numeric						dt_result_qc.qc_dup_original_conc	The concentration of the analyte in the original (unspiked) sample. Required for spike duplicates only. Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero).	
qc_dup_spike_added	Numeric						dt_result_qc.qc_dup_spike_added	The concentration of the analyte added to the original sample. Required for spike or LCS duplicates, surrogate compounds, and any spiked and duplicated sample. Use zero for spiked compounds that were not detected in the sample. Also complete the qc-spike-added field.	
qc_dup_spike_measured	Numeric						dt_result_qc.qc_dup_spike_measured	The measured concentration of the analyte in the duplicate. Use zero for spiked compounds that were not detected in the sample. Required for spike and LCS duplicates, surrogate compounds, and any other spiked and duplicated sample. Also complete the qc-spike-measured field.	
qc_dup_spike_recovery	Numeric						dt_result_qc.qc_dup_spike_recovery	The duplicate percent recovery calculated. Always required for spike or LCS duplicates, surrogate compounds, and any other spiked and duplicated sample. Also complete the qc-spike-recovery field. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	
qc_rpd	Numeric						dt_result_qc.qc_rpd	The relative percent difference calculated. Required for duplicate samples as appropriate. Report as percentage multiplied by 100 (e.g., report "20%" as "20").	
qc_spike_lcl	Numeric						dt_result_qc.qc_spike_lcl	Lower control limit for spike recovery. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	
qc_spike_ucl	Numeric						dt_result_qc.qc_spike_ucl	Upper control limit for spike recovery. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	
qc_rpd_cl	Numeric						dt_result_qc.qc_rpd_cl	Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "20%" as "20").	
qc_spike_status	Text(10)						dt_result_qc.qc_spike_status	Used to indicate whether the spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for spikes, surrogate compounds, LCS and any spiked sample.	
qc_dup_spike_status	Text(10)						dt_result_qc.qc_dup_spike_status	Used to indicate whether the duplicate spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for any spiked and duplicated sample.	
qc_rpd_status	Text(10)						dt_result_qc.qc_rpd_status	Used to indicate whether the relative percent difference was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for any duplicated sample.	
uncertainty	Text(10)						dt_result.uncertainty	Radiological analysis: uncertainty.	
minimum_detectable_conc	Numeric						dt_result.minimum_detectable_conc	Radiological analysis: minimum detectable concentration.	
counting_error	Numeric						dt_result.counting_error	Radiological analysis: counting error.	
critical_value	Numeric						dt_result.critical_value	Radiological analysis: critical value.	

Default Mappings

N	dt_result.validated_yn

Method Mappings

GetTestID	dt_result.test_id
SaveOrigResult	dt_result.custom_field_5
GetTestID	dt_result_qc.test_id

AECOMLabBCH

Field Name	Data Type	Key	Required	Default	Parent	Lookup	Database Mapping(s)	Comment	Checks
sys_sample_code	Text(40)	PK	Y		AECOMLabTST.sys_sample_code AECOMLabSMP.sys_sample_code AECOMFSample.sys_sample_code			Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. Sample IDs for field samples must be reported exactly as found on the chain of custody form, and may not be changed for subsequent tests (dilution, re-analysis, leachate, etc.)	
lab_anl_method_name	Text(20)	PK	Y		AECOMLabTST.lab_anl_method_name	rt_analytic_method.analytic_method		Laboratory analytic method name or description. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD. The method name should be sufficient to reflect operation of the laboratory. For example both "SW8080-pest" and "SW8080-PCB" may be necessary to distinguish between laboratory methods, while "SW8080" may not provide sufficient detail.	
analysis_date	Date	PK	Y		AECOMLabTST.analysis_date			Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by AECOM project manager.	
analysis_time	Time	PK	Y		AECOMLabTST.analysis_time			Time of sample analysis in 24-hr (military) HH:MM format. Time zone and daylight savings must be same as analysis_date.	
total_or_dissolved	Text(10)	PK	Y	N	AECOMLabTST.total_or_dissolved	rt_fraction.fraction		Sample fraction tested. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
column_number	Text(2)	PK	Y	NA	AECOMLabTST.column_number	(Enumeration: column_number_values)		Either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. If any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table.	
test_type	Text(10)	PK	Y	Initial	AECOMLabTST.test_type	rt_test_type.test_type		Type of test in the laboratory. This field is used to distinguish between initial runs, re-extractions, reanalysis and dilutions. Limited to values as found in the Reference values file, if additions must be made, they need to be approved by AECOM before submitting an EDD.	
test_batch_type	Text(10)	PK	Y	Analysis		rt_test_batch_type.test_batch_type	rt_test_batch_type.test_batch_desc dt_test_batch.test_batch_type at_test_batch_assign.test_batch_type	Lab Batch type. Should be "Prep" or "Analysis" or "Leach"	
test_batch_id	Text(20)		Y				dt_test_batch.test_batch_id at_test_batch_assign.test_batch_id	Unique identifier for all lab batches. Each batch must contain at least one field sample, and samples can participate in more than one batch, as long as the batch type is unique.	

Method Mappings

GetTestID	at_test_batch_assign.test_id

Appendix B

Scope of Work

Schedule 1 – Scope of Work
AECOM Work Assignment (WA) D009803-05
Niagara Sanitation Company
Remedial Investigation/Feasibility Study
Site No. 932054

TASK DESCRIPTIONS

Task 1: Preliminary Activities

This task includes AECOM participating in telephone conversations and attendance at one on-Site scoping meeting by AECOM's Project Manager (PM), AECOM's Feasibility Study (FS) New York State Professional Engineer (PE), and the Department's PM to discuss the Work Assignment (WA). Activities under this task also include the preparation of the Schedule 1 Scope of Work and budget estimate in Schedule 2.11 format, and the completion of the WA checklist. Additional preliminary activities under this task include file review and preparation of the project schedule, procurement of subcontractors, as well as modifying the generic Field Activities Plan (FAP), generic Quality Assurance Project Plan (QAPP), and generic Health and Safety Plan to become Site specific.

Task 2: Phase I Remedial Investigation

Task 2 will include a supplemental remedial investigation and an analytical data summary report as outlined below.

Supplemental Remedial Investigation

Remedial investigation activities and subcontractor oversight will be performed by two AECOM field geologists, mobilizing from Buffalo, New York with support by the AECOM PM/technical lead as needed.

Surface soil samples will be collected by AECOM from 25 locations at 0 to 2-inch and 2 to 6-inch depth intervals using a hand auger. Fifty surface soil samples will be collected, not including quality assurance / quality control samples, following the procedures in the Site-specific FAP and QAPP. Per the WA, surface soil samples will be analyzed for target analyte list (TAL) metals using EPA Methods 6010C/7471B, target compound list (TCL) polychlorinated biphenyls (PCBs) using EPA Method 8082A, TCL organochlorine pesticides using EPA Method 8081B, TCL semivolatile organic compounds (SVOCs) using EPA Method 8270D, and moisture content. Sampling equipment will be decontaminated per the QAPP prior to advancing the next sample location.

AECOM will oversee a subcontractor advance six test trenches over a one-day period. Test trenches will be approximately 4 to 6 feet in depth and approximately 3 feet wide by 6 feet long, and hand cleared by the subcontractor to 5 feet below ground surface. Test trenches will be located around monitoring well OW-36 to determine if there is a source area that could be removed at a later date. Material removed from test trenches will be temporarily placed on plastic sheeting adjacent to each excavation. AECOM will scan the soil with a hand-held PID and collect one composite sample from each test trench at the 1 to 6 feet depth interval. Soil samples will be analyzed for TAL metals using EPA Method 6010C/7471B or, TCL PCBs using EPA Method 8082A, TCL organochlorine pesticides using EPA Method 8081B, TCL SVOCs using EPA Method 8270D, TLC volatile organic compounds using EPA Method 8260C and moisture content. Following inspection and sampling of the test trenches, the test trenches will be backfilled with the material that was removed from each location; no investigative derived waste will be generated during the test trench activities. Consistent with the test trenching that was performed during the remedial investigation, a gross decontamination will be performed on the equipment bucket prior to the excavation of each test trench.

AECOM will coordinate laboratory services with the Department's call-out laboratory (Eurofins TestAmerica). AECOM will be responsible for managing samples under proper chain of custody per the QAPP.

A Community Air Monitoring Program (CAMP) will be implemented during the anticipated three days of intrusive work activities as per the FAP.

Surface soil and test trench locations will be surveyed by a certified MBE, New York State (NYS) licensed surveyor. Additionally, as noted by the Department's PM, some sample location errors were documented during the previous investigations as the hand-held GPS device used did not result in accurate coordinates. The Department will provide these locations to AECOM during the Site visit. Surveying activities are estimated to take three days to complete.

Analytical Data Summary Report

AECOM will prepare an analytical data summary report and submit within 30 days after the analytical sample results are validated by AECOM's data validation subcontractor. This scope of work (SOW) assumes no comments from the Department on the analytical data summary report.

AECOM will subcontract data validation and Data Usability Summary Reports (DUSR) in accordance with New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B – Guidance for Data Deliverables and the Development of Data Usability Summary Reports, May 2010. The laboratory data packages will be reviewed for compliance with analytical method requirements and the applicable USEPA Region II guidelines.

The analytical data summary report for this task will include the following:

- A complete description of all field activities conducted by AECOM on the Site;
- Figure(s) depicting surface soil sample and test trench locations, and key site features;
- Figures depicting sample locations and NYS Standards, Criteria, and Guidance (NYS SCG) non-compliance values from the soil analytical data collected during site work;
- A discussion of analytical results;
- Data summary tables of detected compounds with NYS SCGs listed, and non-compliance values highlighted;
- All field notes and/or daily activity logs;
- Photographs taken at the site during field activities (photos of the surface soil and test trench locations will include some background items (e.g., trees) so that the locations can be more easily located in the future);
- Surface soil boring and test trench logs;
- CAMP data;
- A DUSR (including Form Is); and
- Summary and recommendations for the FS.

Data management will include the following:

- Electronic Data Deliverables will be submitted by AECOM to NYSDEC for upload into the EQuIS database.

Task 3: Phase II Remedial Investigation

There was no budget for this task in the WA issuance letter. If requested by the Department, a Phase II remedial investigation will be performed to fill in data gaps identified following the Supplemental Remedial Investigation as summarized in the Analytical Data Summary Report recommendations section or if determined during the preparation of the FS report.

Task 4: Detailed Analysis of Alternatives (3rd Phase Feasibility Study) and Remedy Selection

Feasibility Study Report

The following assumptions will be used for completing this task:

- One day trip by the AECOM PM and the AECOM PE will be made to NYSDEC Region 9 office in Buffalo, New York for planning/scoping meeting with Department PM.
- Anticipate that five alternatives will be included, including 'No Action'.
- A draft FS report will be written after the remedial alternatives have been agreed upon. A detailed analysis will be presented in narrative form and will provide a basis for the selection of the remedy.
- One day trip by the AECOM PM and AECOM PE will be made to NYSDEC Region 9 office in Buffalo, New York to review the Draft FS report with Department PM.
- Incorporation of one set of comments from the Department.
- Finalization of the document.

The FS Report will include the following sections:

- Introduction;
- Site description and history;
- Summaries of the following reports/data:
    - February 2019 Remedial Investigation Report submitted by NYSDEC call out contractor (LiRo Engineers, Inc.);
    - Analytical results collected during a groundwater and surface water sampling activity performed by NYSDEC call-out contractor LiRo Engineers, Inc. in February 2020. Note: NYSDEC is preparing a summary report for this data which will be provided to AECOM; and
    - Analytical data collected during a surface soil and test trenching investigation to be performed by AECOM under Task 2 of this WA.
- Remedial goals and remedial objectives;
- General response actions;
- Identification and screening of technologies;
- Development and analysis of five alternatives, as presented in the WA issuance letter, which:
    - Assembles technologies into remedial alternatives;
    - Evaluates alternatives with respect to appropriate criteria; and
    - Evaluates the institutional/engineering controls for the selected remedy; and
- Recommended remedy, with a discussion supporting why it is recommended.

Public Meeting Assistance/Proposed Remedial Action Plan Support

This activity is expected to be completed following finalization of the FS report. The following assumptions will be used for completing this task:

One day trip by the AECOM PM, AECOM PE, and AECOM technical lead will be made to Wheatfield, New York to assist the Department PM during a public information meeting. AECOM personnel will attend to answer technical questions regarding the remedial strategy.

SUBCONTRACTOR PROCUREMENT DETAILS

Per previous discussions with the Department's PM, the Department will use a call-out laboratory (Eurofins TestAmerica, Buffalo) to maintain consistency with the remedial investigation previously completed.

Surveying

Quotes for surveying were received from two M/WBE subcontractors: KHEOPS Architecture, Engineering & Survey, DPC (KHEOPS) (MBE) and Frandina Engineering and Land Surveying, PC (WBE). KHEOPS was selected as the low bidder at $4,900.

Test Pit Excavation

Quotes for test pit excavations were received from three subcontractors: Matrix Environmental Technologies, Inc., Allied Environmental Services of NY, LLC, and Nothnagle Drilling, Inc. Matrix Environmental Technologies, Inc. was selected as the low bidder at $2,355.

Data Validation

It is anticipated that following Standby subcontractor procurement, a WBE subcontractor will be selected on a rotational basis to validate the analytical results and prepare a DUSR for each laboratory analytical report. The turnaround time will be 30 calendar days from the validators' receipt of the Category B laboratory data package from AECOM. A placeholder budget is included herein. AECOM will notify the Department of the subcontractor selection for this WA prior to that firm's commencement of work.

ANTICIPATED SCHEDULE*

This WA will be performed according to the following anticipated time frames:

Activity	Days after NTP	Date
• AECOM Notice to Proceed (NTP)	0	February 26, 2020
• Submit Budget Package	77	May 13, 2020
• NYSDEC approval of 2.11 Package	93	May 29, 2020
• Task 1 Site Visit	159	August 3, 2020
• Task 2 Supplemental Remedial Investigation start	174	August 26, 2020
• Task 2 Remedial Investigation Fieldwork end	182	October 2, 2020
• Task 2 Analytical Data Summary Report	269	November 21, 2020
• Task 4 Submit Draft Feasibility Study Report	329	January 20, 2021
• Task 4 Submit Final Feasibility Study Report (or 30 days after NYSDEC comments received)	380	March 12, 2021
• Task 4 Public Meeting Assistance	TBD	TBD

* Project schedule updated on July 2, 2020 due to delayed caused by COVID-19 restrictions.

Appendix C

Field Activity Forms

DAILY FIELD MEETING RECORD
General Information

Project: Niagara Sanitation	Location: Wheatfield, New York
Project Number: 60628668	Client: NYSDEC
Date:	Weather:

Team Members / Subcontractor Personnel / Visitors Present:

Topics Discussed:

	YES	NO	
Are all team members/subcontractors present?			
Have the team members read and understood the applicable sections of the Work Plans?			
Have safety issues been discussed?			
Are there any outstanding issues that need to be addressed?			
Are there any unforeseen problems that may be encountered?			
Have underground utilities been marked out?			
Do the field teams have the necessary equipment and supplies to perform their tasks?			

Signature of attendees:	

AECOM

SURFACE SOIL BORING LOG

Boring No.: (SS-)

PROJECT: Niagara Sanitation	CONTRACTOR: AECOM	PAGE 1
PROJECT No.: 60628668	LOCATION: Wheatfield, New York	DATE:
SURFACE ELEVATION:		AECOM REP.:

Depth (in)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
0.5	
1	
1.5	
2	
2.5	
3	
3.5	
4	
4.5	
5	
5.5	
6	
6.5	
7	
7.5	
8	
8.5	
9	
9.5	
10	

AECOM

TEST TRENCH LOG

Test Trench No.: (TT-)

PROJECT: Niagara Sanitation	CONTRACTOR: AECOM	PAGE 1
PROJECT No.: 60628668	LOCATION: Wheatfield, New York	DATE:
SURFACE ELEVATION:		AECOM REP.:

Depth (ft)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
0.5	
1	
1.5	
2	
2.5	
3	
3.5	
4	
4.5	
5	
5.5	
6	
6.5	
7	
7.5	
8	
8.5	
9	
9.5	
10	

UNIFIED SOIL CLASSIFICATION SYSTEM
SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYM	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION <u>RETAINED ON No.4 SIEVE</u>	CLEAN GRAVELS (LITTLE OR NO FINES)	**GW**	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	**GM**	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN No. 200 SIEVE SIZE	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION <u>PASSING No.4 SIEVE</u>	CLEAN SAND (LITTLE OR NO FINES)	**SW**	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	**SM**	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	**ML**	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS, SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN No. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			**PT**	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

>> Select a Laboratory or Service Center <<

#N/A
#N/A
#N/A
##

Chain of Custody Record

eurofins | Environment Testing America

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

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

	Project Manager:		COC No:
Client Contact	**Email:**	**Site Contact:**	**Date:**	_____ of _____ COCs
Your Company Name here	**Tel/Fax:**	**Lab Contact:**	**Carrier:**	TALS Project #:
Address	**Analysis Turnaround Time**			Sampler:
City/State/Zip	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx Phone	TAT if different from Below _____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name:	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)															Sample Specific Notes:

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

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

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

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

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

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: