PRE-DESIGN INVESTIGATION WORK PLAN

WILLIAM ST. PARK SITE

(SITE ID #851055)
Corning, Steuben County, New York

Prepared for:

New York State Department of Environmental Conservation
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CERTIFICATION

I, Thomas C. Drachenberg, certify that I am currently a NYS registered professional engineer and that this William St. Park Pre-Design Investigation Workplan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation and DER Green Remediation (DER-10; DER-31).

07-02-2025

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Date

Unauthorized alteration or addition to this engineering document is a violation of Section 7209. Provision 2 of the New York State Education Law.

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ACRONYMS

ABG	ash, brick, and/or glass
AHA	Activity Hazard Analysis
BMPs	Best Management Practices
CP	Commissioner Policy
CAMP	Community Air Monitoring Plan
DER	Division of Environmental Remediation
DPT	Direct Push Technology
ELAP	Environmental Laboratory Accreditation Program
EM	electromagnetic induction
FAP	Field Activities Plan
ft bgs	feet below ground surface
GHGs	greenhouse gases
GPR	ground-penetrating radar
GPS	global positioning system
IDW	investigation-derived waste
MS/MSD	matrix spike/matrix spike duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
PET	polyethylene terephthalate
PDI	Pre-Design Investigation
PDIWP	Pre-Design Investigation Work Plan
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PPE	personal protective equipment
PSHEP	Project Safety, Health, and Environmental Plan
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RF	radio frequency
SCOs	Soil Cleanup Objectives
SMP	site management plan
SOPs	Standard Operating Procedures
SSHEP	Subcontractor Safety, Health, and Environmental Plan
SVOCs	semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
USCS	Unified Soil Classification System
VOCs	volatile organic compound

SECTION 1 PROJECT OBJECTIVES AND BACKGROUND

William St. Park (the Site) is an approximately 28-acre public park owned and maintained by the City of Corning and is) located in the southwest portion of the City of Corning; Steuben County as shown on **Figure 1**. The site is bounded by the Chemung River to the south; Denison Parkway and property owned by Corning Natural Gas Corp and NYSEG to the west; residential property and Hillvue Ave to the north; and Hillvue Park to the east. The site is zoned and used for community recreational purposes, and is a city park including a pavilion, playground area, and grass lawn areas; as well as flood control features including the levy (tax parcel ID 317.07-01-086.0000) as shown on **Figure 2.**

Initial site characterization completed in 2020 included soil and sediment analyses for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), per-and polyfluoroalkyl substances (PFAS), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern are metals and SVOCs.

A site characterization resulted in confirmation of ABG at various locations on site. Arsenic, barium, cadmium, lead, mercury, zinc, copper, chromium, nickel, and selenium were detected in soil samples exceeding unrestricted and/or restricted residential Soil Cleanup Objectives (SCOs). PFAS constituents (Perfluorooctanesulfonic acid (PFOS)) were detected in soil samples exceeding the NYSDEC unrestricted guidance value. The pesticides dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethane (DDD), and dichlorodiphenyldichloroethylene (DDE) were detected above unrestricted SCOs. TCLP cadmium and TCLP lead were detected above the RCRA regulatory limit. Eight semi-volatile organic compounds (SVOCs) were detected above unrestricted and/ or restricted-residential SCOs. Two Toxicity Characteristic Leaching Procedure (TCLP) exceedances of cadmium and lead were noted. These exceedances are shown on **Figure 3a, Figure 3b, Figure 3c, and Figure 3d**. A complete list of detected compounds can be found in the Site Characterization Report (Parsons 2022). A complete list of locations that exceeded unrestricted and restricted residential SCOs can be found on **Table 1-1, Table 1-2,** Table **1-3** and **Table 1-4**.

Due to the observation of ABG on the park property during the 2020 site characterization as well as reports of ABG observed at multiple residential properties during utility service connections, additional investigation is necessary to further delineate the nature and extent of the impacts within the park and nearby residential properties.

A remedial design will be developed based on results of the Pre-Design Investigation (PDI) which will be consistent with the end use of the property and may include:

- Removal of impacted soils within the top 4-feet for Residential use properties, 2-feet for Restricted Residential use properties, and 1-foot for Commercial use properties
- A clean soil cover to replace the excavated soils with a demarcation layer in areas where contamination is believed to exist deeper than the minimum required remedy,
- A vegetative grass cover will be installed via sod replacement that meets standard industry practices,
- Institutional controls, engineering controls, and management will be managed under a Site Management Plan (SMP).

The PDI investigation for this Site will include collection of soil samples across a comprehensive sampling grid (75 x 75 feet cells) with soil samples collected from 0-2 inches, 2-12 inches, and 12-24 inches. Samples will only be collected from soil that is not classified as ABG or impacted by ABG (i.e., soil mixed with ABG material).

The results of these samples will be used to develop a 2-foot cover system that meets the existing and future use by removing contaminated soils that exceed Restricted-Residential SCOs and ABG in accordance with NYS Commissioner Policy CP-51 Section G.

Residential property investigation efforts will include:

1) Preparation of letters to notify 97 properties adjacent to the Site of the PDI efforts.
2) Preparation of letters requesting access to seven properties adjacent to the Site with confirmed ABG
3) Additional investigation of seven offsite residential properties to further delineate the extent of ABG.

Tasks are further defined in subsequent sections, and include:

- Survey layout of property corners, hardscapes, identified utilities, and other site features if applicable.
- GPS survey of 75x75-foot sampling grid points.
- Preparation of access request letter for the seven properties with ABG for additional borings.
- Preparation and mailing of ABG notification letters to 97 adjacent properties (excluding properties with ABG).

- Quality assurance/quality control (QA/QC) observations of installation of up to 64 soil borings within the Site.
- Quality assurance/quality control (QA/QC) observations of installation of up to 4 soil borings at the seven residential properties.
- Oversight of NYSDEC call-out contractor's implementation of sampling activities for both the Site and the residential properties.
- QA/QC of collection of soil borings samples for laboratory analysis.
- QA/QC and evaluation of laboratory results.
- Preparation and submittal of a final summary PDI report.

SECTION 2 HEALTH AND SAFETY

A Project Safety, Health, and Environmental Plan (PSHEP; Parsons 2025) has been prepared for the investigation activities. All personnel and subcontractors working on the project are required to follow this plan for the work covered in this work plan. Copies of the PSHEP will be maintained at the support zone.

Prior to the start of work, the subcontractors shall submit a Subcontractor Safety, Health, and Environmental Plan (SSHEP) along with specific Activity Hazard Analyses (AHAs) for tasks to be performed under this work plan. Work cannot commence until SSHEP and AHAs are reviewed, and comments have been addressed. Copies of the SSHEP and AHAs will be maintained at the support zone.

In addition, various plans will be implemented during the remedial investigation to control the management of materials generated during Site remediation.

A generic Community Air Monitoring Plan (CAMP) prepared for this contract will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area during invasive activities on-site. These readings will be provided on a weekly basis with all exceedances reported to NYSDEC and NYSDOH the same day (or next business day if after hours) along with the following:

- Cause of exceedance
- Corrective actions implemented.
- Efficacy of corrective actions

Field personnel will follow the NYSDOH Generic CAMP as further detailed in **Appendix A,** Division of Environmental Remediation (DER) -10 Fugitive Dust and Particulate Monitoring (NYSDEC 2010), and recommended response levels and action(s) will be implemented in the event of an exceedance.

Boring locations will be adjusted in the field as needed to avoid proximity to on-site structures and unsafe site features, such as the Narrows Creek embankment.

SECTION 3 QUALITY CONTROL

3.1 Field Activities

Field activities will be conducted in accordance with the following documents, prepared by Parsons for the NYSDEC program:

- Project Safety, Health, and Environment Plan (**Appendix B** – PSHEP 2025)
- Corning Quality Assurance Project Plan (**Appendix C** QAPP 2023)

Investigation/sample location may be modified with concurrence from NYSDEC. All samples will be analyzed at an Environmental Laboratory Accreditation Program (ELAP) -accredited laboratory.

A Field Activities Plan (FAP) including all Standard Operating Procedures (SOPs) will be prepared by the NYSDEC call-out contractor, in accordance with green and sustainable best management practices (BMPs). These BMPs may include but not be limited to minimizing vehicle idling; and sending investigation derived waste (IDW) and other waste to local disposal facilities rather than trucking the waste to facilities located more distantly.

SECTION 4 SURVEYS, INVESTIGATIONS, ENVIRONMENTAL SAMPLING, AND IMPLEMENTATION

Based on the ABG observation on the Site during the 2020 site characterization, additional investigation is necessary to further delineate the nature and extent of the impacts within the Site boundary and to further delineate the nature and extent of the impacts at the residential property where ABG was previously observed. The approach to the pre-design investigation is described in the following sections. Each portion of the investigation work will follow NYSDEC guidelines outlined in DER-10 Technical Guidance document (NYSDEC 2010). Parsons' *Subsurface Soil Disturbance Protocol* (see **Appendix D**) will be followed during intrusive site activities. The tasks for the investigations for the Site and the residential property are discussed below.

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The proposed layout consists of a 75 x 75 ft grid, with one 2-feet boring advanced approximately in the center of each cell. Initially, a geophysical investigation will be conducted to map utilities across the whole grid, as described in **Section 4.1.2.** Parsons will coordinate with Corning Parks and Recreation prior to mobilization to discuss safely managing each working zone. will follow an overall program consisting of:

1. Geophysical investigation (utility mapping), as described in **Section 4.1.2**;
2. Site survey of the Site property corners, edges/corners of hardscapes, locations of identified utilities and location of the edge of the southern wooded area, as described in **Section 4.2.**
3. Identification of the soil boring locations using a preset list of coordinates (**Table 2**) generated from the center location of the grid and (**Figures 4A and 4B)** using a global positioning system (GPS) with submeter accuracy.
4. Surface and subsurface investigation with soil borings, as discussed in **Section 4.2.3 and 4.3.**
5. Site survey of as-built coordinates for soil borings, as described in **Section 4.3**, if determined necessary based on boring results.

IDW will be stored, evaluated, and disposed of as described in **Section 4.5**.

RESIDENTIAL PROPERTIES

Access request letters will be mailed to property owners where ABG has been previously encountered to request the installation of additional borings on the property to investigate the extent of ABG, as described in **Section 4.1.1**.

Up to four borings are planned at each property. The locations for each boring will be determined by property conditions, including but not limited to yard size, the extent of impervious surfaces and structures on the property. The mobilization will follow an overall program consisting of:

1. Meeting with property owners to discuss the work activities, assess accessways, and determine if any buried utilities or structures exist at each property;
2. Geophysical investigation (utility mapping), as described in **Section 4.1.2**;
3. Site survey of the Site property corners, edges/corners of hardscapes, locations of identified utilities and location of wooded areas, as described in **Section 4.2.1**;
4. Identification of the soil boring locations based on an even distribution on the property, location of utilities and areas accessible for a drill rig;
5. Surface and subsurface investigation with soil borings, as discussed in **Sections 4.2.3 and 4.3**.

6. Site survey of as-built coordinates for soil borings, as described in **Section 4.3**.

IDW will be stored, evaluated, and disposed of as described in **Section 4.5**.

4.1 Field Preparation

4.1.1 Adjacent Residential Property Solicitation

Parsons will prepare and mail letters notifying the 97 properties adjacent to the Site of the planned investigation work and schedule.

4.1.2 Geophysical Investigation

Prior to initiation of site activities, Dig Safely NY will be contacted to locate utility lines that enter and/or cross over areas where soil borings will be installed. Additionally, a geophysical surveyor will be used to identify and locate underground utilities or structures that may be unique to each property. The geophysical surveyor will apply the appropriate surface geophysical method(s), including but not limited to ground-penetrating radar (GPR), radio frequency (RF), and electromagnetic induction (EM). These techniques will be used to search for utilities and/or buried obstructions in each 75 x 75-foot cell. Specific features may include subsurface utilities, subsurface anomalies, large voids, former subsurface structures, abandoned utilities, and former utility trenches. Based on an interpretation of data, the geophysical surveyor will mark the targets on the ground surface, for subsequent survey performed by others after the boring work is completed. Paint and flagging shall be used for marking of lines, showing any underground site utilities or obstructions. Sample grid locations are shown in conjunction with site features on **Figures 4a and 4b**.

4.2 Site Survey

4.2.1 Utility and Existing Structure Survey

Following the geophysical survey and utility mark out, the project surveyor will collect coordinate information for all buried utility lines, structures, obstructions, anomalies, etc. The survey will include the corners of existing hardscapes, playground boundaries, courts and other structures on the park property.

4.2.2 Topographic Survey

A comprehensive topographic and American Land Title Association (ALTA) survey will be performed to provide base maps for developing the remedial design. Parsons will subcontract with a New York state-licensed professional land surveyor to perform the topographic survey. The surveyor will be required to capture topographic spot elevations sufficient to generate ground surface contours at 1-foot intervals and will be responsible for submitting signed and sealed computer-aided design (CAD) and PDF survey files. The survey will be referenced horizontally to the North American Datum of 1983, 2011 adjustment (NAD83/2011), and vertically to the North American Vertical Datum of 1988 (NAVD88).

4.2.3 Site Layout and Proposed Boring Locations

The site characterization efforts will include the following proposed field sampling activities:

Matrix	Approach	Number of locations	Purpose
SOIL	Site Soil Borings	64	Soil characterization, sample collection, laboratory analyses
SOIL	Residential Soil Borings	28	Soil characterization, sample collection, laboratory analyses

As shown on **Figures 4a and 4b,** the Site borings are labeled numerically southward and alphabetically eastward, so that the northernmost westernmost boring would be labeled A1. The locations of proposed soil borings were selected to provide adequate distribution and coverage across the Site. For the residential investigation, the proposed properties are shown in **Figures 4a and 4b,** but the proposed locations and labeling procedures of soil borings will be determined in conjunction with property owner responses.

The proposed sampling locations will be roughly located with a handheld global positioning system (GPS). Subsurface structures (as delineated by the geophysical investigation) and surface and overhead features that may affect execution of field investigation activities will be taken into account. Proposed soil boring locations will be adjusted in the field as needed to avoid proximity to on-site structures and unsafe site features. In addition, a minimum 10-foot distance will be maintained from any buried utility line or structure.

4.3 Soil Investigation

Soil characterization activities at the site consist of installing shallow soil borings and collection of soil samples from each boring. The proposed locations will be located using a GPS and will be verified following installation (**Section 4.2.2 Topographic Survey**.).

Soil borings will be installed to determine the presence of ABG and/or SCO exceedances to support remedial design. Standard Operating Procedures (SOPs) for installing soil borings and other field work will be included in the FAP.

Archive samples will be collected and logged if ABG is encountered during site activities. Additionally, field personnel will document and photograph areas where ABG is encountered, as well as areas where target fill material has been observed at the surface (**Appendix E**).

4.3.1 Soil Boring Installation

Soil borings will be advanced with Direct Push Technology (DPT) with MacroCore sampler, or equivalent. Soil cores will be collected and logged continuously until borings are terminated at two ft bgs on the Site and at four ft bgs on off-site properties. Soils will be visually classified using a Unified Soil Classification System (USCS, ASTM International 2018) systems. Soil descriptions will be recorded in the field notes or soil boring log form. Any non-native material present in the soil core will be noted and described (type, color, texture, moisture content, etc.) and any layer of fill material containing ABG will be noted in the field logs. Photographs of recovered soils and any fill material containing ABG will be taken to be provided in the final report. Each soil core will also be screened for the presence of volatile organic compounds (VOCs) with a photoionization detector (PID) and readings will be recorded on the boring log and/or field book.

Upon completion, each soil boring will be backfilled with clean sand and topped with topsoil, and the area around the soil boring will be restored to match conditions prior to intrusive activities. Track mats may be used to access the boring locations and minimize ground disturbances.

Any non-dedicated sampling equipment will be decontaminated between pushes and soil boring locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse.

Drill cuttings and decontamination rinsates will be containerized in 55-gallon steel drums and transported to a central waste staging area for further characterization and disposal **(Section 4.5 Waste Handling).**

4.3.1.1 FLOOD CONTROL LANDS

While no borings are located on the river side of the Flood Control Berm, additional measures will be needed to complete for borings located on the north side of the Flood Control Berm, specifically for borings located on Flood Control Lands . These PDI activities will comply with the following substantive technical requirements:

- PDI activities will not be performed in a manner that is detrimental to the flood control works. There are not anticipated to be any reductions in the structural integrity or level of protection provided by the flood control project, during or after PDI activities, resulting from PDI activities.
- Ground within 15 feet of the footprint of the flood control berm will not be disturbed, Supplies, equipment, and materials will not be stored on the berm.
- Access to the Berm or levee are not required so impacts to the ground surface from the drill rig will be minimized. Vehicles will not be driven on the levee.
- While steps will be taken to minimize impacts to the ground surface from drilling activities, damage to the ground surface may occur. After the completion of PDI activities, restoration will be performed to return the site to pre-investigation conditions. Restoration items include:
    - Grouting of soil borings to the ground surface and restoration of the surface and surrounding areas to pre-work conditions.
    - Restoration of grass areas to establish a vigorous sod ground covering including the following components:
        - 4 to 6 inches of good quality topsoil that will be ASTM D 5268 and have the following characteristics: pH of 5.5 to 7 and >2% organic material content. Topsoil may be imported or manufactured topsoil from offsite sources and will be clean of roots, stones, clay lumps, debris, and other characteristics that would preclude plant growth.
        - Grass seed consisting of one of the following: Kentucky Blue Grass @ 1 ½ pounds per 1000 square feet,
        - Creeping Red Fescue @ 1½ pounds per 1000 square feet, or Perennial Rye Grass @ 1 ½ pounds per 1000 square feet.
        - Fertilizer with the following specifications: 5-10-5 @ 15 pounds per 1000 square feet.
        - Mulch consisting of straw or timothy hay @ 100 pounds per 1000 square feet.
    - Restoration of grass areas will include raking to remove stones that may inhibit mowing.
    - Restored grass areas will be maintained for one year after the completion of PDI work to establish turf meeting the following requirements: A healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches. If grass does not germinate properly, the area will be reseeded and mulched again.
    - Restoration of flood control boundary markers
    - Removal of all materials and debris
- At least seven days prior to commencement of the permitted work and immediately upon its completion, written notice will be given to the Regional Flood Control Engineer/Manager.

- At least two weeks prior to PDI work, the following will be submitted to the Regional Flood Control Engineer/Manager:
    - A progress schedule showing proposed dates for starting and completing major activities of the PDI work.
    - An emergency contact roster of key personnel involved with the PDI work.
    - Photographs showing all aspects of the project work area from at least four directions. Photographs will be taken in the same location following completion of the PDI work.
- "As-built" drawings of SC investigation locations will be generated after the completion of work as part of the PDI Report

4.3.2 Soil Analytical Sampling

Soil samples will only be collected from native soil or fill that does not contain ABG. Soil samples that contain ABG or are indicative of ABG impacts will not be collected for analysis and presumed to be contaminated in accordance with Commissioner Policy CP-51 Section G. Soil boring samples will be collected from the following intervals and submitted for laboratory analysis:

- 0 – 2 inches (exclusive of sod/grass layer)
- 2 – 12 inches
- 12 – 24 inches
- 24 – 36 inches (residential properties only)
- 36 – 48 inches (residential properties only)

As shown on **Table 3**, all samples will be analyzed for total metals (including mercury and boron) and SVOCs. Each soil sample collected for laboratory analysis will be field homogenized prior to placement in laboratory-supplied bottles.

No investigation will be conducted beyond the confirmation of a clean two-foot cover in any right-of-way areas. Archive samples will be collected if ABG material/waste glass is encountered, as described in **Appendix E**.

For QA/QC purposes, duplicate samples, equipment blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected and analyzed at a rate of one for every 20 field samples.

Results from the analytical sampling will be compared to the restricted-residential Part 375 *Soil Cleanup Objectives* (NYSDEC 2006) for the Site and residential SCOs for the residential property. Additional details on the analytical program are included in the QAPP (**Appendix C**).

4.4 Decontamination

Sampling equipment will be decontaminated between pushes and soil boring locations by washing equipment using a phosphate-free cleaning solution (e.g., Alconox) along with a distilled water rinse. The rinse process will involve pre-rinsing the tooling in a 5-gallon bucket of clean potable water to remove any large pieces of soil, the tooling will then be scrubbed using a brush and phosphate-free cleaning (e.g., Alconox) solution in distilled water in a second 5- gallon bucket, and finally rinsed in a third 5- gallon bucket of distilled water All "down hole" drilling equipment will be decontaminated inside a decontamination pad, using a high-pressure steam wash. The temporary decontamination pad will be constructed in accordance with standard remedial investigation practices (e.g., poly lined work area). Decontamination fluids will be collected, sampled and disposed accordingly of as investigation-derived waste (IDW).

4.5 Waste Handling

Investigation-derived waste (IDW), including excess soils from sample locations and decontamination rinsates will be placed in Department of Transportation-approved 55-gallon 17-H type drums. The IDW will be classified as hazardous or non-hazardous based on characterization results and will be disposed of in accordance with applicable NYSDEC regulations. Waste management and disposal will be managed by NYSDEC. Appropriate equipment capable of handling and/or moving IDW stored to the designated waste storage area will be used, and IDW drums will be stored in an area lined with polyurethane sheeting for secondary containment. Other used materials (such as PPE, acetate Geoprobe liners, poly sheeting, etc.) will be disposed of as regular trash.

4.5.1 Waste Characterization Sampling

Composite soil samples will be collected for evaluating potential disposal options for IDW. The specific parameters to be analyzed will be determined in consultation with a disposal facility but are likely to include the following parameters (as shown on **Table 3**):

- Reactivity
- Corrosivity
- Ignitability
- TCLP VOCs (these samples will be collected as discrete samples rather than as composites)
- TCLP SVOCs
- TCLP metals
- Total cyanide
- Reactive cyanide
- PCBs
- Pesticides/herbicides

4.5.2 IDW Staging and Disposal

An IDW Storage area with secondary containment of IDW drums will be established on-Site at the start of field work. The IDW Storage Area will consist of 10 mil. minimum plastic sheeting with a wood plank perimeter to prevent potential rainwater runoff. IDW generated during waste characterization sampling will be placed in New York State Department of Transportation (NYSDOT) -approved 55-gallon 17-H type drums and stored at the IDW Storage Area until analytical results have been received. Runoff generated at the IDW Storage Area will be pumped into 55-gallon drums and treated as IDW as needed. IDW will be disposed of in accordance with DER-10 (NYSDEC 2010) as well as applicable local, State, and Federal regulations.

Intrusive work that could result in the generation of large quantities of material requiring offsite transportation is not expected to occur. If transportation of material offsite is necessary, all transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364 (NYSDEC 2006). Haulers will be appropriately licensed and trucks properly placarded. Materials transported by trucks exiting the Site will be secured with either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet materials capable of producing free liquid, truck liners will be used.

SECTION 5 GREEN REMEDIATION

Green remediation concepts and techniques in accordance with DER-31 Green Remediation (NYSDEC 2010) will be considered and implemented to the extent feasible during all stages of the remedial program, including the pre-design investigation. The major green remediation concepts as detailed in DER-31 are:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term when choosing a site remedy.
- Reducing direct and indirect greenhouse gases (GHGs) and other emissions.
- Increasing energy efficiency and minimizing use of non-renewable energy.
- Conserving and efficiently managing resources and materials.
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste; Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals.
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Constructing any future on-site buildings, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed using a NYSDEC-accepted environmental footprint analysis tool.

Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated. Goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a NYSDEC climate screening checklist, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

SECTION 6 REPORT PREPARATION

Data obtained during the field investigations described in this work plan will be validated, evaluated, and summarized. A PDI Report will then be prepared following completion of the investigation and receipt of analytical data. This report will document investigation activities specified in this work plan.

Chemical analytical results for the environmental sample matrices specified in this work plan will be compared with standards and guidance values, as listed below. The document will include Category B data validation, and an evaluation of data for reclassification/delisting, or continuation of next steps of the site characterization.

Sample Matrix	Standards/Guidance	Reference	Acronym
Soils	Part 375 Soil Cleanup Objectives	NYSDEC 2006	SCOs

SECTION 7 SCHEDULE

Following approval of this work plan by NYSDEC, the schedule shown below will be implemented. As described in **Section 4**, work at both the Site and residential properties will take multiple mobilizations. The work scope described herein is assumed to be completed during Spring – Summer of 2025.

Task Name	Start	Finish
Geophysical Investigation and Survey	Week 1	Week 1
Drilling Mobilization	Week 1	Week 1
Drilling/Soil Sampling	Week 2	Week 5
Residential Drilling/Soil Sampling	Week 5	Week 6
Topography Survey	Week 6	Week6
Waste Transportation and Disposal	Week 6	Week 6
Data Management and Reporting Tasks	3 months after completion of field activities (pending receipt of analytical results)	

SECTION 8 REFERENCES

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FIGURES

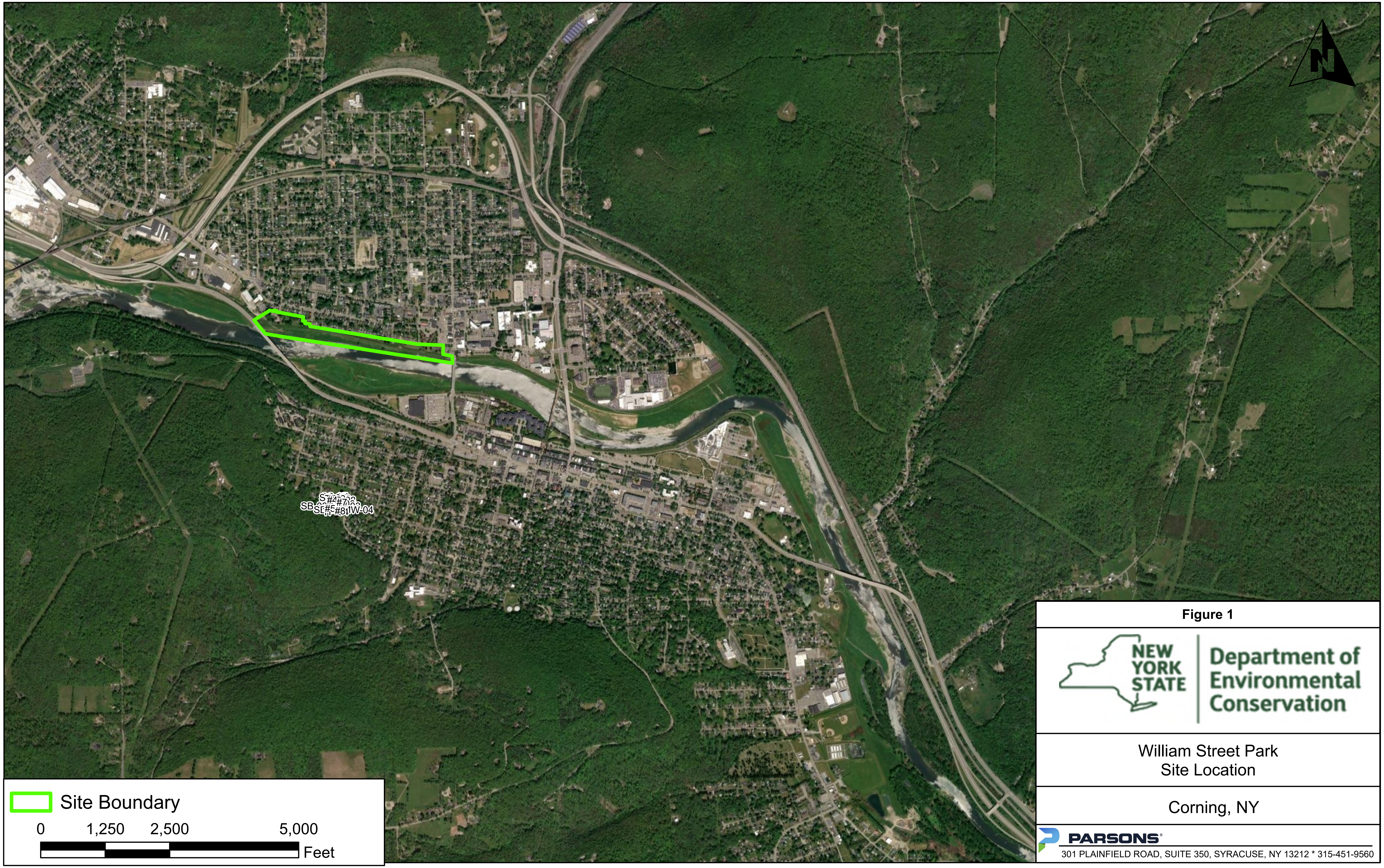


Figure 1

NEW YORK STATE | Department of Environmental Conservation

William Street Park
Site Location

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

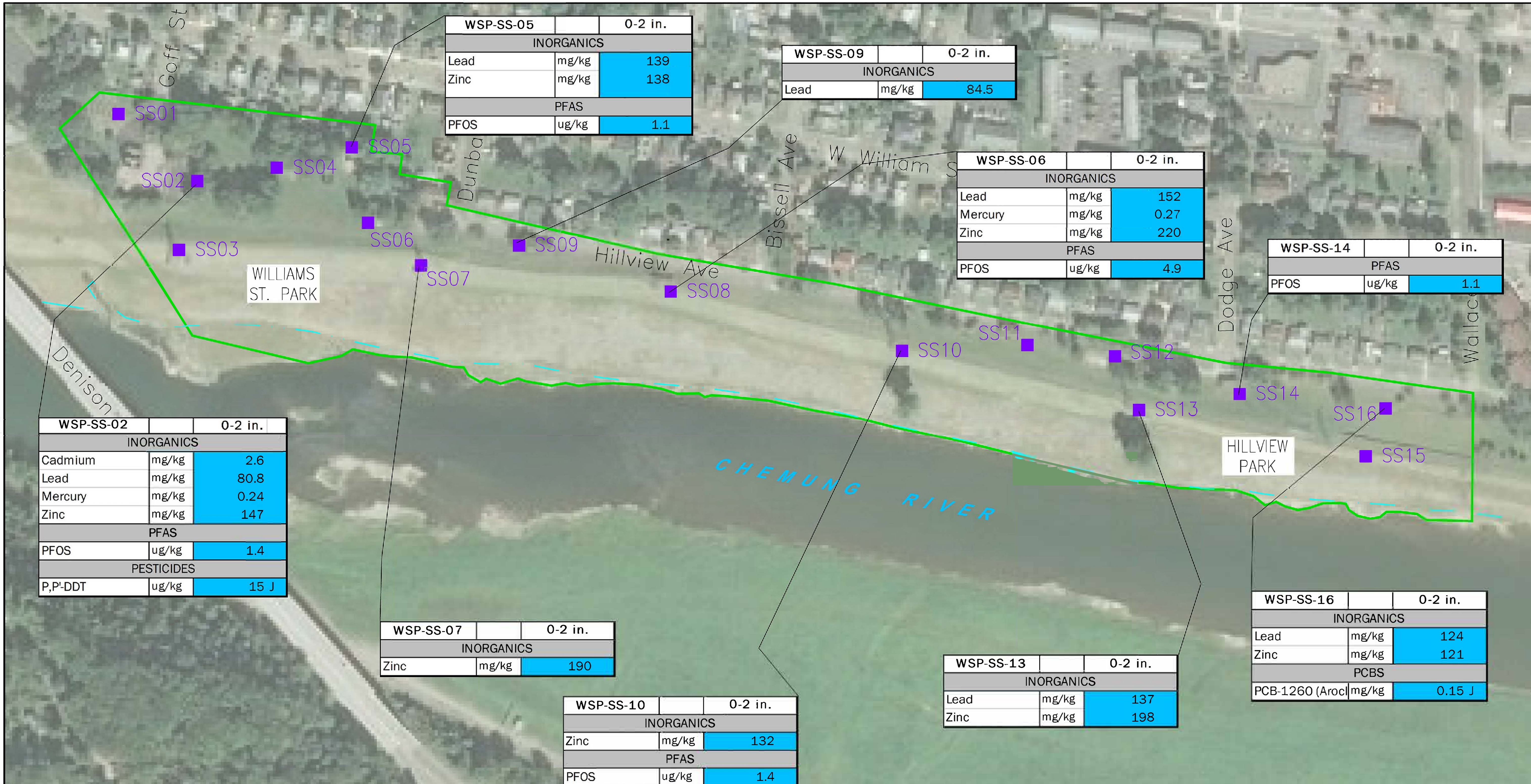
Figure 2

NEW YORK STATE Department of Environmental Conservation

William Street Park
Site Boundaries and Tax Parcels

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560



WSP-SS-05		0-2 in.
INORGANICS		
Lead	mg/kg	139
Zinc	mg/kg	138
PFAS		
PFOS	ug/kg	1.1

WSP-SS-09		0-2 in.
INORGANICS		
Lead	mg/kg	84.5

WSP-SS-06		0-2 in.
INORGANICS		
Lead	mg/kg	152
Mercury	mg/kg	0.27
Zinc	mg/kg	220
PFAS		
PFOS	ug/kg	4.9

WSP-SS-14		0-2 in.
PFAS		
PFOS	ug/kg	1.1

WSP-SS-02		0-2 in.
INORGANICS		
Cadmium	mg/kg	2.6
Lead	mg/kg	80.8
Mercury	mg/kg	0.24
Zinc	mg/kg	147
PFAS		
PFOS	ug/kg	1.4
PESTICIDES		
P,P'-DDT	ug/kg	15 J

WSP-SS-07		0-2 in.
INORGANICS		
Zinc	mg/kg	190

WSP-SS-10		0-2 in.
INORGANICS		
Zinc	mg/kg	132
PFAS		
PFOS	ug/kg	1.4

WSP-SS-13		0-2 in.
INORGANICS		
Lead	mg/kg	137
Zinc	mg/kg	198

WSP-SS-16		0-2 in.
INORGANICS		
Lead	mg/kg	124
Zinc	mg/kg	121
PCBS		
PCB-1260 (Arocl	mg/kg	0.15 J

Notes:

PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

J = estimated at the value given

- Value exceeds the NYCRR Unrestricted Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006.

- Value exceeds the NYCRR Restricted Residential Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006.

PFAS = per and polyfluroalkyl substances

PFOA = perfluorooctanoic acid

PFOS = perfluorooctanesulfonic acid

LEGEND

WILLIAMS STREET PARK BOUNDARY

SURFACE SOIL SAMPLES

MHWM (FIELD DELINEATED MEAN HIGH WATER MARK TAKEN 11/4/20)

200 100 0 200 400

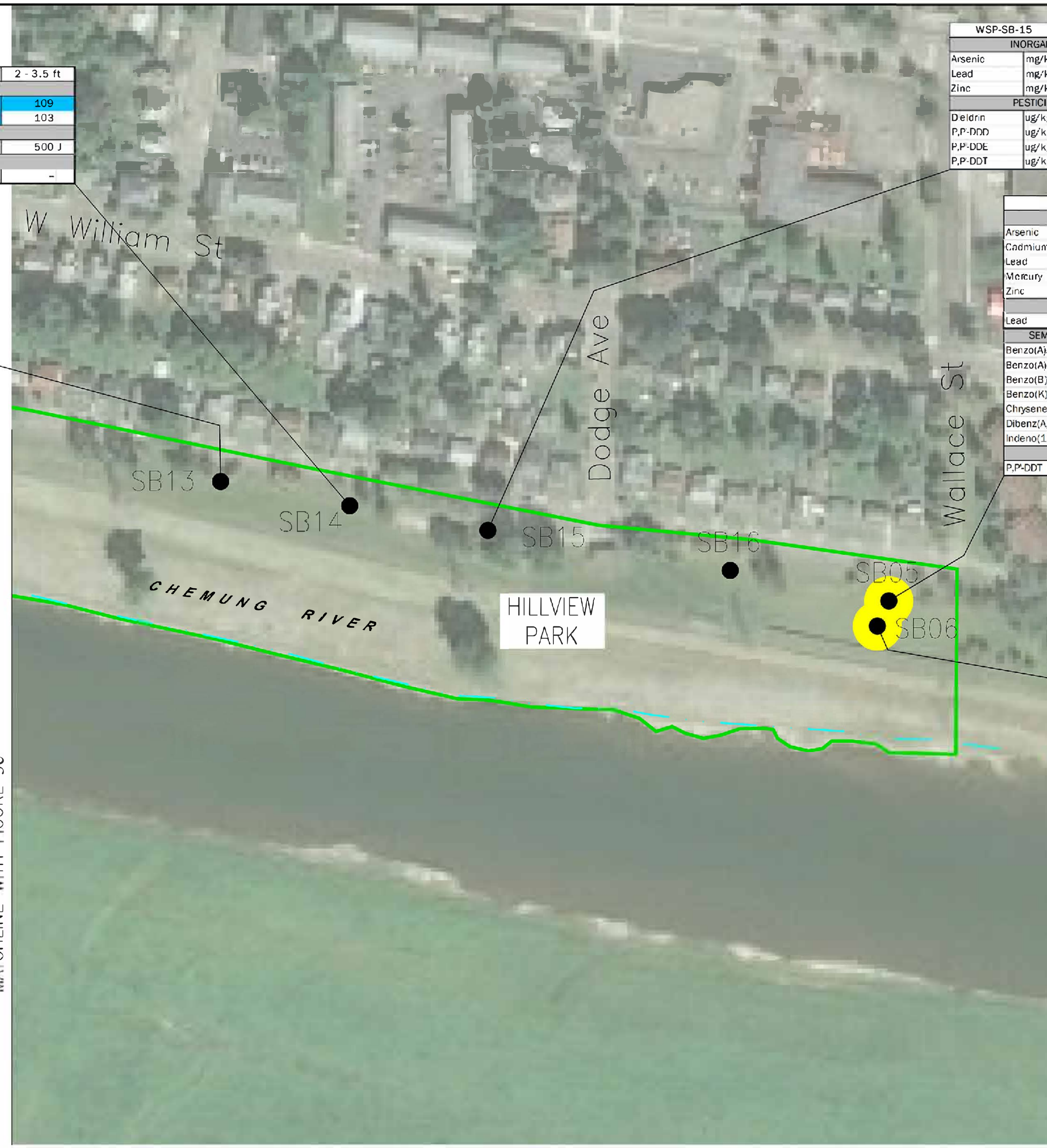
SCALE: 1"=200'

FIGURE 3a

NEW YORK STATE Department of Environmental Conservation

SURFACE SOIL ANALYTICAL RESULTS FOR COMPOUNDS EXCEEDING SOIL CLEANUP OBJECTIVES

PARSONS
301 Plainfield Rd. Ste 350, Syracuse, NY, Ph: 315-451-9560



MATCHLINE WITH FIGURE 3c

WSP-SB-14		1 - 2 ft	2 - 3.5 ft	2 - 3.5 ft
INORGANICS				
Lead	mg/kg	73	73.3 J	109
Zinc	mg/kg	81.7	112 J	103
SEMI-VOLATILE ORGANIC COMPOUNDS				
Indeno(1,2,3-C,D)Pyrene	ug/kg	220 J	460 J	500 J
PESTICIDES				
P,P'-DDT	ug/kg	12 J	-	-

WSP-SB-13		2 - 4 ft
INORGANICS		
Zinc	mg/kg	121 J

WSP-SB-15		0 - 0.5 ft	1 - 2 ft	2 - 3 ft	3 - 5 ft
INORGANICS					
Arsenic	mg/kg	13.7	9.5	18.7	7.9
Lead	mg/kg	54.6	451	134	175
Zinc	mg/kg	79	281	113	139
PESTICIDES					
Dieldrin	ug/kg	-	10 J	-	-
P,P'-DDD	ug/kg	-	15 JN	-	-
P,P'-DDE	ug/kg	-	10 J	-	-
P,P'-DDT	ug/kg	-	20	-	-

WSP-SB-05		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	4 - 6 ft	10 - 11 ft	14 - 16 ft
INORGANICS							
Arsenic	mg/kg	8.4	8.3	12.2	12.9	20.3	6.7
Cadmium	mg/kg	0.55	0.73	1.6	4	15.4	0.23
Lead	mg/kg	104	93.5	345	1350	3070	100
Mercury	mg/kg	0.17	0.21	0.31	0.28	0.22	0.017 J
Zinc	mg/kg	101	109	172	140	252	61.7
TCLP METALS							
Lead	mg/l	0.044	0.033	0.38	5.7	47.8	0.051
SEMI-VOLATILE ORGANIC COMPOUNDS							
Benzo(A)Anthracene	ug/kg	300 J	400 J	1100	530	4400	ND
Benzo(A)Pyrene	ug/kg	380 J	530 J	1300	630	4600	39 J
Benzo(B)Fluoranthene	ug/kg	430 J	790 J	1800	760	5000	34 J
Benzo(K)Fluoranthene	ug/kg	170 J	ND	690	380	2400	ND
Chrysene	ug/kg	310 J	450 J	1000	480	3700	ND
Dibenz(A,H)Anthracene	ug/kg	ND	ND	230	110 J	850 J	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	300 J	440 J	940	460	3000	29 J
PESTICIDES							
P,P'-DDT	ug/kg	-	-	-	-	20 J	-

WSP-SB-06		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	2 - 3.5 ft
INORGANICS					
Lead	mg/kg	109	102	421	490
Mercury	mg/kg	0.099	0.099	0.14	0.33 J
Zinc	mg/kg	97	93.2	277	76.8 J
SEMI-VOLATILE ORGANIC COMPOUNDS					
Benzo(A)Anthracene	ug/kg	ND	ND	550 J	ND
Benzo(A)Pyrene	ug/kg	300 J	180 J	860 J	ND
Benzo(B)Fluoranthene	ug/kg	420 J	250 J	1100	ND
Benzo(K)Fluoranthene	ug/kg	ND	ND	370 J	ND
Chrysene	ug/kg	ND	ND	620 J	ND
Dibenz(A,H)Anthracene	ug/kg	ND	ND	240 J	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	220 J	140 J	740 J	ND

LEGEND

WILLIAMS STREET PARK BOUNDARY

SOIL BORING LOCATIONS

ABG MATERIAL OBSERVED

LEGEND

Notes:
PFAS = per and polyfluroalkyl substances
PFOA = perfluorooctanoic acid
PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 20
"-" = not analyzed; ND = not detected
mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram
J = estimated at the value given; J+ = estimated biased high at the value given; JN =
- Value exceeds the NYCRR Unrestricted Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006
- Value exceeds the NYCRR Restricted Residential Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006
- Value exceeds RCRA regulatory limits

200 100 0 200 400

SCALE: 1"=200'

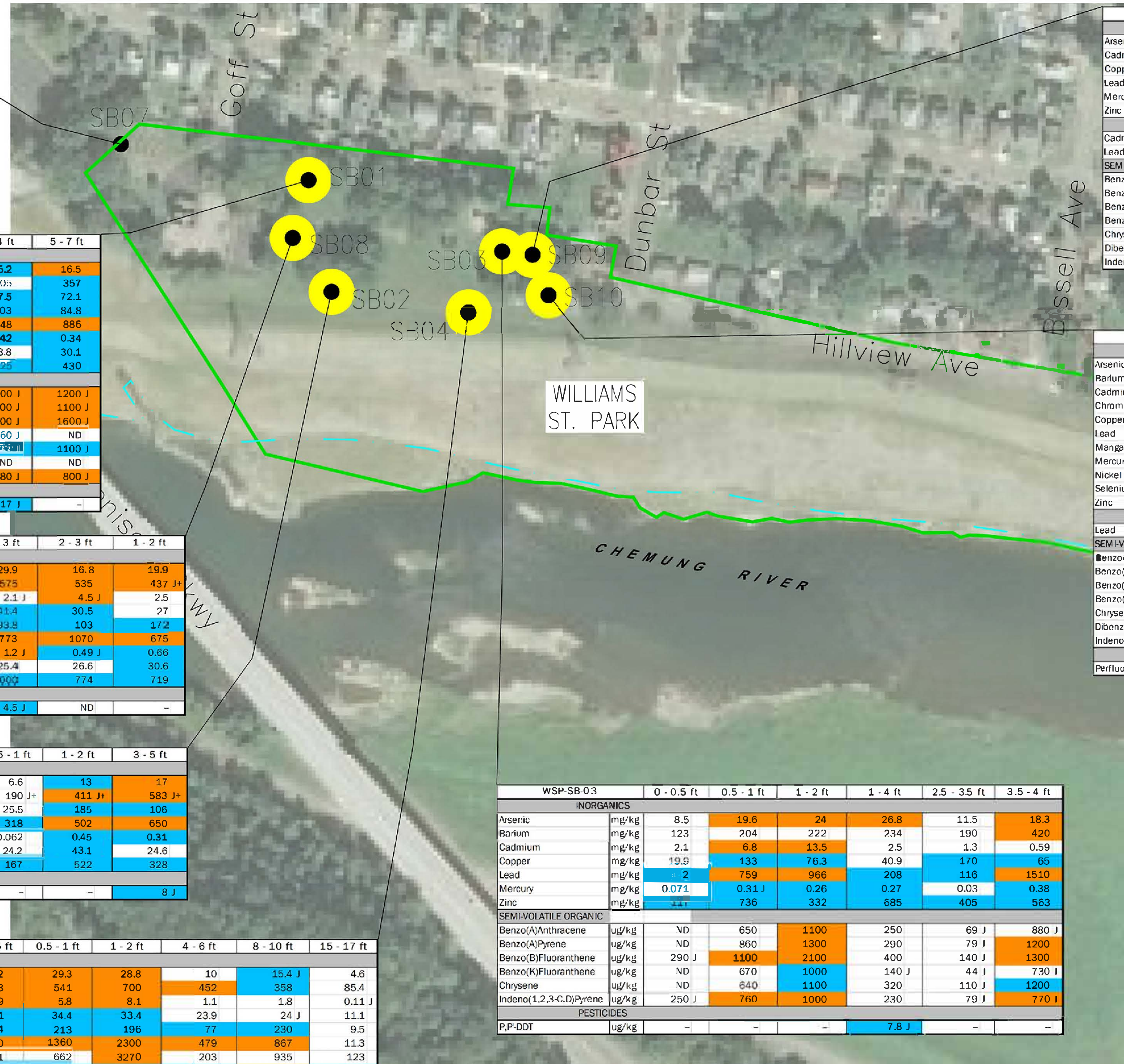
N

FIGURE 3b

NEW YORK STATE | Department of Environmental Conservation

SOIL BORING (EAST) ANALYTICAL RESULTS FOR COMPOUNDS EXCEEDING SOIL CLEANUP OBJECTIVES

PARSONS
301 Plainfield Rd. Ste 350, Syracuse, NY, Ph: 315-451-9560



WSPSB-07		8 - 11 ft
INORGANICS		
Zinc	mg/kg	135 J

WSP-SB-09		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	2 - 4 ft	10 - 12 ft	12 - 14 ft
INORGANICS							
Arsenic	mg/kg	11	10.1	21.6	39.4	13.2	139
Cadmium	mg/kg	1.3	0.64	0.83	1.8	4	197
Copper	mg/kg	36.8	24.5	41.4	82.9	11.5	33.4
Lead	mg/kg	189	133	146	365	13.8	8870
Mercury	mg/kg	0.13	0.18	0.11	0.14	0.04	0.18
Zinc	mg/kg	171	127	199	484	117	919
TCLP METALS							
Cadmium	mg/l	0.0029	0.0026	0.002	0.0032	0.63	5
Lead	mg/l	0.051	0.061	0.01 J	0.073	9.4	131
SEMI-VOLATILE ORGANIC							
Benzo(A)Anthracene	ug/kg	220 J	12000	46 J	370	ND	290 J
Benzo(A)Pyrene	ug/kg	290 J	12000	44 J	410	580 J	350 J
Benzo(B)Fluoranthene	ug/kg	340 J	14000	86 J	520	880 J	590 J
Benzo(K)Fluoranthene	ug/kg	160 J	5500	ND	170 J	ND	ND
Chrysene	ug/kg	250 J	12000	62 J	380	ND	410 J
Dibenz(A,H)Anthracene	ug/kg	ND	2300	ND	96 J	ND	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	230 J	6200	41 J	250	490 J	310 J

WSP-SB-01		1 - 2 ft	2 - 4 ft	5 - 7 ft
INORGANICS				
Arsenic	mg/kg	10.1	15.2	16.5
Barium	mg/kg	154	305	357
Chromium, Total	mg/kg	17.3	57.5	72.1
Copper	mg/kg	35.2	103	84.8
Lead	mg/kg	80.9	548	886
Mercury	mg/kg	0.069	0.42	0.34
Nickel	mg/kg	28	28.8	30.1
Zinc	mg/kg	136	425	430
SEMI-VOLATILE ORGANIC COMPOUNDS				
Benzo(A)Anthracene	ug/kg	75 J	1100 J	1200 J
Benzo(A)Pyrene	ug/kg	98 J	1100 J	1100 J
Benzo(B)Fluoranthene	ug/kg	110 J	1300 J	1600 J
Benzo(K)Fluoranthene	ug/kg	45 J	660 J	ND
Chrysene	ug/kg	72 J	[illegible]	1100 J
Dibenz(A,H)Anthracene	ug/kg	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	46 J	880 J	800 J
PESTICIDES				
P,P'-DDT	ug/kg	–	17 J	–

WSP SB-10		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	1 - 2 ft	6 - 8 ft	10 - 12 ft	12 - 14 ft
INORGANICS								
Arsenic	mg/kg	13.7	19.8	17.8	28.6	21.8	84.8	5.5
Barium	mg/kg	120	209	261	425	634	236	146
Cadmium	mg/kg	9.3	18.2	3.5	5.3	2.6	29.8	5.1
Chromium, Total	mg/kg	14.3	18.7	19.2	27.4	32.9	36.5	18.2
Copper	mg/kg	78.3	79.5	73.3	92.1	179	232	30.9
Lead	mg/kg	432	1020	674	864	777	1810	48.7
Manganese	mg/kg	291	343	254	316	668	878	176
Mercury	mg/kg	0.19	0.66	1	0.75	1.3	1.2	0.06
Nickel	mg/kg	19.7	20.9	21	22.5	49.2	41.9	24.6
Selenium	mg/kg	4.5 J	5.3	3.7 J	4.9	2.5 J	5.3 J	4.9 J
Zinc	mg/kg	410	607	631	766	849	1260	198
TCLP METALS								
Lead	mg/l	0.28	2.3	0.74	0.66	0.41	8.7	0.018 J
SEMI-VOLATILE ORGANIC								
Benzo(A)Anthracene	ug/kg	380 J	2200	620 J	1300 J	400 J	430 J	96 J
Benzo(A)Pyrene	ug/kg	540 J	2000	720 J	1600 J	390 J	700 J	70 J
Benzo(B)Fluoranthene	ug/kg	670 J	3600	890 J	1800 J	480 J	1800 J	59 J
Benzo(K)Fluoranthene	ug/kg	350 J	1800 J	450 J	970 J	ND	350 J	ND
Chrysene	ug/kg	ND	2200	620 J	1300 J	450 J	1500 J	74 J
Dibenz(A,H)Anthracene	ug/kg	ND	490 J	180 J	320 J	ND	450 J	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	350 J	1400 J	470 J	990 J	ND	660 J	ND
PFAS								
Perfluorooctanesulfonic acid (PFOS)	ug/kg	–	–	–	–	–	1.2	–

WSP-SB-08/08A		0 - 0.5 ft	0.5 - 1 ft	2 - 3 ft	2 - 3 ft	1 - 2 ft
INORGANICS						
Arsenic	mg/kg	11.7	14.8	29.9	16.8	19.9
Barium	mg/kg	284	303	575	535	437 J+
Cadmium	mg/kg	1	1.6	2.1 J	4.5 J	2.5
Chromium, Total	mg/kg	24.3	29.6	41.4	30.5	27
Copper	mg/kg	40.7	86.8	93.8	103	172
Lead	mg/kg	623	551	773	1070	675
Mercury	mg/kg	0.16	0.48	1.2 J	0.49 J	0.66
Nickel	mg/kg	26	27.7	25.4	26.6	30.6
Zinc	mg/kg	252	440	1000	774	719
PESTICIDES						
P,P'-DDT	ug/kg	–	–	4.5 J	ND	–

WSP-SB-02		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	3 - 5 ft
INORGANICS					
Arsenic	mg/kg	7.5	6.6	13	17
Barium	mg/kg	156 J+	190 J+	411 J+	583 J+
Copper	mg/kg	17.3	25.5	185	106
Lead	mg/kg	99.4	318	502	650
Mercury	mg/kg	0.1	0.062	0.45	0.31
Nickel	mg/kg	22.4	24.2	43.1	24.6
Zinc	mg/kg	128	167	522	328
PESTICIDES					
P,P'-DDT	ug/kg	–	–	–	8 J

WSP-SB-03		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	1 - 4 ft	2.5 - 3.5 ft	3.5 - 4 ft
INORGANICS							
Arsenic	mg/kg	8.5	19.6	24	26.8	11.5	18.3
Barium	mg/kg	123	204	222	234	190	420
Cadmium	mg/kg	2.1	6.8	13.5	2.5	1.3	0.59
Copper	mg/kg	19.9	133	76.3	40.9	170	65
Lead	mg/kg	2	759	966	208	116	1510
Mercury	mg/kg	0.071	0.31 J	0.26	0.27	0.03	0.38
Zinc	mg/kg	[illegible]	736	332	685	405	563
SEMI-VOLATILE ORGANIC							
Benzo(A)Anthracene	ug/kg	ND	650	1100	250	69 J	880 J
Benzo(A)Pyrene	ug/kg	ND	860	1300	290	79 J	1200
Benzo(B)Fluoranthene	ug/kg	290 J	1100	2100	400	140 J	1300
Benzo(K)Fluoranthene	ug/kg	ND	670	1000	140 J	44 J	730 J
Chrysene	ug/kg	ND	640	1100	320	110 J	1200
Indeno(1,2,3-C,D)Pyrene	ug/kg	250 J	760	1000	230	79 J	770 J
PESTICIDES							
P,P'-DDT	ug/kg	–	–	–	7.8 J	–	–

WSP SB 04		0 - 0.5 ft	0.5 - 1 ft	1 - 2 ft	4 - 6 ft	8 - 10 ft	15 - 17 ft
INORGANICS							
Arsenic	mg/kg	25.2	29.3	28.8	10	15.4 J	4.6
Barium	mg/kg	478	541	700	452	358	85.4
Cadmium	mg/kg	5.9	5.8	8.1	1.1	1.8	0.11 J
Chromium, Total	mg/kg	32.1	34.4	33.4	23.9	24 J	11.1
Copper	mg/kg	184	213	196	77	230	9.5
Lead	mg/kg	1560	1360	2300	479	867	11.3
Manganese	mg/kg	701	662	3270	203	935	123
Mercury	mg/kg	0.48	0.64	0.72	0.26	4.9	0.29
Nickel	mg/kg	38.6	36	39.8	20.4	28.4 J	16.4
Zinc	mg/kg	1250	1250	1840	378	1300	50.8
SEMI-VOLATILE ORGANIC COMPOUNDS							
Benzo(A)Anthracene	ug/kg	520 J	550 J	740	ND	2000	300
Benzo(A)Pyrene	ug/kg	600 J	710 J	780	ND	1700 J	270
Benzo(B)Fluoranthene	ug/kg	750 J	840 J	1000	ND	2100	300
Benzo(K)Fluoranthene	ug/kg	330 J	440 J	370	ND	920 J	140 J
Chrysene	ug/kg	560 J	590 J	750	ND	2000	300
Dibenz(A,H)Anthracene	ug/kg	ND	ND	170 J	ND	400 J	57 J
Indeno(1,2,3-C,D)Pyrene	ug/kg	410 J	460 J	500	ND	980 J	140 J
PESTICIDES							
P,P'-DDT	ug/kg	–	–	10	–	–	–

MATCHLINE WITH FIGURE 3b

LEGEND

WILLIAMS STREET PARK BOUNDARY

SOIL BORING LOCATIONS

ABG MATERIAL OBSERVED

200 100 0 200 400

SCALE: 1"=200'

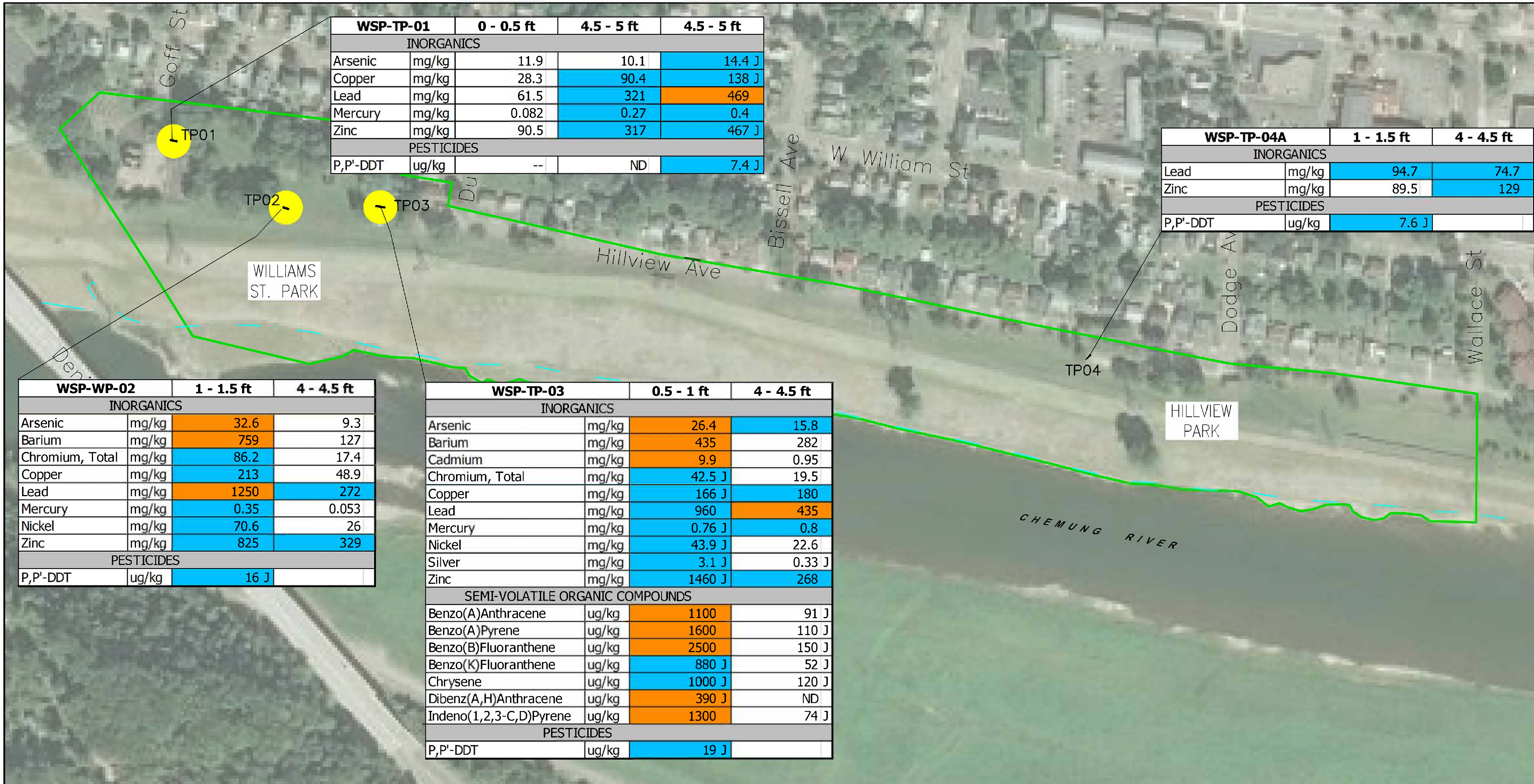
Notes:
PFAS = per and polyfluroalkyl substances
PFOA = perfluorooctanoic acid
PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.
"–" = not analyzed; ND = not detected
mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram
J = estimated at the value given; J+ = estimated biased high at the value given; JN =
- Value exceeds the NYCRR Unrestricted Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006
- Value exceeds the NYCRR Restricted Residential Use Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006
- Value exceeds RCRA regulatory limits

FIGURE 3c

NEW YORK STATE Department of Environmental Conservation

SOIL BORING (WEST) ANALYTICAL RESULTS FOR COMPOUNDS EXCEEDING SOIL CLEANUP OBJECTIVES

PARSONS
301 Plainfield Rd, Ste 350, Syracuse, NY, Ph: 315-451-9560



WSP-TP-01		0 - 0.5 ft	4.5 - 5 ft	4.5 - 5 ft
INORGANICS				
Arsenic	mg/kg	11.9	10.1	14.4 J
Copper	mg/kg	28.3	90.4	138 J
Lead	mg/kg	61.5	321	469
Mercury	mg/kg	0.082	0.27	0.4
Zinc	mg/kg	90.5	317	467 J
PESTICIDES				
P,P'-DDT	ug/kg	--	ND	7.4 J

WSP-TP-04A		1 - 1.5 ft	4 - 4.5 ft
INORGANICS			
Lead	mg/kg	94.7	74.7
Zinc	mg/kg	89.5	129
PESTICIDES			
P,P'-DDT	ug/kg	7.6 J	

WSP-WP-02		1 - 1.5 ft	4 - 4.5 ft
INORGANICS			
Arsenic	mg/kg	32.6	9.3
Barium	mg/kg	759	127
Chromium, Total	mg/kg	86.2	17.4
Copper	mg/kg	213	48.9
Lead	mg/kg	1250	272
Mercury	mg/kg	0.35	0.053
Nickel	mg/kg	70.6	26
Zinc	mg/kg	825	329
PESTICIDES			
P,P'-DDT	ug/kg	16 J	

WSP-TP-03		0.5 - 1 ft	4 - 4.5 ft
INORGANICS			
Arsenic	mg/kg	26.4	15.8
Barium	mg/kg	435	282
Cadmium	mg/kg	9.9	0.95
Chromium, Total	mg/kg	42.5 J	19.5
Copper	mg/kg	166 J	180
Lead	mg/kg	960	435
Mercury	mg/kg	0.76 J	0.8
Nickel	mg/kg	43.9 J	22.6
Silver	mg/kg	3.1 J	0.33 J
Zinc	mg/kg	1460 J	268
SEMI-VOLATILE ORGANIC COMPOUNDS			
Benzo(A)Anthracene	ug/kg	1100	91 J
Benzo(A)Pyrene	ug/kg	1600	110 J
Benzo(B)Fluoranthene	ug/kg	2500	150 J
Benzo(K)Fluoranthene	ug/kg	880 J	52 J
Chrysene	ug/kg	1000 J	120 J
Dibenz(A,H)Anthracene	ug/kg	390 J	ND
Indeno(1,2,3-C,D)Pyrene	ug/kg	1300	74 J
PESTICIDES			
P,P'-DDT	ug/kg	19 J	

Notes:

PFAS = per and polyfluroalkyl substances

PFOA = perfluorooctanoic acid

[4]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

"--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

J = estimated at the value given

- Value exceeds the NYCRR Unrestricted Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

- Value exceeds the NYCRR Restricted Residential Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

LEGEND

WILLIAMS STREET PARK BOUNDARY

TEST PIT LOCATION

ABG MATERIAL OBSERVED

200 100 0 200 400

SCALE: 1"=200'

FIGURE 3d

NEW YORK STATE Department of Environmental Conservation

TEST PIT ANALYTICAL RESULTS FOR COMPOUNDS EXCEEDING SOIL CLEANUP OBJECTIVES

PARSONS

301 Plainfield Rd, Ste 350, Syracuse, NY, Ph: 315-451-9560

Figure 4A

NEW YORK STATE Department of Environmental Conservation

East - William Street Park
Proposed Sample Locations and Labeled Grid

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Figure 4B

NEW YORK STATE Department of Environmental Conservation

West - William Street Park
Proposed Sample Locations and Labeled Grid

Corning, NY

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

TABLES

Table 1-1
William Street Park
2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SB-01	WSP-SB-01	WSP-SB-01	WSP-SB-02	WSP-SB-02	WSP-SB-02	WSP-SB-02	WSP-SB-02
			Start Depth	1	2	5	0	0.5	1	1	3
			End Depth	2	4	7	0.5	1	2	2	5
			Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft
			Sample Type	N	N	N	N	N	N	FD	N
			Matrix	SO	SO	SO	SO	SO	SO	SO	SO
			Sampled	11/5/2020	11/5/2020	11/5/2020	11/13/2020	11/13/2020	11/13/2020	11/13/2020	11/13/2020
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs[1]	Part 375 RESTRICTED RESIDENTIAL SCOs[1]								
Perfluorooctanesulfonic acid (PFOS)[3]	mg/kg	0.00088	0.044		ND U						ND U
Chromium III	mg/kg	30	180		57.5						21.9
Arsenic	mg/kg	13	16	10.1	15.2	16.5	7.5	6.6	13.0	11.7	17.0
Barium	mg/kg	350	400	154	305	357	156 J+	190 J+	411 J+	320 J+	583 J+
Cadmium	mg/kg	2.5	4.3	0.43	2.2	2.0	0.75	0.55	1.4	1.5	0.96
Chromium, Total[2]	mg/kg	30	180	17.3	57.5	72.1	16.6	15.2	22.2	20.9	21.9
Copper	mg/kg	50	270	35.2	103	84.8	17.3	25.5	185	128	106
Lead	mg/kg	63	400	80.9	548	886	99.4	318	502	404	650
Manganese	mg/kg	1600	2000	455	420	492	549	338	321	522	387
Nickel	mg/kg	30	310	28.0	28.8	30.1	22.4	24.2	43.1	40.5	24.6
Selenium	mg/kg	3.9	180	ND U	1.0 J	2.2 J	1.4 J	0.68 J	1.3 J	1.1 J	1.4 J
Zinc	mg/kg	109	10000	136	425	430	128	167	522	507	328
Chromium, Hexavalent	mg/kg	1	110		ND U						ND U
Mercury	mg/kg	0.18	0.81	0.069	0.42	0.34	0.10	0.062	0.45	0.37	0.31
Dieldrin	mg/kg	0.005	0.2		ND U						ND U
P,P'-DDD	mg/kg	0.0033	13		ND U						ND U
P,P'-DDE	mg/kg	0.0033	8.9		ND U						ND U
P,P'-DDT	mg/kg	0.0033	7.9		0.017 J						0.0080 J
Benzo(A)Anthracene	mg/kg	1	1	0.075 J	1.1 J	1.2 J	ND U	ND U	ND U	ND U	0.097 J
Benzo(A)Pyrene	mg/kg	1	1	0.098 J	1.1 J	1.1 J	ND U	ND U	ND U	0.27 J	0.16 J
Benzo(B)Fluoranthene	mg/kg	1	1	0.11 J	1.3 J	1.6 J	ND U	ND U	0.31 J	0.29 J	0.21 J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	0.045 J	0.66 J	ND U	ND U	ND U	ND U	ND U	ND U
Chrysene	mg/kg	1	3.9	0.072 J	1.2 J	1.1 J	ND U	ND U	ND U	ND U	ND U
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	0.046 J	0.88 J	0.8 J	ND U	ND U	ND U	ND U	0.11 J

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

[3]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given;
J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs
- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-1
William Street Park
2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SB-03		WSP-SB-03		WSP-SB-03		WSP-SB-03		WSP-SB-03		WSP-SB-03		WSP-SB-04		WSP-SB-04	
			Start Depth	0		0.5		1		1		2.5		3.5		0		0.5	
			End Depth	0.5		1		2		4		3.5		4		0.5		1	
			Depth Unit	ft		ft		ft		ft		ft		ft		ft		ft	
			Sample Type	N		N		N		N		N		N		N		N	
			Matrix	SO		SO		SO		SO		SO		SO		SO		SO	
			Sampled	11/3/2020		11/3/2020		11/11/2020		11/3/2020		11/11/2020		11/11/2020		11/3/2020		11/3/2020	
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)																
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044							ND	U								
Chromium III	mg/kg	30	180							17.8									
Arsenic	mg/kg	13	16	8.5		19.6		24.0		26.8		11.5		18.3		25.2		29.3	
Barium	mg/kg	350	400	123		204		222		234		190		420		478		541	
Cadmium	mg/kg	2.5	4.3	2.1		6.8		13.5		2.5		1.3		0.59		5.9		5.8	
Chromium, Total(2)	mg/kg	30	180	12.9		16.0		14.7		17.8		13.5		23.8		32.1		34.4	
Copper	mg/kg	50	270	19.9		133		76.3		40.9		170		65.0		184		213	
Lead	mg/kg	63	400	142		759		966		208		116		1510		1560		1360	
Manganese	mg/kg	1600	2000	416		337		280		396		226		359		701		662	
Nickel	mg/kg	30	310	19.3		20.5		17.5		23.0		18.4		21.7		38.6		36.0	
Selenium	mg/kg	3.9	180	ND	U	2.7	J	1.1	J	1.8	J	1.0	J	0.55	J	2.5	J	2.4	J
Zinc	mg/kg	109	10000	117		736		332		685		405		563		1250		1250	
Chromium, Hexavalent	mg/kg	1	110							ND	U								
Mercury	mg/kg	0.18	0.81	0.071		0.31	J	0.26		0.27		0.030		0.38		0.48		0.64	
Dieldrin	mg/kg	0.005	0.2							ND	U								
P,P'-DDD	mg/kg	0.0033	13							ND	U								
P,P'-DDE	mg/kg	0.0033	8.9							ND	U								
P,P'-DDT	mg/kg	0.0033	7.9							0.0078	J								
Benzo(A)Anthracene	mg/kg	1	1	ND	U	0.65		1.1		0.25		0.069	J	0.88	J	0.52	J	0.55	J
Benzo(A)Pyrene	mg/kg	1	1	ND	U	0.86		1.3		0.29		0.079	J	1.2		0.6	J	0.71	J
Benzo(B)Fluoranthene	mg/kg	1	1	0.29	J	1.1		2.1		0.4		0.14	J	1.3		0.75	J	0.84	J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	ND	U	0.67		1		0.14	J	0.044	J	0.73	J	0.33	J	0.44	J
Chrysene	mg/kg	1	3.9	ND	U	0.64		1.1		0.32		0.11	J	1.2		0.56	J	0.59	J
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND	U	0.24		0.31	J	0.095	J	0.042	J	0.27	J	ND	U	ND	U
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	0.25	J	0.76		1		0.23		0.079	J	0.77	J	0.41	J	0.46	J

Notes:

1 Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

2 Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

3 PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

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- Value exceeds the NYCRR Unrestricted Use SCOs

- Value exceeds the NYCRR Restricted Residential Use SCOs

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2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)																
Location ID				WSP-SB-04		WSP-SB-04		WSP-SB-04		WSP-SB-04		WSP-SB-05		WSP-SB-05		WSP-SB-05		WSP-SB-05	
Start Depth				1		4		8		15		0		0.5		1		4	
End Depth				2		6		10		17		0.5		1		2		6	
Depth Unit				ft		ft		ft		ft		ft		ft		ft		ft	
Sample Type				N		N		N		N		N		N		N		N	
Matrix				SO		SO		SO		SO		SO		SO		SO		SO	
Sampled				11/3/2020		11/3/2020		11/3/2020		11/3/2020		11/6/2020		11/6/2020		11/6/2020		11/6/2020	
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044	ND	UJ														
Chromium III	mg/kg	30	180	33.4															
Arsenic	mg/kg	13	16	28.8		10.0		15.4	J	4.6		8.4		8.3		12.2		12.9	
Barium	mg/kg	350	400	700		452		358		85.4		125		121		287		117	
Cadmium	mg/kg	2.5	4.3	8.1		1.1		1.8		0.11	J	0.55		0.73		1.6		4.0	
Chromium, Total(2)	mg/kg	30	180	33.4		23.9		24.0	J	11.1		14.7		15.5		16.9		12.9	
Copper	mg/kg	50	270	196		77.0		230		9.5		25.2		24.9		35.9		23.2	
Lead	mg/kg	63	400	2300		479		867		11.3		104		93.5		345		1350	
Manganese	mg/kg	1600	2000	3270		203		935		123		526		444		426		327	
Nickel	mg/kg	30	310	39.8		20.4		28.4	J	16.4		21.3		22.7		22.0		16.5	
Selenium	mg/kg	3.9	180	2.0	J	ND	U	2.1	J	ND	U	0.68	J	0.54	J	ND	U	0.67	J
Zinc	mg/kg	109	10000	1840		378		1300		50.8		101		109		172		140	
Chromium, Hexavalent	mg/kg	1	110	ND	U														
Mercury	mg/kg	0.18	0.81	0.72		0.26		4.9		0.29		0.17		0.21		0.31		0.28	
Dieldrin	mg/kg	0.005	0.2	ND	U														
P,P'-DDD	mg/kg	0.0033	13	ND	U														
P,P'-DDE	mg/kg	0.0033	8.9	ND	U														
P,P'-DDT	mg/kg	0.0033	7.9	0.01															
Benzo(A)Anthracene	mg/kg	1	1	0.74		ND	U	2		0.3		0.3	J	0.4	J	1.1		0.53	
Benzo(A)Pyrene	mg/kg	1	1	0.78		ND	U	1.7	J	0.27		0.38	J	0.53	J	1.3		0.63	
Benzo(B)Fluoranthene	mg/kg	1	1	1		ND	U	2.1		0.3		0.43	J	0.79	J	1.8		0.76	
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	0.37		ND	U	0.92	J	0.14	J	0.17	J	ND	U	0.69		0.38	
Chrysene	mg/kg	1	3.9	0.75		ND	U	2		0.3		0.31	J	0.45	J	1		0.48	
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	0.17	J	ND	U	0.4	J	0.057	J	ND	U	ND	U	0.23		0.11	J
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	0.5		ND	U	0.98	J	0.14	J	0.3	J	0.44	J	0.94		0.46	

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

[3]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

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- Value exceeds the NYCRR Unrestricted Use SCOs

- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-1
William Street Park
2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SB-05	WSP-SB-05	WSP-SB-06	WSP-SB-06	WSP-SB-06	WSP-SB-06	WSP-SB-07	WSP-SB-08
			Start Depth	10	14	0	0.5	1	2	8	0
			End Depth	11	16	0.5	1	2	3.5	11	0.5
			Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft
			Sample Type	N	N	N	N	N	N	N	N
			Matrix	SO	SO	SO	SO	SO	SO	SO	SO
			Sampled	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/4/2020	11/5/2020
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)								
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044	ND U					ND U		
Chromium III	mg/kg	30	180	11.9					13.4		
Arsenic	mg/kg	13	16	20.3	6.7	9.1	7.6	9.4	5.9	9.5	11.7
Barium	mg/kg	350	400	217	46.9	115	113	295	106 J	163 J	284
Cadmium	mg/kg	2.5	4.3	15.4	0.23	0.44	0.43	0.56	0.15 J	0.11 J	1.0
Chromium, Total(2)	mg/kg	30	180	11.9	9.7	14.9	14.3	16.8	13.4 J	20.8 J	24.3
Copper	mg/kg	50	270	34.2	20.0	23.4	23.3	47.7	23.0 J	29.5	40.7
Lead	mg/kg	63	400	3070	100	109	102	421	490	43.9	623
Manganese	mg/kg	1600	2000	292	645	505	459	414	503 J	225 J	604
Nickel	mg/kg	30	310	13.3	15.2	20.5	20.7	17.8	17.2	28.5	26.0
Selenium	mg/kg	3.9	180	1.7 J	ND U	0.70 J	0.54 J	ND U	ND U	2.8 J	0.65 J
Zinc	mg/kg	109	10000	252	61.7	97.0	93.2	277	76.8 J	135 J	252
Chromium, Hexavalent	mg/kg	1	110	ND U					ND U		
Mercury	mg/kg	0.18	0.81	0.22	0.017 J	0.099	0.099	0.14	0.33 J	0.068	0.16
Dieldrin	mg/kg	0.005	0.2	ND U					ND U		
P,P'-DDD	mg/kg	0.0033	13	ND U					ND U		
P,P'-DDE	mg/kg	0.0033	8.9	ND U					ND U		
P,P'-DDT	mg/kg	0.0033	7.9	0.02 J					0.00055 J		
Benzo(A)Anthracene	mg/kg	1	1	4.4	ND U	ND U	ND U	0.55 J	ND U	0.034 J	0.29 J
Benzo(A)Pyrene	mg/kg	1	1	4.6	0.039 J	0.3 J	0.18 J	0.86 J	ND U	0.062 J	0.28 J
Benzo(B)Fluoranthene	mg/kg	1	1	5	0.034 J	0.42 J	0.25 J	1.1	ND U	0.062 J	0.3 J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	2.4	ND U	ND U	ND U	0.37 J	ND U	ND U	0.19 J
Chrysene	mg/kg	1	3.9	3.7	ND U	ND U	ND U	0.62 J	ND U	ND U	0.29 J
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	0.85 J	ND U	ND U	ND U	0.24 J	ND U	ND U	ND U
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	3	0.029 J	0.22 J	0.14 J	0.74 J	ND U	0.039 J	0.22 J

Notes:

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[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

[3]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

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- Value exceeds the NYCRR Unrestricted Use SCOs

- Value exceeds the NYCRR Restricted Residential Use SCOs

Table 1-1
William Street Park
2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

Location ID				WSP-SB-08	WSP-SB-08	WSP-SB-08	WSP-SB-08	WSP-SB-09	WSP-SB-09	WSP-SB-09	WSP-SB-09
Start Depth				0.5	1	2	2	0	0.5	1	2
End Depth				1	2	3	3	0.5	1	2	4
Depth Unit				ft	ft	ft	ft	ft	ft	ft	ft
Sample Type				N	N	N	FD	N	N	N	N
Matrix				SO	SO	SO	SO	SO	SO	SO	SO
Sampled				11/5/2020	11/13/2020	11/5/2020	11/5/2020	11/3/2020	11/3/2020	11/3/2020	11/3/2020
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)								
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044			ND U	ND U			ND U	
Chromium III	mg/kg	30	180			41.4	30.5			16.8	
Arsenic	mg/kg	13	16	14.8	19.9	29.9	16.8	11.0	10.1	21.6	39.4
Barium	mg/kg	350	400	303	437 J+	575	535	168	128	284	202
Cadmium	mg/kg	2.5	4.3	1.6	2.5	2.1 J	4.5 J	1.3	0.64	0.83	1.8
Chromium, Total(2)	mg/kg	30	180	29.6	27.0	41.4	30.5	15.9	13.0	16.8	20.7
Copper	mg/kg	50	270	86.8	172	93.8	103	36.8	24.5	41.4	82.9
Lead	mg/kg	63	400	551	675	773	1070	189	133	146	365
Manganese	mg/kg	1600	2000	442	561	620	528	409	354	339	323
Nickel	mg/kg	30	310	27.7	30.6	25.4	26.6	21.7	17.6	23.1	29.1
Selenium	mg/kg	3.9	180	0.97 J	2.1 J	2.1 J	0.87 J	0.47 J	ND U	1.5 J	1.0 J
Zinc	mg/kg	109	10000	440	719	1000	774	171	127	199	484
Chromium, Hexavalent	mg/kg	1	110			ND U	ND U			ND U	
Mercury	mg/kg	0.18	0.81	0.48	0.66	1.2 J	0.49 J	0.13	0.18	0.11	0.14
Dieldrin	mg/kg	0.005	0.2			ND U	ND U			ND U	
P,P'-DDD	mg/kg	0.0033	13			ND U	ND U			ND U	
P,P'-DDE	mg/kg	0.0033	8.9			ND U	ND U			ND U	
P,P'-DDT	mg/kg	0.0033	7.9			0.0045 J	ND U			ND U	
Benzo(A)Anthracene	mg/kg	1	1	0.39 J	0.35 J	0.21	0.21	0.22 J	12	0.046 J	0.37
Benzo(A)Pyrene	mg/kg	1	1	0.43 J	0.51 J	0.27	0.26	0.29 J	12	0.044 J	0.41
Benzo(B)Fluoranthene	mg/kg	1	1	0.63 J	0.72 J	0.38	0.33	0.34 J	14	0.086 J	0.52
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	ND U	0.25 J	0.14 J	0.12 J	0.16 J	5.5	ND U	0.17 J
Chrysene	mg/kg	1	3.9	0.39 J	0.43 J	0.29	0.24	0.25 J	12	0.062 J	0.38
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND U	ND U	0.08 J	0.074 J	ND U	2.3	ND U	0.096 J
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	0.35 J	0.34 J	0.24	0.21	0.23 J	6.2	0.041 J	0.25

Notes:

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2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SB-09	WSP-SB-09	WSP-SB-10	WSP-SB-10	WSP-SB-10	WSP-SB-10	WSP-SB-10	WSP-SB-10
			Start Depth	10	12	0	0.5	1	1	6	10
			End Depth	12	14	0.5	1	2	2	8	12
			Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft
			Sample Type	N	N	N	N	N	FD	N	N
			Matrix	SO	SO	SO	SO	SO	SO	SO	SO
			Sampled	11/3/2020	11/3/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)								
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044								0.0012
Chromium III	mg/kg	30	180								36.5
Arsenic	mg/kg	13	16	13.2	139	13.7	19.8	17.8	28.6	21.8	84.8
Barium	mg/kg	350	400	129	276	120	209	261	425	634	236
Cadmium	mg/kg	2.5	4.3	4.0	197	9.3	18.2	3.5	5.3	2.6	29.8
Chromium, Total(2)	mg/kg	30	180	15.5	14.2	14.3	18.7	19.2	27.4	32.9	36.5
Copper	mg/kg	50	270	11.5	33.4	78.3	79.5	73.3	92.1	179	232
Lead	mg/kg	63	400	13.8	8870	432	1020	674	864	777	1810
Manganese	mg/kg	1600	2000	208	323	291	343	254	316	668	878
Nickel	mg/kg	30	310	22.2	13.0	19.7	20.9	21.0	22.5	49.2	41.9
Selenium	mg/kg	3.9	180	ND U	3.8 J	4.5 J	5.3	3.7 J	4.9	2.5 J	5.3 J
Zinc	mg/kg	109	10000	117	919	410	607	631	766	849	1260
Chromium, Hexavalent	mg/kg	1	110								ND U
Mercury	mg/kg	0.18	0.81	0.040	0.18	0.19	0.66	1.0	0.75	1.3	1.2
Dieldrin	mg/kg	0.005	0.2								ND U
P,P'-DDD	mg/kg	0.0033	13								ND U
P,P'-DDE	mg/kg	0.0033	8.9								ND U
P,P'-DDT	mg/kg	0.0033	7.9								ND U
Benzo(A)Anthracene	mg/kg	1	1	ND U	0.29 J	0.38 J	2.2	0.62 J	1.3 J	0.4 J	0.43 J
Benzo(A)Pyrene	mg/kg	1	1	0.58 J	0.35 J	0.54 J	2	0.72 J	1.6 J	0.39 J	0.7 J
Benzo(B)Fluoranthene	mg/kg	1	1	0.88 J	0.59 J	0.67 J	3.6	0.89 J	1.8 J	0.48 J	1.8 J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	ND U	ND U	0.35 J	1.8 J	0.45 J	0.97 J	ND U	0.35 J
Chrysene	mg/kg	1	3.9	ND U	0.41 J	ND U	2.2	0.62 J	1.3 J	0.45 J	1.5 J
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND U	ND U	ND U	0.49 J	0.18 J	0.32 J	ND U	0.45 J
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	0.49 J	0.31 J	0.35 J	1.4 J	0.47 J	0.99 J	ND U	0.66 J

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

[3]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs

- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-1
William Street Park
2020 Site Characterization Report
Validated Subsurface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SB-10	WSP-SB-13	WSP-SB-14	WSP-SB-14	WSP-SB-14	WSP-SB-15	WSP-SB-15	WSP-SB-15	WSP-SB-15
			Start Depth	12	2	1	2	2	0	1	2	3
			End Depth	14	4	2	3.5	3.5	0.5	2	3	5
			Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft
			Sample Type	N	N	N	N	FD	N	N	N	N
			Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO
			Sampled	11/4/2020	11/13/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)									
Perfluorooctanesulfonic acid (PFOS)(3)	mg/kg	0.00088	0.044			0.00032 J				0.00023 J		
Chromium III	mg/kg	30	180			13.7				8.3		
Arsenic	mg/kg	13	16	5.5	5.4	7.0	6.6	6.9	13.7	9.5	18.7	7.9
Barium	mg/kg	350	400	146	168 J	86.1	146 J	117	83.1	188	122	147
Cadmium	mg/kg	2.5	4.3	5.1	0.17 J	ND U	0.043 J	0.23	0.16 J	0.62	0.36	ND U
Chromium, Total(2)	mg/kg	30	180	18.2	15.8 J	13.7	16.5 J	15.2	17.9	14.2	12.7	20.0
Copper	mg/kg	50	270	30.9	13.7 J	24.8	16.0 J	22.9	23.0	24.5	17.5	47.5
Lead	mg/kg	63	400	48.7	35.8	73.0	73.3 J	109	54.6	451	134	175
Manganese	mg/kg	1600	2000	176	603 J	654	374 J	491	380	719	408	549
Nickel	mg/kg	30	310	24.6	21.3	23.7	23.4 J	21.1	15.9	21.0	16.1	23.9
Selenium	mg/kg	3.9	180	4.9 J	0.93 J	1.9 J	1.9 J	1.8 J	1.5 J	2.2 J	1.7 J	3.4 J
Zinc	mg/kg	109	10000	198	121 J	81.7	112 J	103	79.0	281	113	139
Chromium, Hexavalent	mg/kg	1	110			ND U				5.9		
Mercury	mg/kg	0.18	0.81	0.060	0.054	0.045	0.15 J	0.060	0.068	0.15	0.059	0.088
Dieldrin	mg/kg	0.005	0.2			ND U				0.01 J		
P,P'-DDD	mg/kg	0.0033	13			ND U				0.015 JN		
P,P'-DDE	mg/kg	0.0033	8.9			ND U				0.01 J		
P,P'-DDT	mg/kg	0.0033	7.9			0.012 J				0.02		
Benzo(A)Anthracene	mg/kg	1	1	0.096 J	ND U	ND U	0.37 J	0.35 J	ND U	0.21	0.084 J	0.079 J
Benzo(A)Pyrene	mg/kg	1	1	0.07 J	ND U	0.34 J	0.61 J	0.64 J	ND U	0.29	0.12 J	0.093 J
Benzo(B)Fluoranthene	mg/kg	1	1	0.059 J	ND U	0.32 J	0.7 J	0.75 J	ND U	0.31	0.13 J	0.1 J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	ND U	ND U	ND U	0.38 J	0.34 J	ND U	0.16 J	0.065 J	0.058 J
Chrysene	mg/kg	1	3.9	0.074 J	ND U	ND U	0.3 J	0.31 J	ND U	0.25	0.1 J	0.091 J
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND U	ND U	ND U	ND U	0.17 J	ND U	0.057 J	ND U	ND U
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	ND U	ND U	0.22 J	0.46 J	0.5 J	ND U	0.22	0.085 J	0.063 J

Notes:

1 Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

2 Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

3 PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs
- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-2
William Street Park
2020 Site Characterization Report
Validated Surface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SS-02		WSP-SS-02		WSP-SS-05		WSP-SS-06		WSP-SS-07	
			Start Depth	0		0		0		0		0	
			End Depth	2		2		2		2		2	
			Depth Unit	in		in		in		in		in	
			Sample Type	N		FD		N		N		N	
			Matrix	SO		SO		SO		SO		SO	
			Sampled	11/19/2020		11/19/2020		11/19/2020		11/19/2020		11/19/2020	
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)										
Perfluorooctanesulfonic acid (PFOS)(2)	mg/kg	0.00088	0.044	0.0014		0.0013		0.0011		0.0049		0.00057	J
Cadmium	mg/kg	2.5	4.3	2.6		2.5		0.60		0.90		0.62	
Lead	mg/kg	63	400	79.7		80.8		139		152		51.2	
Zinc	mg/kg	109	10000	147		146		138		220		190	
Mercury	mg/kg	0.18	0.81	0.24		0.23		0.13		0.27		0.026	
P,P'-DDT	mg/kg	0.0033	7.9	0.015	J	ND	U	ND	U	ND	U	ND	U
PCB-1260 (Aroclor 1260)	mg/kg	0.1	1	ND	U	ND	U	ND	U	ND	U	ND	U
Polychlorinated Biphenyl (PCBs)	mg/kg	0.1	1	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 2021.

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs

- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-2
William Street Park
2020 Site Characterization Report
Validated Surface Soil Data - SCO Exceedance Compounds

			Location ID	WSP-SS-09		WSP-SS-10		WSP-SS-13		WSP-SS-14		WSP-SS-16	
			Start Depth	0		0		0		0		0	
			End Depth	2		2		2		2		2	
			Depth Unit	in		in		in		in		in	
			Sample Type	N		N		N		N		N	
			Matrix	SO		SO		SO		SO		SO	
			Sampled	11/20/2020		11/20/2020		11/20/2020		11/20/2020		11/20/2020	
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)										
Perfluorooctanesulfonic acid (PFOS)(2)	mg/kg	0.00088	0.044	0.00069		0.0014		0.00064		0.0011		0.00043	J
Cadmium	mg/kg	2.5	4.3	0.47		0.42		0.44		0.27		0.62	
Lead	mg/kg	63	400	84.5		49.1		137		39.8		124	
Zinc	mg/kg	109	10000	104		132		198		72.5		121	
Mercury	mg/kg	0.18	0.81	0.073		0.034		0.095		0.047		0.17	
P,P'-DDT	mg/kg	0.0033	7.9	ND	U	ND	U	0.0026		ND	U	ND	U
PCB-1260 (Aroclor 1260)	mg/kg	0.1	1	ND	U	ND	U	ND	U	ND	U	0.15	J
Polychlorinated Biphenyl (PCBs)	mg/kg	0.1	1	ND	U	ND	U	ND	U	ND	U	0.15	J

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]PFAS Guidance Values obtained from NYSDEC Sampling, Analysis, and Assessment of PFAS, January 202

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs
- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-3
William Street Park
2020 Site Characterization Report
Validated Test Pit Soil Data - SCO Exceedances

			Location ID	WSP-TP-01		WSP-TP-01		WSP-TP-02		WSP-TP-02	
			Start Depth	4.5		4.5		1		4	
			End Depth	5		5		1.5		4.5	
			Depth Unit	ft		ft		ft		ft	
			Sample Type	N		FD		N		N	
			Matrix	SO		SO		SO		SO	
			Sampled	11/5/2020		11/5/2020		11/5/2020		11/5/2020	
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs(1)	Part 375 RESTRICTED RESIDENTIAL SCOs(1)								
Chromium III	mg/kg	30	180	20.0		29.9		86.2			
Arsenic	mg/kg	13	16	10.1		14.4	J	32.6		9.3	
Barium	mg/kg	350	400	217		346	J	759		127	
Cadmium	mg/kg	2.5	4.3	0.55		0.84		1.7		1.5	
Chromium, Total(2)	mg/kg	30	180	20.0		29.9	J	86.2		17.4	
Copper	mg/kg	50	270	90.4		138	J	213		48.9	
Lead	mg/kg	63	400	321		469	J	1250		272	
Nickel	mg/kg	30	310	18.9		28.9		70.6		26.0	
Silver	mg/kg	2	180	0.50	J	0.54	J	0.90		0.51	J
Zinc	mg/kg	109	10000	317		467	J	825		329	
Mercury	mg/kg	0.18	0.81	0.27		0.40		0.35		0.053	
P,P'-DDT	mg/kg	0.0033	7.9	ND	U	0.0074	J	0.016	J		
Benzo(A)Anthracene	mg/kg	1	1	ND	U	ND	U	0.58	J	0.11	J
Benzo(A)Pyrene	mg/kg	1	1	0.15	J	ND	U	0.79	J	0.12	J
Benzo(B)Fluoranthene	mg/kg	1	1	0.17	J	ND	U	0.93	J	0.16	J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	ND	U	ND	U	0.37	J	0.071	J
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	ND	U	ND	U	ND	U	0.044	J
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	ND	U	ND	U	0.44	J	0.081	J

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected
mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs
- Value exceeds the NYCRR Restricted Residential Use SCOs

Table 1-3
William Street Park
2020 Site Characterization Report
Validated Test Pit Soil Data - SCO Exceedances

			Location ID	WSP-TP-03		WSP-TP-03		WSP-TP-04A		WSP-TP-04A	
			Start Depth	0.5		4		1		4	
			End Depth	1		4.5		1.5		4.5	
			Depth Unit	ft		ft		ft		ft	
			Sample Type	N		N		N		N	
			Matrix	SO		SO		SO		SO	
			Sampled	11/5/2020		11/5/2020		11/6/2020		11/6/2020	
Chemical Name	Unit	Part 375 UNRESTRICTED SCOs[1]	Part 375 RESTRICTED RESIDENTIAL SCOs[1]								
Chromium III	mg/kg	30	180	42.5				13.8			
Arsenic	mg/kg	13	16	26.4		15.8		10.2		7.6	
Barium	mg/kg	350	400	435		282		104		113	
Cadmium	mg/kg	2.5	4.3	9.9		0.95		0.35		0.39	
Chromium, Total[2]	mg/kg	30	180	42.5	J	19.5		14.4		15.7	
Copper	mg/kg	50	270	166	J	180		25.0		16.8	
Lead	mg/kg	63	400	960		435		94.7		74.7	
Nickel	mg/kg	30	310	43.9	J	22.6		20.1		21.8	
Silver	mg/kg	2	180	3.1	J	0.33	J	ND	U	ND	U
Zinc	mg/kg	109	10000	1460	J	268		89.5		129	
Mercury	mg/kg	0.18	0.81	0.76	J	0.80		0.12		0.15	
P,P'-DDT	mg/kg	0.0033	7.9	0.019	J			0.0076	J		
Benzo(A)Anthracene	mg/kg	1	1	1.1		0.091	J	0.25		0.032	J
Benzo(A)Pyrene	mg/kg	1	1	1.6		0.11	J	0.38		0.04	J
Benzo(B)Fluoranthene	mg/kg	1	1	2.5		0.15	J	0.41		0.039	J
Benzo(K)Fluoranthene	mg/kg	0.8	3.9	0.88	J	0.052	J	0.16	J	ND	U
Dibenz(A,H)Anthracene	mg/kg	0.33	0.33	0.39	J	ND	U	0.094	J	ND	U
Indeno(1,2,3-C,D)Pyrene	mg/kg	0.5	0.5	1.3		0.074	J	0.28		0.038	J

Notes:

[1]Soil Cleanup Objectives (SCOs) from 6 NYCRR Part 375 Environmental Remediation Programs Subpart 375-6, December 2006

[2]Total chromium is compared against the NYCRR SCOs for trivalent (III) chromium

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not dete
mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds the NYCRR Unrestricted Use SCOs
- Value exceeds the NYCRR Restricted Residential Use SCOs

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Table 1-4
William Street Park
2020 Site Characterization Report
Validated TCLP Soil Data

Location ID			WSP-SB-05		WSP-SB-05		WSP-SB-09		WSP-SB-09		WSP-SB-10		WSP-TP-02	
Start Depth			10		4		10		12		10		1	
End Depth			11		6		12		14		12		1.5	
Depth Unit			ft		ft		ft		ft		ft		ft	
Matrix			SO		SO		SO		SO		SO		SO	
Sample Date			11/6/2020		11/6/2020		11/3/2020		11/3/2020		11/4/2020		11/5/2020	
Sample Type Code			N		N		N		N		N		N	
Chemical Name	Unit	EPA TCLP												
Arsenic	mg/l	5	0.0065	J	ND	U	0.014	J	0.048		ND	U	0.0081	J
Barium	mg/l	100	0.82	J	1.2		0.84	J	0.68	J	0.62	J	2.1	
Cadmium	mg/l	1	0.37		0.065		0.63		5.0		0.50		0.017	
Chromium, Total	mg/l	5	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Lead	mg/l	5	47.8		5.7		9.4		131		8.7		9.8	
Selenium	mg/l	1	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Silver	mg/l	5	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Mercury	mg/l	0.2	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:

[2]RCRA maximum concentration of contaminants for the toxicity characteristic from 40 CFR § 261.24

N = normal sample; FD = field duplicate; SO = soil; "--" = not analyzed; ND = not detected

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram

U = Not detected above laboratory standard; UJ = Estimated and not detected at the value given; J = estimated at the value given; J+ = estimated biased high at the value given

- Value exceeds RCRA regulatory limits

Table 2
William St Park
PDI Sample Collection Data Table

Location ID	Sample ID WSP-A1-(depth)	Total Depth (in)	Latitude	Longitude	Analytical Sample Depth (in)	Matrix	ABG	Sample Collected (check if collected)	TAL Metals plus Hg & B (6010/7471)	TCL SVOCs/ TICs (8270D)	Notes
A4		24	42.15096296	-77.07359075	0.0-2.0	Soil			x	x	
A4		24	42.15096296	-77.07359075	2.0-12.0	Soil			x	x	
A4		24	42.15096296	-77.07359075	12.02-24.0	Soil			x	x	
A7		24	42.15083300	-77.073051	0.0-2.0	Soil			x	x	
A7		24	42.15083300	-77.073051	2.0-12.0	Soil			x	x	
A7		24	42.15083300	-77.073051	12.02-24.0	Soil			x	x	
A8		24	42.15080000	-77.072775	0.0-2.0	Soil			x	x	
A8		24	42.15080000	-77.072775	2.0-12.0	Soil			x	x	
A8		24	42.15080000	-77.072775	12.02-24.0	Soil			x	x	
A9		24	42.15075900	-77.072501	0.0-2.0	Soil			x	x	
A9		24	42.15075900	-77.072501	2.0-12.0	Soil			x	x	
A9		24	42.15075900	-77.072501	12.02-24.0	Soil			x	x	
B10		24	42.15059534	-77.0722698	0.0-2.0	Soil			x	x	
B10		24	42.15059534	-77.0722698	2.0-12.0	Soil			x	x	
B10		24	42.15059534	-77.0722698	12.02-24.0	Soil			x	x	
B11		24	42.15056245	-77.07199677	0.0-2.0	Soil			x	x	
B11		24	42.15056245	-77.07199677	2.0-12.0	Soil			x	x	
B11		24	42.15056245	-77.07199677	12.02-24.0	Soil			x	x	
B12		24	42.15052956	-77.07172374	0.0-2.0	Soil			x	x	
B12		24	42.15052956	-77.07172374	2.0-12.0	Soil			x	x	
B12		24	42.15052956	-77.07172374	12.02-24.0	Soil			x	x	
B3		24	42.15082556	-77.074181	0.0-2.0	Soil			x	x	
B3		24	42.15082556	-77.074181	2.0-12.0	Soil			x	x	
B3		24	42.15082556	-77.074181	12.02-24.0	Soil			x	x	
B4		24	42.15079268	-77.07390797	0.0-2.0	Soil			x	x	
B4		24	42.15079268	-77.07390797	2.0-12.0	Soil			x	x	
B4		24	42.15079268	-77.07390797	12.02-24.0	Soil			x	x	
B5		24	42.15075979	-77.07363494	0.0-2.0	Soil			x	x	
B5		24	42.15075979	-77.07363494	2.0-12.0	Soil			x	x	
B5		24	42.15075979	-77.07363494	12.02-24.0	Soil			x	x	
B6		24	42.15072690	-77.07336191	0.0-2.0	Soil			x	x	
B6		24	42.15072690	-77.07336191	2.0-12.0	Soil			x	x	
B6		24	42.15072690	-77.07336191	12.02-24.0	Soil			x	x	
B7		24	42.15069401	-77.07308888	0.0-2.0	Soil			x	x	
B7		24	42.15069401	-77.07308888	2.0-12.0	Soil			x	x	
B7		24	42.15069401	-77.07308888	12.02-24.0	Soil			x	x	
B8		24	42.15066112	-77.07281585	0.0-2.0	Soil			x	x	
B8		24	42.15066112	-77.07281585	2.0-12.0	Soil			x	x	
B8		24	42.15066112	-77.07281585	12.02-24.0	Soil			x	x	
B9		24	42.15062823	-77.07254282	0.0-2.0	Soil			x	x	
B9		24	42.15062823	-77.07254282	2.0-12.0	Soil			x	x	
B9		24	42.15062823	-77.07254282	12.02-24.0	Soil			x	x	
C10		24	42.15039218	-77.072314	0.0-2.0	Soil			x	x	
C10		24	42.15039218	-77.072314	2.0-12.0	Soil			x	x	
C10		24	42.15039218	-77.072314	12.02-24.0	Soil			x	x	

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Table 2
William St Park
PDI Sample Collection Data Table

Location ID	Sample ID WSP-A1-(depth)	Total Depth (in)	Latitude	Longitude	Analytical Sample Depth (in)	Matrix	ABG	Sample Collected (check if collected)	TAL Metals plus Hg & B (6010/7471)	TCL SVOCs/ TICs (8270D)	Notes
C11		24	42.15035928	-77.07204097	0.0-2.0	Soil			x	x	
C11		24	42.15035928	-77.07204097	2.0-12.0	Soil			x	x	
C11		24	42.15035928	-77.07204097	12.02-24.0	Soil			x	x	
C12		24	42.15032639	-77.07176794	0.0-2.0	Soil			x	x	
C12		24	42.15032639	-77.07176794	2.0-12.0	Soil			x	x	
C12		24	42.15032639	-77.07176794	12.02-24.0	Soil			x	x	
C13		24	42.15029350	-77.07149491	0.0-2.0	Soil			x	x	
C13		24	42.15029350	-77.07149491	2.0-12.0	Soil			x	x	
C13		24	42.15029350	-77.07149491	12.02-24.0	Soil			x	x	
C14		24	42.15026061	-77.07122189	0.0-2.0	Soil			x	x	
C14		24	42.15026061	-77.07122189	2.0-12.0	Soil			x	x	
C14		24	42.15026061	-77.07122189	12.02-24.0	Soil			x	x	
C2		24	42.15065528	-77.07449823	0.0-2.0	Soil			x	x	
C2		24	42.15065528	-77.07449823	2.0-12.0	Soil			x	x	
C2		24	42.15065528	-77.07449823	12.02-24.0	Soil			x	x	
C3		24	42.15062239	-77.0742252	0.0-2.0	Soil			x	x	
C3		24	42.15062239	-77.0742252	2.0-12.0	Soil			x	x	
C3		24	42.15062239	-77.0742252	12.02-24.0	Soil			x	x	
C4		24	42.15058951	-77.07395217	0.0-2.0	Soil			x	x	
C4		24	42.15058951	-77.07395217	2.0-12.0	Soil			x	x	
C4		24	42.15058951	-77.07395217	12.02-24.0	Soil			x	x	
C44		24	42.14924061	-77.06275819	0.0-2.0	Soil			x	x	
C44		24	42.14924061	-77.06275819	2.0-12.0	Soil			x	x	
C44		24	42.14924061	-77.06275819	12.02-24.0	Soil			x	x	
C45		24	42.14920770	-77.06248518	0.0-2.0	Soil			x	x	
C45		24	42.14920770	-77.06248518	2.0-12.0	Soil			x	x	
C45		24	42.14920770	-77.06248518	12.02-24.0	Soil			x	x	
C5		24	42.15055662	-77.07367914	0.0-2.0	Soil			x	x	
C5		24	42.15055662	-77.07367914	2.0-12.0	Soil			x	x	
C5		24	42.15055662	-77.07367914	12.02-24.0	Soil			x	x	
C6		24	42.15052373	-77.07340611	0.0-2.0	Soil			x	x	
C6		24	42.15052373	-77.07340611	2.0-12.0	Soil			x	x	
C6		24	42.15052373	-77.07340611	12.02-24.0	Soil			x	x	
C7		24	42.15049084	-77.07313308	0.0-2.0	Soil			x	x	
C7		24	42.15049084	-77.07313308	2.0-12.0	Soil			x	x	
C7		24	42.15049084	-77.07313308	12.02-24.0	Soil			x	x	
C8		24	42.15045796	-77.07286005	0.0-2.0	Soil			x	x	
C8		24	42.15045796	-77.07286005	2.0-12.0	Soil			x	x	
C8		24	42.15045796	-77.07286005	12.02-24.0	Soil			x	x	
C9		24	42.15042507	-77.07258702	0.0-2.0	Soil			x	x	
C9		24	42.15042507	-77.07258702	2.0-12.0	Soil			x	x	
C9		24	42.15042507	-77.07258702	12.02-24.0	Soil			x	x	
D1		24	42.15048499	-77.07481545	0.0-2.0	Soil			x	x	
D1		24	42.15048499	-77.07481545	2.0-12.0	Soil			x	x	
D1		24	42.15048499	-77.07481545	12.02-24.0	Soil			x	x	
D10		24	42.15018901	-77.07235819	0.0-2.0	Soil			x	x	

Table 2
William St Park
PDI Sample Collection Data Table

Location ID	Sample ID WSP-A1-(depth)	Total Depth (in)	Latitude	Longitude	Analytical Sample Depth (in)	Matrix	ABG	Sample Collected (check if collected)	TAL Metals plus Hg & B (6010/7471)	TCL SVOCs/ TICs (8270D)	Notes
D10		24	42.15018901	-77.07235819	2.0-12.0	Soil			x	x	
D10		24	42.15018901	-77.07235819	12.02-24.0	Soil			x	x	
D11		24	42.15015612	-77.07208517	0.0-2.0	Soil			x	x	
D11		24	42.15015612	-77.07208517	2.0-12.0	Soil			x	x	
D11		24	42.15015612	-77.07208517	12.02-24.0	Soil			x	x	
D12		24	42.15012323	-77.07181214	0.0-2.0	Soil			x	x	
D12		24	42.15012323	-77.07181214	2.0-12.0	Soil			x	x	
D12		24	42.15012323	-77.07181214	12.02-24.0	Soil			x	x	
D13		24	42.15009033	-77.07153912	0.0-2.0	Soil			x	x	
D13		24	42.15009033	-77.07153912	2.0-12.0	Soil			x	x	
D13		24	42.15009033	-77.07153912	12.02-24.0	Soil			x	x	
D14		24	42.15005744	-77.07126609	0.0-2.0	Soil			x	x	
D14		24	42.15005744	-77.07126609	2.0-12.0	Soil			x	x	
D14		24	42.15005744	-77.07126609	12.02-24.0	Soil			x	x	
D2		24	42.15045211	-77.07454242	0.0-2.0	Soil			x	x	
D2		24	42.15045211	-77.07454242	2.0-12.0	Soil			x	x	
D2		24	42.15045211	-77.07454242	12.02-24.0	Soil			x	x	
D3		24	42.15041922	-77.07426939	0.0-2.0	Soil			x	x	
D3		24	42.15041922	-77.07426939	2.0-12.0	Soil			x	x	
D3		24	42.15041922	-77.07426939	12.02-24.0	Soil			x	x	
D30		24	42.14953107	-77.06689771	0.0-2.0	Soil			x	x	
D30		24	42.14953107	-77.06689771	2.0-12.0	Soil			x	x	
D30		24	42.14953107	-77.06689771	12.02-24.0	Soil			x	x	
D31		24	42.14949817	-77.06662469	0.0-2.0	Soil			x	x	
D31		24	42.14949817	-77.06662469	2.0-12.0	Soil			x	x	
D31		24	42.14949817	-77.06662469	12.02-24.0	Soil			x	x	
D32		24	42.14946526	-77.06635167	0.0-2.0	Soil			x	x	
D32		24	42.14946526	-77.06635167	2.0-12.0	Soil			x	x	
D32		24	42.14946526	-77.06635167	12.02-24.0	Soil			x	x	
D33		24	42.14943236	-77.06607865	0.0-2.0	Soil			x	x	
D33		24	42.14943236	-77.06607865	2.0-12.0	Soil			x	x	
D33		24	42.14943236	-77.06607865	12.02-24.0	Soil			x	x	
D34		24	42.14939945	-77.06580563	0.0-2.0	Soil			x	x	
D34		24	42.14939945	-77.06580563	2.0-12.0	Soil			x	x	
D34		24	42.14939945	-77.06580563	12.02-24.0	Soil			x	x	
D35		24	42.14936655	-77.06553261	0.0-2.0	Soil			x	x	
D35		24	42.14936655	-77.06553261	2.0-12.0	Soil			x	x	
D35		24	42.14936655	-77.06553261	12.02-24.0	Soil			x	x	
D36		24	42.14933364	-77.06525959	0.0-2.0	Soil			x	x	
D36		24	42.14933364	-77.06525959	2.0-12.0	Soil			x	x	
D36		24	42.14933364	-77.06525959	12.02-24.0	Soil			x	x	
D37		24	42.14930073	-77.06498657	0.0-2.0	Soil			x	x	
D37		24	42.14930073	-77.06498657	2.0-12.0	Soil			x	x	
D37		24	42.14930073	-77.06498657	12.02-24.0	Soil			x	x	
D38		24	42.14926782	-77.06471355	0.0-2.0	Soil			x	x	
D38		24	42.14926782	-77.06471355	2.0-12.0	Soil			x	x	

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Table 2
William St Park
PDI Sample Collection Data Table

Location ID	Sample ID WSP-A1-(depth)	Total Depth (in)	Latitude	Longitude	Analytical Sample Depth (in)	Matrix	ABG	Sample Collected (check if collected)	TAL Metals plus Hg & B (6010/7471)	TCL SVOCs/ TICs (8270D)	Notes
D38		24	42.14926782	-77.06471355	12.02-24.0	Soil			x	x	
D39		24	42.14923491	-77.06444053	0.0-2.0	Soil			x	x	
D39		24	42.14923491	-77.06444053	2.0-12.0	Soil			x	x	
D39		24	42.14923491	-77.06444053	12.02-24.0	Soil			x	x	
D4		24	42.15038634	-77.07399636	0.0-2.0	Soil			x	x	
D4		24	42.15038634	-77.07399636	2.0-12.0	Soil			x	x	
D4		24	42.15038634	-77.07399636	12.02-24.0	Soil			x	x	
D40		24	42.14920200	-77.06416751	0.0-2.0	Soil			x	x	
D40		24	42.14920200	-77.06416751	2.0-12.0	Soil			x	x	
D40		24	42.14920200	-77.06416751	12.02-24.0	Soil			x	x	
D41		24	42.14916909	-77.06389449	0.0-2.0	Soil			x	x	
D41		24	42.14916909	-77.06389449	2.0-12.0	Soil			x	x	
D41		24	42.14916909	-77.06389449	12.02-24.0	Soil			x	x	
D42		24	42.14913618	-77.06362148	0.0-2.0	Soil			x	x	
D42		24	42.14913618	-77.06362148	2.0-12.0	Soil			x	x	
D42		24	42.14913618	-77.06362148	12.02-24.0	Soil			x	x	
D43		24	42.14910327	-77.06334846	0.0-2.0	Soil			x	x	
D43		24	42.14910327	-77.06334846	2.0-12.0	Soil			x	x	
D43		24	42.14910327	-77.06334846	12.02-24.0	Soil			x	x	
D44		24	42.14907036	-77.06307544	0.0-2.0	Soil			x	x	
D44		24	42.14907036	-77.06307544	2.0-12.0	Soil			x	x	
D44		24	42.14907036	-77.06307544	12.02-24.0	Soil			x	x	
D45		24	42.14903745	-77.06280242	0.0-2.0	Soil			x	x	
D45		24	42.14903745	-77.06280242	2.0-12.0	Soil			x	x	
D45		24	42.14903745	-77.06280242	12.02-24.0	Soil			x	x	
D46		24	42.14900453	-77.06252941	0.0-2.0	Soil			x	x	
D46		24	42.14900453	-77.06252941	2.0-12.0	Soil			x	x	
D46		24	42.14900453	-77.06252941	12.02-24.0	Soil			x	x	
D47		24	42.14897162	-77.06225639	0.0-2.0	Soil			x	x	
D47		24	42.14897162	-77.06225639	2.0-12.0	Soil			x	x	
D47		24	42.14897162	-77.06225639	12.02-24.0	Soil			x	x	
D48		24	42.14893870	-77.06198337	0.0-2.0	Soil			x	x	
D48		24	42.14893870	-77.06198337	2.0-12.0	Soil			x	x	
D48		24	42.14893870	-77.06198337	12.02-24.0	Soil			x	x	
D49		24	42.14890579	-77.06171036	0.0-2.0	Soil			x	x	
D49		24	42.14890579	-77.06171036	2.0-12.0	Soil			x	x	
D49		24	42.14890579	-77.06171036	12.02-24.0	Soil			x	x	
D5		24	42.15035345	-77.07372333	0.0-2.0	Soil			x	x	
D5		24	42.15035345	-77.07372333	2.0-12.0	Soil			x	x	
D5		24	42.15035345	-77.07372333	12.02-24.0	Soil			x	x	
D6		24	42.15032056	-77.0734503	0.0-2.0	Soil			x	x	
D6		24	42.15032056	-77.0734503	2.0-12.0	Soil			x	x	
D6		24	42.15032056	-77.0734503	12.02-24.0	Soil			x	x	
D7		24	42.15028768	-77.07317728	0.0-2.0	Soil			x	x	
D7		24	42.15028768	-77.07317728	2.0-12.0	Soil			x	x	

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Table 2
William St Park
PDI Sample Collection Data Table

Location ID	Sample ID WSP-A1-(depth)	Total Depth (in)	Latitude	Longitude	Analytical Sample Depth (in)	Matrix	ABG	Sample Collected (check if collected)	TAL Metals plus Hg & B (6010/7471)	TCL SVOCs/ TICs (8270D)	Notes
D7		24	42.15028768	-77.07317728	12.02-24.0	Soil			x	x	
D8		24	42.15025479	-77.07290425	0.0-2.0	Soil			x	x	
D8		24	42.15025479	-77.07290425	2.0-12.0	Soil			x	x	
D8		24	42.15025479	-77.07290425	12.02-24.0	Soil			x	x	
D9		24	42.15022190	-77.07263122	0.0-2.0	Soil			x	x	
D9		24	42.15022190	-77.07263122	2.0-12.0	Soil			x	x	
D9		24	42.15022190	-77.07263122	12.02-24.0	Soil			x	x	
E2		24	42.15024894	-77.07458661	0.0-2.0	Soil			x	x	
E2		24	42.15024894	-77.07458661	2.0-12.0	Soil			x	x	
E2		24	42.15024894	-77.07458661	12.02-24.0	Soil			x	x	
E3		24	42.15021605	-77.07431358	0.0-2.0	Soil			x	x	
E3		24	42.15021605	-77.07431358	2.0-12.0	Soil			x	x	
E3		24	42.15021605	-77.07431358	12.02-24.0	Soil			x	x	
E4		24	42.15018317	-77.07404056	0.0-2.0	Soil			x	x	
E4		24	42.15018317	-77.07404056	2.0-12.0	Soil			x	x	
E4		24	42.15018317	-77.07404056	12.02-24.0	Soil			x	x	
E45		24	42.14883428	-77.06284665	0.0-2.0	Soil			x	x	
E45		24	42.14883428	-77.06284665	2.0-12.0	Soil			x	x	
E45		24	42.14883428	-77.06284665	12.02-24.0	Soil			x	x	
E46		24	42.14880137	-77.06257364	0.0-2.0	Soil			x	x	
E46		24	42.14880137	-77.06257364	2.0-12.0	Soil			x	x	
E46		24	42.14880137	-77.06257364	12.02-24.0	Soil			x	x	

Note: Based on field conditions, up to 3 samples will be collected from each proposed Soil Boring location.

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TABLE 3
ANALYTICAL DATA SUMMARY FOR PRE-DESIGN INVESTIGATION
WILLIAM ST. PARK CORNING NEW YORK

Task	Sample Type	Analysis	Method	Turn-Around-Time	Samples	QA/QC Samples				Total
						Duplicate	Equipment Blank	MS	MSD	
OU-1 Soil Boring Sampling[1]	Soil	Metals + B + Hg	SW6010D/SW7471B	Standard	204	11	11	11	11	248
	Soil	SVOCs	SW8270D	Standard	204	11	11	11	11	248
Waste Characterization Sampling[2]	Solid	TCLP	SW1311	Standard	10	0	0	0	0	10
	Solid	TCLP Volatiles	SW8260C	Standard	10	0	0	0	0	10
	Solid	TCLP Semivolatiles	SW8270D	Standard	10	0	0	0	0	10
	Solid	TCLP Pesticides	SW8081B	Standard	10	0	0	0	0	10
	Solid	TCLP Metals	SW8151A	Standard	10	0	0	0	0	10
	Solid	PCBs + Total	SW8082A	Standard	10	0	0	0	0	10
	Solid	Corrosivity	SW9045	Standard	10	0	0	0	0	10
	Solid	Ignitability	SW1030	Standard	10	0	0	0	0	10
	Solid	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	10	0	0	0	0	10
	Liquid	VOCs	SW8260C	Standard	10	0	0	0	0	10
	Liquid	SVOCs	SW8270D	Standard	10	0	0	0	0	10
	Liquid	Pesticides	SW8081B	Standard	10	0	0	0	0	10
	Liquid	Herbicides	SW8151A	Standard	10	0	0	0	0	10
	Liquid	Total Cyanide	SW9012B	Standard	10	0	0	0	0	10
	Liquid	PCBs + Total	SW8082A	Standard	10	0	0	0	0	10
	Liquid	Metals	SW6010D/SW7470A	Standard	10	0	0	0	0	10
	Liquid	Corrosivity (pH)	SW9040	Standard	10	0	0	0	0	10
	Liquid	Flashpoint	SW1010	Standard	10	0	0	0	0	10
	Liquid	Reactivity (Cyanide and Sulfide)	SW7.3.3.2/SW7.3.4.2	Standard	10	0	0	0	0	10

NOTES:
1. NYCRR Subpart 375 Compounds
2. Specific parameters to be analyzed will be determined in consultation with a disposal facility but are likely to include the following parameters.

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APPENDIX A NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is 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. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can 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 must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, 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, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/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, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX B PROJECT SAFETY, HEALTH AND ENVIRONMENTAL PLAN (PSHEP)

PROJECT SAFETY, HEALTH, AND ENVIRONMENTAL PLAN

CORNING AREA SITES, CORNING, NY

Prepared For:

New York State of Department of Environmental Conservation

625 Broadway,
12th Floor
Albany, NY 12233-7012

Prepared By:

301 Plainfield Road, Suite 350
Syracuse, New York 13212

March 2025

Contract Identification: Contract No D009811

Client: New York State Department of Environmental Conservation

Reviewer Name: Diana R Ceaser CIH, CSP, CHMM. Reviewer Title: Project HAS Manager

Reviewer Signature: Diana R Ceaser Date Reviewed:

Approver Name: Tom Drachenberg, P.E. Approver Title: Program/Project Manager

Approver Signature: Tom Drachenberg Date Approved:

This Project Safety, Health, and Environmental Plan (PSHEP) addresses the work activities associated with Standby Contract N. D009811 between the State of New York Department of Environmental Conservation and Parsons Engineering of New York, Inc. for engineering services (February 2020). Related work elements of the contract and covered by this PSHEP are listed in Section 1.

This PSHEP addresses both the physical and chemical hazards that may be encountered during completion of the Scope of Work (SOW). This PSHEP is based upon the *Parsons Environmental, Safety, Health, and Risk Management Procedure (1/16/2021), the ESHARP Manual,* and all applicable policies or procedures listed in the *Parsons Corporate Policy Center and Safety Health and Environment (SH&E) Model Programs Site*.

This PSHEP addresses rules and regulations set forth in Title 29 of the Code of Federal Regulations part 1910 - Safety and Health Regulations for General Industry and part 1926 – Safety and Health Regulations for Construction. In addition, modifications to the PSHEP to comply with applicable federal, state, and local codes, rules, and regulations may be necessary. This PSHEP is based upon the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 1910.120.

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LIST OF ACRONYMS

Acronym	Definition
ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
BBS	behavior-based safety
CREF	Contractor Risk Evaluation Form
CRZ	Contamination Reduction Zone
CSE	Contractor Safety Evaluation
ESHARP	Environmental, Safety, Health, and Risk Program
GBU	Global Business Unit
HAZWOPER	Hazardous Waste Site Operations and Emergency Response
HSSE	Health, Safety, Security and Environment
IDLH	immediately dangerous to life and health
MOC	Management of Change
NYSDEC	New York State Department of Environmental Conservation
OCIP	Owner's Controlled Insurance Program
PAH	polynuclear aromatic hydrocarbons
PEL	Permissible Exposure Limits
PFOS	Perfluorooctane sulfonic acid
PPE	personal protective equipment
ppm	parts per million
PRP	Preventative Recovery Period
PSFA	perfluorooctanoic acid
PSHEP	Project Safety, Health, and Environmental Plan
RAC	Risk Assessment Code
SDS	Safety Data Sheet
SH&E	Safety, Health, and Environment
SOW	Scope of Work
SSHEP	subcontractor safety, health, and environment plan
SSO	Site Safety Officer
TBD	To-Be-Determined
TLV	Threshold Limit Value
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WBGT	Wet Bulb Globe Temperature

1.0 INTRODUCTION

This Project Safety, Health and Environmental Plan has been prepared for the NYSDEC field operations related to historic glassworks sites in and around Corning, NY. This Project Safety, Health, and Environmental Plan (PSHEP) covers construction management/investigations and is intended to be amended as needed to address subsequent site activities. Subcontractor construction/investigation activities will be covered by their own Subcontractor Safety, Health, and Environmental Plan (SSHEP).

During field activities, Parsons' staff and its subcontractors may be exposed to hazards associated with the scope of work (SOW) activities. Employees will be required to use personal protective equipment (PPE) suitable for the task at hand. Upgrades to PPE will be implemented, as necessary.

Field Staff may also be exposed to other hazards that are encountered during field activities including slips, trips, and falls; working in proximity to heavy equipment, winches, suspended loads, hazardous energy sources, traffic hazards, and automobile use. Depending on the time of season field staff may be exposed to biological hazards such as insect bites, stings, ticks, and snakes. Meteorological hazards such as lightening, wind, rain, and ultraviolet radiation may also be present. This PSHEP addresses the various hazards that may be encountered during completion of the SOW(s).

1.1 Management Of Change (MOC)

In accordance with Parsons' ESHARP requirements field modifications may be made to this PSHEP document after review and approval by the Parsons Project Safety, Health, and Environment (SH&E) Officer. Insert a description of the change in the table below (insert additional rows as necessary).

PSHEP Section	SH&E Approver	Date	Description/Comments
All		April 2020	Created new NYSDEC PSHEP for New Standby Engineering Services Contract (Contract #D009811)
All	Melissa Layfield	May 2021	Updated document to reflect corporate changes to ESHARP and update relevant programmatic items
All	Dale Dolph	April 2023	Updated document to reflect changes to project SOW and update relevant programmatic items
All	Diana Ceaser	April 2024	Updated document to reflect changes to project SOW and update relevant programmatic items
All	Diana Ceaser	March 2025	Updated document to reflect changes to project SOW and update relevant programmatic items

2.0 SCOPE OF WORK

2.1 Corning Sites Background

The City of Corning has a long history of manufacturing, particularly in brick and glassmaking. Historical references indicate that, in the late 1800s and early 1900s, one of the country's largest brick manufacturers and more than sixty glass manufacturers were located in the City of Corning (Dimitroff, 2001) (Sinclaire & Spillman, 1997). During that time frame, coal was the primary fuel source in the Corning, New York area, and most of the local industries and municipalities used coal to heat their furnaces. Between 1949 and at least 1968, the City of Corning operated a municipal incinerator that created significant volumes of ash.

2.2 Parsons Scope Of Work

Parsons in their contracted role with New York State Department of Environmental Conservation (NYSDEC) is providing Standby Engineering services for the work as specified in the Contract #D009811 and for investigative work conducted in the Corning, NY area. Figure 1 shows the site in Corning associated with Parsons SOW for 2024.

The specific scope of work (SOW) elements for this contract and covered under this PSHEP is as follows:

Corning led "P" sites Parsons will perform oversight for the NYSDEC for investigative work at multiple properties near the Study Area. The investigative activities will be conducted by an independent engineering/ environmental consultant and their subcontractors through primarily drilling operations along with possible test pitting. Parsons will provide oversight of the investigative operations for the NYSDEC but will have limited interaction with the field crews.

Parsons/NYSDEC led investigations. Parsons will perform oversight of subcontractors for the NYSDEC "P" site (satellite site) investigations outside the Study Area. In this capacity Parsons will have the most direct interaction with subcontractors that have been hired by NYSDEC. In addition to oversight responsibilities, Parsons will be involved in investigative activities including subsurface drilling, soil sampling, monitoring well installation, test pitting, and waste handling. Parsons will hire and coordinate field activities with survey contractors for these sites.

In conjunction with the above-described Corning sites Parsons field activities, additional tasks listed below may be performed:

–

- Site Characterization
- Phased Remedial Investigation/Feasibility Study
- Pre-Design Investigation
- Remedial Design
- Engineering Services During Remedial Action/Construction Management
- Site Response Activities/Interim Remedial Measures and short-term response activities
- Site Management
- Site Inspection

- Citizen Participation Activities
- Health and Safety Plan Development and Implementation
- Basement Mitigation Activities Potential Responsible Party and Third-Party Oversight
- Waste management
- Decontamination procedures
- Other applicable environmental issues and regulatory requirements

2.2 Dash Card Development

The work addressed in this PSHEP includes remedial and investigative oversight of field activities at multiple project sites. Due to the varying nature of these sites and the work activities, in addition to the project PSHEP, a DASH card will be developed for each site for use as a quick reference safety card. Each DASH card is either kept in the project field binder or on the car dashboard and contains the following information:

- Site description
- Site contaminants of concern (if applicable)
- Required personal protective equipment (PPE)
- Site description and photo if available
- Emergency contact information
- Map and written directions to an urgent care facility and hospital
- General scope of work being performed.

A DASH card template is included in this PSHEP in Appendix A.

3.0 PARSONS SH&E POLICY STATEMENT

As an industry-leading, global technology solutions firm, Parsons is firmly committed to maintaining a safe, healthful, and environmentally sound workplace at all its offices, sites, and project facilities, guided by the following tenets.

- Safety, health, and environmental (SH&E) stewardship is our core value.
- Executive management leads our SH&E stewardship and strives to continually improve our management systems.
- Achieving SH&E performance excellence is a responsibility shared by all.
- SH&E performance is a key business performance indicator.
- Parsons' SH&E performance will be communicated openly.
- Leaders establish and reinforce expectations with employees and stakeholders, and leaders provide employees and stakeholders with the knowledge and skills necessary to perform their work to help ensure they achieve SH&E performance excellence.
- Employees and stakeholders are authorized and expected to stop work when conditions warrant it.
- Our SH&E efforts extend beyond our workplaces to include travel, our homes, and our communities.

To meet our SH&E performance objectives, all employees and stakeholders shall be actively engaged in SH&E issues. This requires the combined efforts of a concerned executive leadership team, responsible and knowledgeable managers and supervisors, and conscientious, well-trained employees and stakeholders. At regular intervals, the executive leadership team shall monitor and improve the performance of our Environmental Safety, Health, and Risk Program (ESHARP) management system to ensure its continuing suitability, adequacy, and effectiveness in driving our SH&E performance excellence. Parsons shall meet or exceed legal and other requirements for SH&E and shall strive to conform to the international standards to which we subscribe. Parsons' commitment to SH&E makes the world a better place.

3.1 Zero Incident Goal

Parsons' goal is zero incidents. To achieve this, the project Team, led by the Project Manager, shall systematically, routinely, and continually identify the SH&E risks to project personnel, processes, equipment, the general public, and the environment, and develop effective and reliable control measures to minimize or eliminate these SH&E risks. As the project work changes, the SH&E risks change, and these risks shall be continually assessed, with control measures continually refined as work progresses. An example of the Parsons "OWN ZERO®" poster is included in Appendix F and can be posted on bulletin boards in Parsons field offices.

3.2 Stop Work Authority

Each Parsons employee and Parsons-contracted person is a critical leader for preventing injuries, illnesses, and adverse environmental impacts. Achieving SH&E excellence requires a personal commitment. Therefore, each employee is authorized to Stop Work immediately if a safety, health, or environmental concern exists or if the work is not going according to plan. Once work is stopped, each employee is expected to communicate the Stop Work to any other affected stakeholders (including notifying the Parsons Project Manager); further evaluate the conditions that led to the Stop Work; and evaluate hazard mitigations to the work plan that would resolve the safety, health, or environmental concern before restarting the work.

Each employee shall understand that he or she has the authority and the responsibility to Stop Work at any time when he or she notices an unplanned or unexpected issue that he or she believes will adversely affect the project's safety, health, or environmental risk. This concept is consistent with Parsons SH&E core values.

Sometimes, the idea of "Stop Work" suggests that the project is shut down and all employees end their workday.

While this is a dramatic example of a possible stop work event, most stop work events are much simpler.

Definition of S.T.O.P.

1. Stop the task you are doing or intervene with a co-worker if appropriate.
2. Take immediate measures to notify any others affected. For work conducted in the Corning Study Area, the Corning Inc. consultant should be notified immediately. If there is no imminent danger, notify the appropriate line supervisors and site leaders. This is also a good time to make any other notifications, such as to the client.
3. Offer correction or get help if needed. Keep it positive. Affected parties shall discuss and gain agreement on the resolution of the stop work issue. The initiator of the stop work event shall be thanked for his or her concern.
4. Prepare to resume once the concern has been resolved, the hazards identified and mitigated, and the Stop Work has been discussed with the project manager. If necessary, suspend the task until the work plan can be reviewed and revised as necessary to properly evaluate the hazards. Positive feedback shall be provided to affected personnel regarding the resolution of the stop work issue.

There is no circumstance where retribution or retaliation will be tolerated toward any employee who conscientiously exercised his or her stop work authority.

3.3 PSHEP Authority

This PSHEP outlines requirements and guidelines developed by Parsons for project work. When implemented, these requirements will help protect project personnel, visitors, the public, and the environment from the effects of SH&E risks. Parsons employees should never perform a task that may endanger their own safety and health; the safety and health of coworkers or the public; or the environment. This PSHEP shall be updated as conditions or work phases change. All Parsons employees and contractors shall receive a copy of this PSHEP, understand it, and implement the provisions contained in it.

Parsons' contractors shall establish their own SH&E programs for their work and employees. Contract specifications require each Parsons-contractor to accept provisions of the Parsons PSHEP and prepare its own contractor site-specific safety, health, and environmental plan (SSHEP) for work activities for which the contractor is responsible for performing. Parsons can provide a Parsons Subcontractor Safety, Health, and Environmental Plan (SSHEP) template, or the contractor may utilize their own format. The PSHEP requirements identified for project personnel (e.g., incident reporting, training, certifications of competence and qualification, substance abuse identification and testing) shall apply to contractor workers, and such provisions shall be included in each contractor's SSHEP.

This PSHEP and its associated legal compliance register, risk register, hazard and risk analyses, work plans, procedures, contractor SSHEPs, compliance programs, best practices, training matrix, and certifications of competence and qualification apply to all locations, facilities, operations, tasks, and project work. The Parsons PSHEP and ESHARP Management Procedure for projects will be followed.

High-level risks associated with this project include the following:

1. Daily Safety Planning (toolbox meeting)
2. Ground disturbance
3. Excavation (sidewall collapse awareness)
4. Confined space entry
5. Working at heights
6. Overhead work
7. Lifting Operations
8. Driving safety
9. Drilling/Sampling and well installation

The Model Programs are the minimum standards for safeguarding personal safety and the key controls and procedures that must be followed in all places of work. These programs have been prepared to allow the learning from past safety incidents to be shared widely across Parsons and emphasize the basic rules that should be in place in all locations for managing safety during typical risk activities. Adherence with control measures related to the risks listed above must be strictly enforced to ensure the safety of our people and the communities in which we live. They also provide a basis of safe practice for managing risks outside of work activities. Management is accountable for communicating, training, implementing, and auditing them to assure compliance.

4.0 ORGANIZATIONAL STRUCTURE

A Team of appropriately trained and qualified professionals from Parsons will conduct work in this portfolio of projects. The following provides the responsibilities of the key personnel on the Corning, NY projects.

Program Manager – The Program Manager is responsible for the management and control of the overall NYSDEC program and all services to the client including scope, safety, quality, resource, financial, and schedule performance. The Program Manager is the single point of contact for all official communications with the client, subcontractors, public and media, unless otherwise specified. The Program Manager will help to develop the PSHEP and will approve the initial version and any updates.

Project Manager - Responsible for all project activities including the quality of contract deliverables. The Project Manager will develop, approve, and implement the PSHEP and ensure that all personnel and subcontractor site personnel are trained in the site-specific project health and safety requirements. The Project Manager will also function as the primary client contact and ensure that all project and client requirements are met.

Project Health and Safety Manager - Provides technical advice and technical review for all aspects of the PSHEP and Program Safety and will ensure all technical requirements, stated in the contract, and in the PSHEP are met.

Site Health and Safety Officer - The Site Health and Safety Officer will ensure that the health and safety plan is properly implemented and that all personnel and subcontractor site personnel are trained in the site-specific project health and safety requirements. The Health and Safety Officer will have authority to stop work if unsafe conditions are observed.

Program Manager	Tom Drachenberg, P.E.
Project Managers	Matt Vetter, Sarah Weishaupt, Heather Budzich, Peter Scharfschwerdt, Josh Hawley, Amy Ruta, Jessica Bennett, Liz Hennessy, Kristen Brooks, Tom Wollen, Nathan Kranes
Project Health and Safety Manager	Diana Ceaser
Site Health and Safety Officer	Tom Wollen
Task Leader(s)	Various – TBD

Key Project Stakeholders Project Office

PARSONS

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5.0 LEGAL COMPLIANCE REGISTER

Parsons shall comply with regulatory, legal, and other similar requirements in the jurisdictions where the project work is completed (Corning, NY, and surrounding areas). The legal compliance register identifies the SH&E-related laws, regulations, ordinances, and legal obligations that may impact the project. As legal requirements change during the lifecycle of the project, the changes shall be updated in the legal compliance register and their effects considered. See Appendix B for details.

Exhibit 5-1 represents regional, municipal, local, and/or OSHA regulations, owner, and Parsons corporate regulations and requirements applicable to the project. Based on the most recent risk assessments, the Parsons Project Manager and Program SH&E Manager will update the listed topics periodically. Training and other requirements are updated in this PSHEP as required by changes to Exhibit 5-1, Competent Person and Activity Hazards Analysis Requirements. The Parsons Contractor Competent Person Certification form is provided in Appendix F.

Parsons and its subcontractors are individually responsible for training their respective employees and for complying with all project requirements. Failure to comply could lead to disciplinary actions against Parsons employees and subcontractors or their employees. Further guidance is available in the Parsons SharePoint Safety, Health and Environment Templates and Example Libraries – Model Program Libraries found in the link below:

https://parsons365.sharepoint.com/sites/SafetyHealthandEnvironment/SitePages/Templates.aspx

6.0 RISK REGISTER

Parsons shall continually identify project SH&E risks and seek effective and reliable means to control these risks to an acceptable level. From these identified SH&E risks, additional policies, procedures, equipment, compliance programs, special training, or PPE required to control the risk of project hazards shall be developed, communicated, monitored, and adjusted as needed.

Hazard analysis and risk assessment planning, the basis of the risk register, is an ongoing process occurring throughout the life of the project. Hazard analysis and risk assessment planning should address items such as: routine and non-routine activities; activities of all persons having access to the workplace (including contractors, secondary-tier contractors, visitors, client representatives, and/or the general public); any outside hazards that might impact the workplace or the people in the workplace; hazards associated with materials or equipment being used in the workplace; any changes or modifications in design, processes, legal obligations, safety system changes; and any human factor or capability issues.

See Appendix D for a risk register for typical NYSDEC activities. The risk register will be updated for all proposed tasks to be performed. AHAs will be used to assess risk at the task level.

7.0 TRAINING, CERTIFICATIONS, QUALIFICATIONS, AND COMPETENCIES

7.1 Training

The program has a comprehensive SH&E training program tailored to the scope of work. All employees receive a general orientation upon assignment to the program. Office-based employees or field employees who spend a

significant portion of their time in an office also receive specialized office training (see ESHARP MANAGEMENT PROCEDURE Guidebook, Volume 1 – Project, Section 7 for additional detail).

All personnel performing activities covered by this plan must be trained in accordance with the requirements of 29 CFR 1910.120(e) if hazardous materials are known or expected during the field activities. Staff working on the Corning Program will receive site specific training on how to identify the hazardous and non-hazardous target fill referred to as ash, brick and/or glass (ABG). The Project Manager will verify and document that all Parsons and subcontractor personnel meet the applicable training requirements prior to the start of site work, including:

- OSHA 29 CFR 1910.120 initial 40-hour training.
- OSHA annual eight-hour refresher training within the last year.
- OSHA eight-hour supervisory training for on-site managers and supervisors.
- AED/CPR/First aid/Bloodborne Pathogens – At least one Parsons and/or subcontractor employee will have American Red Cross (or equivalent) first aid and CPR training and will be present onsite at all times when work is occurring.
- Hazard Communication – as per 29 CFR 1910.1200 and the Hazard Communications Defined Practice.

All personnel shall be monitored for training by the Program Safety Manager or their designee who maintains a record of training which identifies the expiration dates for applicable certifications. Safety training for project personnel will be based primarily on their work activities and corresponding risk of exposure to hazardous substances and health hazards. See Appendix E for the Training Matrix and list of typical training required to complete work on this program.

Records of completed training for Parsons employees are maintained in Parsons U and on the Program ParShare site. Copies of Parsons employee training completion records and certificates can be obtained by contacting the appropriate Project Manager.

7.2 Driver Safety Training

Driving around New York State presents a key risk if not controlled. All drivers will abide by the following rules:

- Do not drive when overly fatigued
- Check the weather forecast and posted travel restrictions
- Plan your route ahead of time and be prepared for construction and detours
- Follow all posted traffic signs and signals
- Give your yourself plenty of time to arrive at your destination
- Drive defensively, be aware of other drivers and pedestrians at all times
- Inspect your vehicle for safety issues (tires, lights, brakes, mirrors), do not drive if it is unsafe
- Perform a 360 degree walk around your vehicle prior to driver entering a vehicle

- Use of a spotter when backing or making maneuvers in tight spaces (if none is available get out and check)
- Do not use ANY electronic devices while driving, including hands free and Bluetooth

enabled The Defined Practices for driving safety are listed below. Corporate Policy Links are shown

below.

- Corporate Vehicle Safety Policy
- Corporate Safety Policy for Fleet Drivers
- Corporate Safety Inspection Form

Note: If these links do not work, go to PWeb, Policies and Procedures tab, Corporate Policies, Safety, Vehicle Safety to find these policies.

8.0 CONTRACTOR QUALIFICATION, MANAGEMENT, AND SITE-SPECIFIC SH&E PLANS

8.1 Contractor Qualification

Project procurement procedures require that all subcontractors submit prequalification documentation by logging into the Parsons online Contractor Safety Evaluation (CSE) Program. Their documentation will be evaluated by the Program Safety Manager and Project Manager. The Project Manager must also complete a Contractor Risk Evaluation Form (CREF) once the CSE Safety Grade is "complete." All contractors to be engaged in providing field services shall pass this contractor qualification process prior to engagement. A mitigation plan may be required for any subcontractor with a grade of C or lower at the discretion of the Program Manager and Program Health and Safety Manager. The mitigation plan must be approved by the Program Safety Manager prior to issuing a contract for the work.

Subcontractors must also complete site orientation training, provide appropriate training certificates for on-site personnel to confirm competency for performing the assigned duties, and provide certificates of training for permitted activities, such as drilling, lifting operations, hazard communication etc. as required by the ESHARP Management Procedure and this PSHEP.

8.2 Contractor Management

Contractors are accountable and responsible for their employees and work activities. However, the PM shall ensure that contractors' work (and that of their secondary-tier subcontractors) is:

- Being performed in compliance with the contract;
- Being managed consistent with the project's SH&E processes and with the ESHARP Management Procedure; and,
- Meeting the project's SH&E expectations.

The PM shall conduct sufficient SH&E alignment meetings, kickoff and pre-mobilization meetings, look-ahead meetings, progress meetings, inspections, audits, and other routine meetings to gauge the contractors' progress and understanding of the work. Such meetings shall include any secondary-tier subcontractors, when applicable.

Project Managers conduct the Mobilization/Kickoff Safety Meeting on the first day of subcontractor mobilization in the field and at the work site. The meeting includes the completion of a Site-Specific Risk Review Checklist combined with a walkthrough of the work area to locate items on the pre-bid risk analysis checklist.

Review forms/checklists are on the Pweb and are also included in Appendix F.

8.3 Contractor Site-Specific Safety, Health, And Environmental Plans (SSHEPS)

Subcontractors must establish their own safety program for their work and employees. Contract specifications require all subcontractors to accept the Parsons' PSHEP and prepare their own SSHEP for work activities the subcontractor has responsibility for performing. Upon request, Parsons will provide to the Subcontractor a Model Safety, Health and Environmental (SH&E) Plan for guidance. The Subcontractor must understand that the Parsons Model SH&E Plan is not intended to cover all contingencies, applicable regulations, and the specific

SH&E issues of this project. The Subcontractor must perform its own internal review of the Model SH&E Plan for legal sufficiency and to meet the needs of the Subcontractor's organization for the Project.

The subcontractor will present the SSHEP to the Parsons' Project Manager at least 10 days before site mobilization. At a minimum, subcontractor plans must meet the requirements of this PSHEP and provide SH&E equipment and safeguards suitable for the hazards involved. This PSHEP may not cover all potential hazards on every project, and subcontractors must ensure that appropriate SH&E information is available for all of the subcontractor's project tasks. All PSHEP requirements for Parsons' personnel (e.g., training, substance abuse screening, incident reporting, etc.) also apply to subcontractor personnel (Both in the study area and on the Satellite Sites) and will be included in the SSHEP, if applicable.

9.0 EMPLOYEE AND VISITOR ORIENTATION

9.1 New Employee Orientation

Each person assigned to a project team (including new Parsons employees, existing Parsons employees who are new to the project, contractors, secondary-tier contractors, teaming and JV partner employees, suppliers, vendors, client representatives, members of the leadership team, and other stakeholder employees) shall receive an initial project- and site-specific orientation beginning on their first day of work.

No worker shall start work on tasks for which he or she does not have the verified knowledge, skills, training, certifications, qualifications, and competencies to complete successfully, consistent with the risk control strategies defined in the risk register and its associated risk assessments.

The Human Resources Department has a comprehensive employee orientation program. The SH&E personnel help to develop applicable SH&E sections of the orientation and meet with new employees to review site procedures and requirements. Topics include:

- SH&E roles and responsibilities
- PSHEP overview
- Project rules and disciplinary policies
- Reporting incidents and unsafe conditions
- Near miss reporting
- Hazard communication
- Emergency/evacuation plans
- Spill/release reporting and response actions
- Waste management
- Other applicable environmental issues and regulatory requirements
- Individual Project scope of work
- Safety, health, environment, and other hazards at the site
- Review of all activities on-site and related Activity Hazard Analysis (AHAs)
- Proper use of PPE
- Work practices by which a worker can minimize risk from hazards
- Safe use of engineering controls and equipment on-site
- Acute effects of compounds at the individual sites
- Decontamination procedures
- Biological hazards training

All new employees on a project, including new hires and transfers, must be trained in this PSHEP and site-specific requirements.

9.2 Visitor Orientation

Visitors to a project shall receive an orientation briefing appropriate for their visits. The orientation will include the following items:

- Alarms, emergency, and evacuation procedure.

- Emergency assembly location.
- Smoking/Tobacco Use Policy.
- Weapons Policy.
- Drug and Alcohol Policy.
- Applicable security provisions.
- Communication requirements
- Stop Work' authority and effective implementation.
- Personal protective equipment requirements. (Refer to the Personal Protective Equipment Defined Practice.)
- Reporting requirements of injuries, accidents and near misses.
- Site hazard review and other specific procedures required by the site.
- Any other provisions specified in the PSHEP that are applicable to visitors.

The visitor's signature shall confirm understanding of the orientation and a summary of the items discussed should be listed on the Toolbox Safety Meeting form (See Appendix F). Visitors must be escorted continually by a knowledgeable member project team.

10.0 HAZARD IDENTIFICATION AND TASK RISK ASSESSMENT

10.1 AHA and/or Task Risk Assessment

Parsons and its subcontractors are required to conduct an AHA for all aspects of the work. An AHA includes the following steps:

- Identify each task required to complete a project and break the tasks into a series of steps.
- Identify the hazards associated with each task step.
- Identify the specific hazard control measure used for each task step in accordance with the order-of-precedence method of control (see Section 10.3).

Project Managers can use the following list to determine the Activity Hazards Analyses task. Developed AHAs for the most common project related activities are provided in Appendix G, while templates and the Daily Tailgate Briefing Form are also included in Appendix F.

- Premobilization inspection. Conduct an initial site inspection for pre-job planning. The inspection should cover potential exposures such as the location of electrical lines, underground utilities, nearby structures, roadways and traffic conditions, site security needs, public exposures, and other potential exposures. Environmental risks should be included in this inspection (e.g., potential for wastewater discharges, adequacy of planned stormwater controls, planned waste management handling, measures to prevent spills/releases), etc.
- Material handling. Consider the size and weight of equipment/drums, how equipment will be used, how equipment is set up and protected, and safety and maintenance inspections of material handling and rigging equipment. Consider employee training in use of equipment and ergonomic issues when engaged in manual material handling activities.
- PPE. Consider the type of PPE required for the proposed site activities (eye, head, foot, respiratory, hearing and hand protection, and types of special protective clothing) and how wearing each item might limit mobility or increase the need for rest periods during warmer temperatures. PPE used for oversight activities in the Corning Study Area include, hardhat, safety glass, safety vest, steel toe boot, and protective booties worn over the steel toe boots. Nitrile gloves are worn when collecting samples or handling of soils from excavated areas.
- Employee training. Review the safety training needs for each task and the assigned employees. Training should include initial site SH&E orientations and hazard communication training. Some activities (e.g., excavation, confined space entry, heavy equipment operations, handling hazardous materials, stormwater and wastewater management, response to spills/releases, waste management, and hazardous plant process operations) may require special training.
- Process safety management. At process sites where hazardous chemicals are stored or used, comply with special considerations and regional, municipal, local, and OSHA process safety management regulations.

Exhibit 10-1 illustrates the AHA template form while Exhibit 10-2 shows the training record to be completed and kept on file for each Activity Hazards Analysis.

10.1 Portfolio Risk Analysis

Before work begins, Project Managers will lead a team that performs a risk analysis at each work site to identify hazards and risks that require specific control measures.

Chemical hazards are expected to be a significant risk and may be encountered during subsurface related activities. Parsons oversight will be conducted by an employee trained in Hazardous Waste Site Operations and Emergency Response (HAZWOPER). If staining, residual product, odors, or other signs of subsurface contamination are encountered additional monitoring will be instituted as necessary to assess the potential for exposure.

Chemical Hazards - Contaminant Characterization and Potential Routes of Exposure The main routes of exposure for field personnel include:

- Inhalation of contaminant vapors;
- Inhalation of contaminated particulate matter;
- Ingestion of contaminated material;
- Dermal absorption of contaminated material;
- Dermal contact with poisonous plants; or
- Injection of contaminated material.

Site personnel can reduce their exposure potential by:

- Using the proper PPE;
- Practicing contamination avoidance;
- Following proper decontamination procedures; and
- Observing good personal hygiene.
- Maintaining proper labeling of containers, keeping an inventory of any hazardous materials brought onsite, and maintaining a copy of each chemical's Safety Data Sheet (SDS) onsite.

Physical Hazards - A variety of physical hazards may be present at any of the sites in this portfolio, but these hazards are similar to those associated with any field project. Potential hazards/risks related to this portfolio of projects are listed below:

- Driving – Long distances, urban and congested environments and different types of weather and times of day.
  - Do not drive when overly fatigued
  - Check the weather forecast and posted travel advisories
  - Plan your route ahead of time and be prepared for construction and detours
  - Allow plenty of time to arrive at your destination
  - Follow all posted traffic signs and signals
  - Drive defensively, be aware of other drivers and pedestrians at all times
  - Inspect your vehicle for safety issues (tires, lights, brakes, mirrors) do not drive if it is unsafe
  - Do not use ANY electronic devices while driving, including hands free and Bluetooth enabled
- Equipment / Drill Rig Operation – heavy equipment and drill rigs will be used on site; primary hazards include struck-by vehicle accident and contact with utilities.
  - Conduct a thorough subsurface and overhead clearance and inspect the area before drilling or performing any excavation activities, maintain adequate space from all identified utilities
  - Excavation activity around active utilities (OSHA reg 29 CFR 1926.651b) use of shielding, if necessary, to protect equipment underground utility and workers. Potholing, hand digging or use or an air knife to confirm the location of underground utilities should be considered.
  - Loading and/or excavation of impacted material under powerlines, use of spotters to ensure safe operations
  - Inspect all equipment daily before use, provide documentation of inspections and take any unsafe equipment out of service
  - Only use trained and authorized operators
  - Safety vest shall be worn, barricades and appropriate signage shall be placed around the work area.

- Use caution tape or barricade fencing where warranted to keep unauthorized personnel from entering the work area.
- Establish an exclusion zone around the rig and heavy equipment and do not allow any unauthorized personnel to enter
- Keep body and hands out of hazard areas, communicate plans for operating and handling equipment

- Biological – Tick and mosquito borne illnesses, insect stings and bites, poisonous plants.
  - Know how to identify poisonous plants (poison ivy/poison oak) and avoid contact as much as possible.
  - If available, apply an over-the-counter barrier cream, such as Ivy Block® to prevent contact with plant oils.
  - If available, apply DEET and/or wear permethrin treated clothing.
  - Wash hands and arms immediately with soap and water if skin contacts the plants.
  - Wear long pants with socks pulled over legs to prevent skin contact with plants and insects.
  - Inspect yourself and your Team members carefully for insects or ticks after being outdoors.
  - Spray any wasp/hornet nests with an insect repellant from a safe distance and remove prior to work in the area.
- Weather
  - Lightning - personnel shall follow the 30/30 rule - stop field activities and seek shelter when the time between seeing the lightning and hearing the thunder is less than 30 seconds. When the lightning and thunder has subsided for 30 minutes, work activities can resume.
  - High Winds/ Tornados- Forecasts that include hurricane or tornadic activity will prompt rescheduling of on-site outdoor work activities. The timing of hurricane impacts is easier to plan for than impacts from a tornado, which can develop without much warning. In either case, if a high wind event is forecast, measures will be taken ahead of time to secure loose items that may be moved by winds during the storm. Should a high windstorm occur while on location, personnel should seek shelter within a sturdy structure, preferably within lowest-level interior rooms with no windows or in a basement. For personnel caught outside away from a shelter, and a tornado is imminent, lie flat in the nearest ditch, ravine, or culvert and shield your head with your hands. If possible, tune into the National Weather Service for updates on storm activity (https://www.weather.gov/nwr/). Traffic – Both onsite and offsite.
  - Snowstorms/ Freezing Rain- Driving should be minimized during snowstorms and freezing rain. If you are driving when these conditions begin, pull over to a safe location, preferably off the roads and into a parking area, until the weather passes and roads are safe for passage. Stay in your car and stay warm until it is safe to move. During outdoor field work, limit outside work in terms of hours and tasks. Alternate between outdoor and indoor tasks to keep warm. Wear layers of insulated, water-resistant, or waterproof clothing to keep warm and dry. Watch for signs of frostbite and hypothermia. If manual tasks such as snow shoveling are needed, avoid overexertion by pacing yourself and taking frequent breaks. To prevent slips, trips, and falls, walking surfaces should be cleared of snow and ice as quickly as possible after a winter storm.
  - Wildfire Smoke/ Air Quality- During dry summer months, there can be brushfires in states where the FMC sites are located. Weather forecasting typically includes the risk of wildfires and should be considered when planning field work. Air quality effects from wildfire smoke can affect locations hundreds of miles from the source. The Air Quality Index (AQI), developed by the U.S. Environmental Protection Agency (USEPA), is used to assess risk to health from airborne particulate matter 2.5 micrometers or smaller (PM2.5). The AQI will be monitored for work locations, along with local governmental health assessments, when determining the need for rescheduling work.

AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

- Material Handling – proper lifting/ergonomics, handling of glass bottles.
  - Utilize proper lifting procedures when loading and unloading heavy equipment.
  - Bend at the knees when lifting rather than bending the back.
  - Use a mechanical lifting device or a lifting aid such as hand carts, drum dollies or lift gates when lifting or moving heavy objects.
  - To minimize weight, do not fill drums more than ¾ full.
  - Avoid lifting over 50 lbs., use a team lift
- Hand tools/Power Tools
  - Equipment will be inspected for defects prior to use.
  - Eye protection is to be worn at all times on site.
  - Employees using tools that may subject their hands to an injury, such as cuts, abrasions, punctures, or burns will wear protective gloves.
  - Loose or frayed clothing, dangling jewelry, or loose long hair will be removed or protected when working with power tools.
  - A GFCI will be used with all power tool operations.
  - Shielding or guarding will be in effect if applicable.
- Environmental – cold/heat related illnesses, animals, insects, poisonous plants/vegetation. See previous sections for information related to Environmental hazards.
- Waste handling – waste handling will be minimized to the extent possible. All wastes generated on site will be containerized and disposed of in accordance with all federal, state, and/or local guidelines. A container appropriate for the waste will be used and labeled.
- Slips/Trips/Falls/Cuts
  - Utilize proper housekeeping practices, such as removal of debris and tools from the work area to keep the area clear of trip hazards.
  - Use caution tape or barricade fencing where warranted to keep unauthorized personnel from entering the work area.
  - Replace manhole covers securely to prevent tripping and vehicle accidents.
  - Use hose cutters when cutting piping.
  - Walkways and workspaces will be kept clear of cords, hoses, pipes, etc. that cause trip hazards.
  - Temporary fencing used to limit access to work areas a shall contain appropriate signage to warn and guide activities.
  - If trip hazards cannot be removed from the work area, they shall be taped down and cones shall be placed to identify the hazard.
  - Wear proper gloves to protect against hazards.

- Electrical Hazards
  - Inspect all electrical equipment and extension cords prior to use.
  - All electrical circuits and equipment must be grounded in accordance with the NEC regulations. Use three-pronged plugs and heavy-duty extension cords.
  - Spark producing equipment is not to be used in operating remedial system buildings.
  - Lockout/Tagout procedures will be in effect if equipment is to be repaired.
  - A GFCI is required when using extension cords.
  - Workers must not have wet hands or be standing in water while plugging/unplugging energized equipment.
- Airborne Particulates (ears, eyes, nose, mouth, inhalation)
  - Eye protection is to be worn at all times on site.
  - Use water and wet methods to reduce dust generation to the extent possible
  - Respiratory protection is to be worn when site activities cause excessive particulates (such as mixing concrete, drilling through pavement, performing carbon change-outs, etc.).
- Ladder Safety
  - Ladders must be inspected prior to use. Any damaged ladder will be discarded immediately.
  - Painted ladders are forbidden.
  - Never stand on the top step of the ladder.
  - Extension ladders must 7extend 36" beyond work area.
  - Pitch ladders at a 4:1 ratio.
  - Extension and straight ladders must be tied off.
  - Fall protection must be worn when working at heights six feet or more above ground.
- Residential and Site Security
  - Do not permit anyone who is not properly trained and outfitted with the appropriate PPE to enter the Exclusion or Contamination Reduction Zones (this includes Parsons personnel, clients, regulators, etc.)
  - Use caution tape or barricade fencing where warranted to keep unauthorized personnel from entering the work area.
  - On sites where it is believed that security is an issue, two employees will be used for all field work. The “buddy-system” will be in place and the two employees will be in constant communication and within each other’s line of sight. There will be a cellular phone available to call 911 if a violent condition presents itself.
  - Working within the residential areas can result in interactions with residents, children, and pets. Approach each interaction cautiously, answer questions factually about the project, and move away from awkward situations. If persons or pets encroach on the work area, Stop Work until they leave.
  - When acts of violence occur or when an employee(s) feels that they are being placed in a threatening position they must immediately leave the site.
  - All potential acts of violence or threats by non-Parsons personnel must be immediately reported to the Project Manager and the Health and Safety Officer. The situation will be discussed to determine future action on the site in question.
  - If any Parsons employee notices suspicious persons or activities in a Parsons office or in the vicinity of a work area, he or she should immediately report the observation to his or her supervisor or the Project Manager.

Potential Chemicals of Concern (COCs)

The potential chemicals of concern at sites in this portfolio are those associated with semi- volatile organic compounds (SVOCs) and metals. Site workers could be exposed to these chemicals via inhalation of SVOCs, dermal contact, injection, and/or incidental ingestion of contaminated material. A brief summary of the potential project chemical hazards is presented in the following paragraphs and the applicable regulatory cleanup criteria and/or action levels for the project COCs are listed in the table below.

In addition to the potential for exposure to SVOCs, site background indicates the Corning, NY area had a significant glass manufacturing industry which has resulted in properties in the area being impacted with heavy metal compounds. These include cadmium, chromium, lead, and arsenic. Heavy metal compounds generally are immobile and as rule you must limit the inhalation of dust, fumes or vapors dispersed in the workplace air or near active operations. Intake of heavy metal through dermal exposure is unlikely.

Precautions to mitigate risks associated with the COCs include limiting the direct contact between subsurface soil/groundwater and workers with access to the soil/groundwater and reducing the time after contact that the impacted material remains in contact with PPE, clothing, or the skin. Note that most sites are covered with vegetation which serves as a barrier between the source area and onsite workers. Additional methods of reducing exposure in the event that a worker comes in contact with impacted soils/groundwater include:

- Wearing clothing and personal protective equipment that limits the skin area available for contact with the impacted material. Examples include gloves, hard hats, long sleeve shirts, and long pants (all are required to work on this project).
- Change work clothing that becomes soiled with impacted material. Dermal exposure can occur via absorption through clothing when it becomes wet.
- Do not eat, smoke, or chew gum or tobacco while working where the subsurface is being disturbed. This will limit hand-to-mouth activities that increase exposure to subsurface soils and groundwater.
- Wash hands frequently and always before eating, smoking, chewing gum/tobacco, or similar activities. This will help prevent the spread of any impacted material on the hands to items placed in the mouth.
- Do not apply sunscreen or similar substances without washing hands. The application of these substances can provide a mechanism by which impacted material can be trapped next to the skin.
- Cover cuts, scrapes, and other open skin areas. Injured skin allows compounds to be more readily absorbed into the body than intact skin.
- Wash hands and other exposed areas of skin before leaving the site. This limits the amount of time that impacted material is in contact with the skin, thereby reducing the amount of the chemicals that can be absorbed through the skin.
- Change soiled work clothes before or shortly after leaving the site and wash them prior to wearing them again. Gloves and other similar items that come into direct contact with impacted material should be washed or properly disposed.
- Minimize the creation of dust or splashes during groundwater sampling as much as possible. For example, keeping excavated soil moist will reduce the release of soil particles to the air.

10.3 Five Hazard Control Measures – Orders of Precedence

Site SH&E hazards and risks are controlled using one or more of the control measures listed below in order of precedence:

1. Engineer/design to eliminate or minimize hazards. A major component of the design phase is to select appropriate features to eliminate a hazard/risk and render it fail-safe or provide redundancy using backup components.
2. Guard the hazard. Hazards that cannot be eliminated by design must be reduced to an acceptable risk level by guards or isolation devices that render them inactive.
3. Provide warnings. Hazards or risks that cannot be totally eliminated by design or guarding are controlled through using a warning or alarm device.
4. Provide special procedures or training. When design, guarding, or warnings cannot eliminate hazards/risks, develop procedures, training, and/or audits to ensure safe and environmentally compliant completion of work. Training cannot be a substitute for hazard elimination when life-threatening hazards are present.
5. Provide PPE. To protect workers from injury, the last method in the order of precedence is the use of PPE, such as hard hats, gloves, eye protection, life jackets, and other protective equipment with the understanding that bulky, cumbersome, and heavy PPE will introduce additional hazards

which will need to be evaluated.

For work activities that involve HAZWOPER activities the following work zones will be established:

- Exclusion Zone

  The exclusion zone at the project sites will be limited to the area immediately surrounding the work activity, the building, or an area designated by the Project Supervisor or Site Safety Officer (SSO). Caution tape or other visible marker may be used to delineate this zone. Unprotected onlookers should be located 50 ft. upwind of decommissioning, or demolition activities. In the event that action levels are exceeded in the breathing zone, then all personnel in the exclusion zone must stop work, evacuate, and evaluate the situation. If the actions levels continue to exceed recommended limits, then an upgrade to the level of personal protective equipment is required on properly trained and certified crew members to continue work.

- Decontamination Zone

  A decontamination area will be set up for equipment decontamination. Equipment decontamination will consist of dry removal of material followed by water washing of the equipment. Personnel decontamination must take place prior to leaving the decontamination area and prior to entering any support zone, personnel hygiene facilities, or before eating, drinking, or smoking. Work activities in the study area and PPE worn by staff will conform with the exclusion zone requirements and CRZ requirements set up by the contractor. Over booties, nitrile gloves and other disposable PPE shall be removed and placed in appropriate receptacle prior to entering the support zone. Any decontamination water will be staged on-site for appropriate disposal. The site decontamination area(s) is yet to be delineated and presently undecided if the area will be a fixed station or 'mobile'

- Support Zone

  The support zone will be located upwind to both the exclusion zone and the decontamination zone. Break areas, operational direction, and support facilities (to include supplies, equipment storage, and maintenance areas) will be located in this area. No equipment or personnel will be permitted to enter the support zone from the exclusion zone without passing through the personnel or equipment decontamination zone first. The work zones (Exclusion & Contamination Reduction Zone (CRZ)) will be setup and delineated prior to the needed work task(s) commencing; the support zone will be outlined & discussed at that appropriate time.

  Any hazardous chemicals used on-site by Parsons personnel, or its subcontractors will be managed in accordance with 29 CFR 1910.1200 and the Parsons Hazard Communication Program. This will include proper labeling, an inventory list of all hazardous materials brought onsite, and a copy of each SDS will be maintained onsite. The subcontractor will be responsible to maintain and have copies of SDS for materials used onsite.

- Decontamination Procedure

  Level D or Modified Level D protection will be worn for initial entry on-site and initially for all activities. If air concentrations exceed action levels, workers will employ engineering controls first before upgrading the level of protection. Personal decontamination may be necessary for activities involving the use of Level C or Level B PPE. Exhibit 10.3 includes the proper decontamination procedures that may be implemented if chemical contamination is present and PPE protection greater than Level D is used. The SSO will determine the proper procedures for decontamination based on the work activities and amount of contamination. All site personnel engaging in intrusive activities will have their breathing zones monitored in accordance with Table 10.1.

  Level D and modified level D PPE worn in the exclusion zone within excavation areas at Corning will be worn when entering and observing operations in the open excavation. Removing booties, Tyvek suit (protecting the lower extremities) and nitrile gloves will be removed and placed in an appropriate receptacle for disposal. Steel toe boots, hard hats, safety vest and safety glasses shall be worn at all times when in active working areas.

  <u>Respiratory protection</u> – Respirator use is not anticipated for the NYSDEC Corning Sites project. However, if respirator usage becomes necessary based on air monitoring results indicating exceedances of action levels specified in Table 10.1, all personnel required to wear a respirator must be medically qualified by a physician and trained and fit-tested as per 29 CFR 1910.134. A respirator cartridge changeout schedule based on the Wood Math model would be developed specific to the airborne site contaminants.

10.4 Hazard Communication Program

All hazardous chemicals brought on-site by Parsons personnel, or its subcontractors will be managed in accordance with 29 CFR 1910.1200 and the Parsons Hazard Communication Program. This will include proper labeling, an inventory list of all hazardous materials brought onsite, and a copy of each SDS will be maintained onsite. The subcontractor will be responsible to maintain and have copies of SDS for materials used onsite.

10.5 Decontamination

At a minimum, the procedures outlined below shall be followed for decontamination, when required:

- Remove soil and gross contamination from tools, monitoring equipment, boots, etc. using paper towels, handi-wipes, etc.
- Decontamination of large equipment (i.e., excavators, front end loaders etc.) will require the use of a decontamination pad. This decontamination pad can be set up in a central area (staging area). Equipment shall be transported to the decontamination area only after care has been taken to cover (encapsulate) the impacted equipment buckets with plastic to allow transport over the roadway. Once the equipment is in the decontamination area the plastic can be removed and the bucket can be washed with a high-pressure steam cleaner. Tracks/tires will also be wrapped prior to transport to the decontamination area if they came in contact with the impacted materials and cleaned.
- Completely decontaminate soiled equipment in the work area using detergent and water and dispose of all cleaning materials as follows.
    - Due to the small quantity of waste generated during decontamination, it is allowable in most states to dispose of lightly contaminated materials (including gloves, rope, paper towels, etc.) in the site dumpster. It is important, however, to ensure that there is no chance of vapor generation or fluid leaking from the dumpster. At no time are materials containing free product to be disposed of in this manner. In this case, arrangements must be made for use of labeled drums and proper disposal.
- Wash hands and face thoroughly with soap and water before lunch or breaks, and as soon as practical after finishing work for the day.

Particular care should be taken to protect any skin injuries. If open wounds exist on hands or forearms, handling chemicals should be restricted or eliminated.

11.0 ENVIRONMENTAL HAZARDS

11.1 Heat Related Illness

Project activities may take place during time periods where exposure to temperature extremes could occur. In order to minimize exposure to temperature extremes, project personnel shall be familiar with the health effects of exposure to temperature extremes and the control measures that can minimize exposure. Follow the Control of Work defined practice.

Training shall be provided to all employees to recognize heat illness hazards before starting to work outdoors.

Any employee experiencing or witnessing signs and/or symptoms of a heat related illness shall report the findings to their supervisor immediately.

Supervisors shall understand the procedures to follow when an employee exhibits symptoms consistent with heat illness, including emergency response.

Definitions

Acclimatization - a temporary adaption of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within 4-14 days of regular work for at least 2 hours per day in the heat.

Environmental Risk Factors - working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

Heat Illness - a serious medical condition resulting from the body’s inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

Heat Wave - a sudden and temporary rise of temperature above the seasonal average for a particular region, which lasts for a prolonged period of time. A heat wave can greatly increase the risk of heat related illnesses.

Personal Risk Factors - an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.

Preventive Recovery Period - a period of time to recover from the heat in order to prevent heat illness.

Shade - blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

Signs and Symptoms of Heat Illnesses

Heat Rash – or prickly heat, occurs in hot and humid environments where sweat is not removed from the skin. Usually disappears when worker returns to cool environment.

Heat Cramps – muscle contractions from the loss of fluids/electrolytes due to sweating. Occurs when workers perform hard physical labor in a hot environment. Most common in the arms and legs. Cramping can occur after work has stopped.

Heat Exhaustion – inadequate blood circulation from stress due to constant heat. The whole body, especially the circulatory system, is extremely stressed. Possible symptoms include pale, flushed face and neck; clammy skin; heavy sweating; fatigue; shortness of breath; headache; dizziness or fainting; nausea and vomiting; and rapid heartbeat and breathing.

Heat Stroke – body's failure to regulate its' temperature. The most serious stage of heat illness. Symptoms include dizziness and confusion, red, hot, dry skin; nausea and vomiting; very little sweating; rapid pulse; high body temperature, 105° F or higher; convulsions, and fainting.

Heat Illness Prevention

Prevention of heat related illness in extreme temperature - project personnel shall consider implementing a Physiological monitoring program, including implementing work rest regiments. The field team shall be encouraged to drink plenty of liquids to replenish electrolytes. The field team shall also construct a shaded rest area for workers to take breaks.

Prevention of heat related illness may call for establishing work teams to rotate to minimize heat related illnesses.

Heat Illness Treatment

Heat Cramps - take water every 15 to 20 minutes. Drinking an electrolyte replacement (like Gatorade) may help.

Heat exhaustion - Get medical help. Don't leave the person alone. While waiting, remove worker to cool place to rest; remove as much clothing as possible; give water and electrolytes; and don't allow person to get chilled.

Heat Stroke – Call 911 immediately. While awaiting medical help, get victim into cool area, fan vigorously, apply cool water to clothing or skin, and apply ice packs under arms and to the groin area.

Heat Waves

Heat illness prevention during heat waves means taking extra measures.

- More vigilance - supervisors/employees watch others very closely and provide more frequent feedback during work activities. Site workers shall avoid working alone and utilize the "Buddy System," watch each other and closely monitor/report an employees' condition. Personnel shall be accounted for their whereabouts throughout the work shift and at the end of the day.
- More water - employees should drink small quantities of water more frequently before, during and after work. There should be extra supplies of water for replenishment, encourage employees to consult with their doctor on salt/mineral replacement.
- More cooling - use other cooling measures in addition to shade, spraying body with water/wiping with wet towels and taking additional/longer breaks in the shade.
- Change schedule - work activities may be started earlier on, later in the evening, split-up work shifts and avoid working during the hotter parts of the day. Work shifts can be cut short or stop work.
- Change meals - encourage employees to eat smaller/or more frequent meals (less body heat during digestion than with big meals), choose foods with higher water content (for example, fruits, vegetables, and salads).

Environmental and Physiological Factors

- Average ambient air temperature 96ºF (75-116ºF)
- Average humidity 29% (12% - 55%)
- Average wind speed 7 mph
- Average core body temperature 104ºF (98-108ºF)

See attached risk register for typical project related activities. The risk register must be updated for any task that is to be performed and has not been included on this list.

Provision of Water

Sufficient amounts of cool water shall be available and replenished at all times with at least one quart per employee per hour for the entire shift.

Easy access to clean and cool water shall be available to encourage frequent drinking.

Access to Shade

A Preventative Recovery Period (PRP) is necessary if an employee is suffering from heat illness or believes that a rest break is needed to recover from the heat.

Access to shade shall be permitted at all times. Employees shall have access to an area with shade that is either open to the air or provided with ventilation orcooling for a period of no less than 5 minutes.

Measurement

Portable heat stress meters or monitors are used to measure heat conditions. These instruments can calculate both the indoor and outdoor WBGT Index according to established American Conference of Governmental.

Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) equations. With this information and information on the type of work being performed, heat stress meters can determine how long a person can safely work or remain in a particular hot environment.

11.2 Cold Related Illness

Cold injuries such as frostbite and hypothermia may occur during field operations. The extent of injury caused by exposure to the cold will depend on such factors as wind velocity, temperature, and humidity. To guard against such injuries, personnel must wear appropriate clothing, have immediate access to warm shelter, carefully schedule work and rest periods, monitor worker's physical conditions, and learn to recognize warning symptoms, such as reduced coordination, drowsiness, impaired judgment, fatigue, and numbing of toes and fingers. Frostbite and hypothermia may occur if care is not taken to avoid risks.

Preparation to prevent cold related illness include:

- Schedule cold jobs for the warmer part of the day or warmer months
- Reduce the physical demands of workers by limited cold exposure or rotating persons.
- Have warm liquids available to workers.
- Provide warm areas for use during break periods.
- Monitor workers who are at risk of cold stress.
- Provide cold stress training that includes information about risk, prevention, symptoms, monitoring coworkers, treatment, PPE,
- Dress appropriately for the conditions, including wearing several layers of loose clothing, to provide insulating properties.
- Make sure to protect your ears, face, hands, and feet in extremely cold weather. Boots should be waterproof and insulated.
- Wear a hat; it will keep your whole-body warmer. Hats reduce the amount of body heat that escapes from your head.
- Avoid touching cold metal surfaces with bare skin.

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12.0 MEDICAL MONITORING

In accordance with corporate requirements the Project SH&E Manager (or the GBU SH&E Director) has established and implemented the following medical requirements for the project:

- Personnel that will be exposed to noise at levels greater than 85 decibels over an 8-hour time period require annual training and audiograms. This is not anticipated for this project.
- Medical monitoring is not anticipated on this Program. However, all personnel engaged in activities that results in the exposure to chemicals at or above the OSHA Permissible Exposure Limit (PEL) or wear a respirator for more than 30 days in a year, must comply with 29 CFR 1910.120(f) – Medical Surveillance. All personnel who wear a respirator must be medically qualified by a physician, trained and fit-tested on an annual basis, even if they are not required to participate in a medical surveillance program under 29 CFR 1910.120(f).
- Personnel that will have a theoretical potential exposure to contaminants above a PEL based on known soil or water analytical results, or when there is known contamination with no exposure data are required to have annual training, medical clearance, and a fit test in order to wear a respirator.

Diana Ceaser, Project SH&E Manager, (908) 619-0220 administers the medical monitoring program. Records of medical clearance reports for Parsons employees are maintained by Human Resources. If a Parsons employee has lost his or her personal medical evaluation result, the Parsons employee must contact a Human Resources representative directly for instructions for receiving an additional copy. Records of medical clearance reports for subcontractor employees are maintained by the subcontractor.

13.0 EMERGENCIES AND EMERGENCY MANAGEMENT

13.1 Emergency Management

The PSHEP includes a Notification List of emergency telephone numbers and maps showing the locations of both a nearby emergency facility and a non-emergency clinic for each site in the portfolio. This information will be provided in each site-specific's Dash Card.

To report any emergency by phone, dial 911, and be prepared to describe the emergency and its location.

If the incident that occurred is serious/life threatening or requires emergency response, first summon medical attention before contacting the PM and your Project H&S Manager, filing the IndustrySafe Online Incident Report, or involving WorkCare. Never attempt to transport a seriously injured person to the emergency room yourself.

If an injured employee requires medical care for a work-related injury/illness, the Order for Treatment of Work-Related Injury or Illness MUST be sent with the injured worker and/or faxed to the occupational medicine clinic at the time of the initial evaluation. A copy in Appendix H and the link to the document on ParShare: Medical Qualifications and Surveillance Order for Treatment for Work Related Injury or Illness Form US

WorkCare's Incident Intervention is available 24 hours a day, 7 days a week (24/7), and 365 days per year.

WorkCare contact number is 1-888-449-7787. Be prepared to provide the following:

- Injured employee's name
- Injured employee's contact number
- Injured employee's location (at a minimum include the city and state)
- Employee ID number
- Employee's GBU
- Employee's project or office location
- Functional manager's name

If the WorkCare physician or nurse determines that an employee should be evaluated by a local physician, then an occupational clinic will be used whenever possible (i.e., during normal business hours). A hospital must also be identified to provide treatment during all hours of operations. Locations and driving directions to hospitals and non-emergency clinics are included on each site-specific DASH card. Hospitals and occupational clinics must also be approved by Parsons, whenever possible.

Each Team member shall be familiar with the kinds of alarms on each project site and know how to effectively respond when an alarm sounds or when an emergency order is given. In addition, project workers shall be familiar with, and participate in, worker accountability protocols. Project-specific emergency response roles and responsibilities, and worker accountability protocols are discussed during the morning safety meeting.

Site specific emergency action plans should be discussed with the field crew and the DASH card readily available.

13.2 Incident Reporting

An incident that triggers Parsons' incident reporting, investigation, and management process is any of the following.

- An injury of any significance is sustained by anyone on a Parsons-controlled or Parsons-managed worksite.

- An injury of any significance is sustained by any Parsons employee while the employee is in a travel status in support of Parsons business.
- An illness of any significance is sustained by anyone and manifests its signs or symptoms on a Parsons-controlled or Parsons-managed worksite.
- An illness of any significance is sustained by any Parsons employee and manifests its signs or symptoms while the employee is in a travel status in support of Parsons business.
- An injury or illness of any significance is sustained by anyone and is related to Parsons-controlled or Parsons-managed work activities.
- An unplanned, unauthorized, or non-permitted release of a hazardous substance or other environmentally significant substance occurs on a Parsons-controlled or Parsons-managed worksite, regardless of whether the release meets any threshold for regulatory reporting.
- A hazardous substance release on a Parsons-controlled or Parsons-managed worksite exceeds an environmental permit requirement or a regulatory threshold (other than the original release).
- An unplanned release of a hazardous substance or other environmentally significant substance occurs anywhere and affects Parsons-controlled or Parsons-managed work activities.
- An unplanned security or law enforcement event of any significance occurs on a Parsons-controlled or Parsons-managed worksite.
- An unplanned security or law enforcement event occurs that directly affects a Parsons employee while the employee is in a travel status in support of Parsons business An unplanned event involving property damage occurs on a Parsons-controlled or Parsons-managed worksite.
- A motor vehicle-related event of any significance occurs involving vehicle or facility damage on a Parsons- controlled or Parsons-managed worksite, or in support of Parsons work.
- A motor vehicle-related event of any significance occurs involving vehicle or facility damage and involving a Parsons employee, while the Parsons employee is in a travel status in support of Parsons business.
- An unplanned event occurs on a Parsons-controlled or Parsons-managed worksite that could have caused an injury, an illness, environmental damage, or property damage, but did not because of the intervention of random or fortunate circumstances and conditions. These types of incidents also are called near misses, near hits, and close calls.

When a person detects an incident, the person shall immediately implement the following incident reporting process. See also the Incident Notification numbers on the DASH Card. Continue calling until those listed until someone answers the phone.

Step 1: Does the person perceive that the incident is an emergency?

- Yes: Stop Work, summon the appropriate emergency services, activate an alarm, or direct, by name, a nearby person to summon emergency assistance. Render first aid or other emergency assistance, as appropriate. Follow the site-specific emergency action plan to respond to the emergency. Follow the instructions of qualified emergency responders. Proceed to Step 2.
- No: Proceed to Step 2.

Step 2: Report the incident to the onsite Safety Officer (if applicable).

Step 3: Report the incident to the Parsons site Project Manager, or Site Safety Officer.

Step 4: Report the incident to Diana Ceaser (908) 619-0220.

Step 5: Report the incident to the DEC PM with approval from the PM.

Step 6: Does the incident involve a work-related injury or illness?

- Yes: Did a Parsons employee sustain the injury or illness?
- Yes: The affected employee, supervisor, or project SH&E representative shall describe what shall be done. Call WorkCare at 888-449-7787 when first aid beyond simple or obvious self-care may be needed. For example, WorkCare shall be called for work-related muscle strains, sprains, possible fractures, lacerations or punctures, head injuries, eye injuries, joint injuries, or concerns related to ill health. Proceed to Step 7.
- No: Proceed to Step 7.

Step 7: Cooperate with any related investigations or reviews.

The Project Manager (or delegate) shall make an initial report of the incident to the GBU SH&E Director (or delegate) and to other members of the Parsons leadership team. Further investigation may be necessary.

For significant work-related injuries, illnesses, environmental incidents, security incidents, or property damage incidents, the PM (or delegate) shall make the above initial incident report by telephone and immediately. This immediate initial incident report is essential as Parsons may have to report the significant incident to one or more regulatory authorities within a few hours of the occurrence of the incident. Examples of significant incidents are those that involve:

- One or more fatalities;
- One or more injuries or illnesses requiring a worker to be treated in an emergency room or requiring in-patient hospitalization;

An injury to a visitor or member of the public;

- An event that may present adverse media press to Parsons or the project;
- A release of a substance requiring a report to a governmental regulator;
- A criminal injury;
- A law enforcement arrest; or
- Property loss or damage exceeding an initial estimate of $50,000.

After the immediate notification by telephone (for significant incidents), or after determining that an immediate report is unnecessary (for all other incidents), the PM (or delegate) shall create and submit the initial report of the incident in IndustrySafe within 4 hours of the occurrence of the incident, or as soon as practical.

All project team members, including those directly affected by the incident, shall cooperate fully with any related incident investigations and management system process reviews.

13.3 Incident Investigation

The Project Manager shall ensure that significant incidents (including significant near misses) are formally investigated. Incident investigations seek facts, not fault. The result of a properly conducted incident investigation is thoughtful identification of root causes of the incident and effective corrective actions and recommendations to prevent similar incidents from recurring. Incident summaries and any documents associated with incident investigations shall be submitted and retained within the IndustrySafe record associated with the incident.

The investigation process starts as soon as the initial report of the investigation is submitted. The Project Manager (or delegate) shall lead the investigation and shall seek assistance from the project SH&E representative (or delegate) for subject matter expertise and investigation support. Depending on the incident's complexity and consequences (or potential consequences), the GBU SH&E Director may commission a corporate investigation team to work collaboratively with the Project Manager's investigation process. A formal incident investigation report with corrective actions and accountability assignments shall be distributed to the appropriate members of the project team and Parsons leadership team and submitted in IndustrySafe as a part of the IndustrySafe record of the incident.

After the investigation report is submitted, the Project Manager shall ensure that the project team is aware of any findings, lessons learned, and the status of the corrective actions identified in the incident investigation report. In addition, the Project Manager shall prepare for an Executive Incident Review to formally involve the Parsons executive leadership team.

13.4 Incident Management

For an incident involving a Parsons employee who sustained a work-related injury or illness, the Project Manager shall designate a project team member or Donna Miller (donna.miller@parsons.com; (661) 904-0978) to communicate with the affected worker to collaborate with his or her care and treatment and to help ensure that the medical providers understand the employee's job roles and opportunities for the employee to engage in alternative work. Parsons' objective is to ensure our employees receive the right care as soon as possible and are able to return to work with maximum medical improvement. The Project Manager shall try to communicate with the affected employee as soon as practical to ensure the employee knows Parsons and the project team are concerned with the employee's health and welfare.

If care at a clinic or hospital for an injured Parsons employee is required, the Order for Treatment forms and are available in Appendix H and from Donna Miller and should be provided directly to the care provider, as related to treatment and workers' compensation billing.

If an injured or ill employee is out of work, is restricted from his or her usual work-related activities, or is transferred to an alternative work role, the Project Manager (or delegate) shall routinely communicate with the affected employee, the designated Parsons workers' compensation specialist, and the project SH&E representative to see how the employee is progressing, to ensure the employee knows Parsons and the project team remain concerned with the employee's continuing health and welfare, and to receive an update on the employee's return-to-work status. The Project Manager (or delegate) shall then update the employee's return-to- work status (and any other details) within the IndustrySafe record associated with the incident.

The Project Manager shall require subcontractors on the project team to submit routine status reports related to their workers who have sustained work-related injuries or illnesses while performing Parsons's work on Parsons-controlled or Parsons-managed worksites. These status reports, at a minimum, shall describe the current condition of the injured or ill worker (until the worker has reached maximum medical improvement) and the worker's return-to-work status. The Project Manager (or delegate) shall then update the worker's return-to-work status (and any other details) within the IndustrySafe record associated with the incident.

13.5 Workers' Compensation Program

This program does NOT participate in an Owner's Controlled Insurance Program (OCIP) or project-specific insurance program. The workers' compensation policy covering Parsons employees on this program is as follows:

Insurance Company of the State of Pennsylvania Carrier: AIU

Policy effective date: 1/1/2025-1/1/2026 WC policy: #WC013751746

AIU via Gallagher Bassett Services, Inc. P.O. Box 4210, Clinton, IA 52733-4211 (833) 465-2499
The Corporate Risk Management Department establishes the workers' compensation carrier. If a workers' compensation loss occurs, the Corporate Workers' Compensation Analyst handles all communication with the workers' compensation carrier.

Donna Miller (donna.miller@parsons.com; (661) 904-0978 is the Parsons point of contact for this project for all workers' compensation matters. When an employee is injured or made ill as a result of work-related activities, it is essential that we abide by local workers' compensation laws and regulations.

14.0 INSPECTIONS, SELF-ASSESSMENTS, AND AUDITS

The scope of the project's inspection, self-assessment, and audit protocols includes all site and facility locations controlled by the project, including sites and facilities not typically occupied, such as material and equipment storage areas, as-needed fabrication areas, and parking areas. In addition, these protocols include the physical site, grounds, and outdoor environmental infrastructure controlled by the project. Contractor-controlled worksites and operations are included.

14.1 Program Safety Committee

A program safety committee that includes representation from all project stakeholders has been formed. Monthly safety committee meetings will take place in accordance with NYSDEC requirements.

Charter of a Safety Committee: The project safety committee represents the mutual interests of all project participants in completing the work with zero injuries. The committee meets quarterly to consider incentive programs, recent near-miss incidents or injuries, potential unsafe conditions, training programs, safety awareness, audit results, and other safety related issues. The committee advises the Program Manager, who retains sole decision-making authority.

The committee consists of equal numbers of Parsons and subcontractors personnel, professional/ management, and craft/trade personnel, and/or exempt and non-exempt personnel.

Safety committee members are as follows:

- Thomas Drachenberg (Parsons Program Manager)
- Sara Weishaupt (Parsons Project Manager)
- Casey Rourke (Parsons Geologist)
- Matthew Vetter (Parsons Project Manager)
- Additional members as needed

The chairperson schedules quarterly meetings develop the agenda and distributes meeting minutes to committee members. Workers may submit suggestions and topics for discussion to the chairperson at any time.

14.2 SH&E Inspections

An SH&E inspection is an in-person, on-site verification (by direct observation) that work is being performed, and equipment and infrastructure is being used and maintained, in accordance with the risk register, and in accordance with associated SH&E policies, procedures, regulations, laws, and best practices.

The findings of SH&E inspections and associated non-conformances arising out of the inspections shall be documented, and any non-conformances shall be resolved as soon as practical.

14.3 Routing 14 SH&E Inspections

Periodic (weekly) SH&E inspections should be conducted by the Site Safety Officer (SSO) using the behavior-based safety (BBS) observation form provided in Appendix F.

14.4 Focused SH&E Inspections

Field staff consist of fewer than 5 people and are typically not required to be onsite for more than five continuous days, therefore focused SH&E inspections will not be conducted.

14.5 SH&E Compliance Inspection

SH&E inspections may be conducted as required by the activities and duration of time on site. The Program Health and Safety Manager or designee will conduct compliance inspections and audits.

14.6 SH&E Audits

SH&E audit may be conducted as required by the activities and duration of time on site. The Program Health and Safety Manager or designee will conduct compliance inspections and audits.

14.7 Employee-Based Safety/Peer-Based Observations

The Parsons BBS program is applicable to all staff. A behavioral safety process identifies behaviors people should use, checks what behaviors are actually in use, and addresses the gap between these two in a positive way. The effectiveness of the process depends on cooperative participation of all members of the workforce. See the behavior-based safety defined practice for additional details.

Behavior based safety processes can take many forms but typically consist of the following essential elements:

- Identification and explicit definition of target safe behaviors.
- Observation and recording of those behaviors.
- Reinforcement and/or feedback based on the recorded behavioral data.

Parsons personnel shall use observation tools to conduct and record behavior observations. Copies of Observation Engagement Forms (OEF) are included in Appendix F.

Subcontractors who provide services to Parsons are also required to participate in the behavior-based safety program. Subcontractors may use standards, practices and procedures comprising their own Health, Safety, Security and Environment (HSSE) management systems to meet the requirements in this practice if they are essentially equivalent to the Parsons BBS program. Parsons shall have the right to periodically audit subcontractors' HSSE Management Systems and/or field work to assure that such systems meet the requirements of Parsons Management System and are being followed. Subcontractors shall be expected to cooperate with all such audits and to promptly respond to any issues identified and correct any deficiencies.

14.8 SH&E Performance Measurement

No more than three business days after the close of the monthly reporting period, the Project Manager (or delegate) shall report the following information through the Program Safety Manager of designee.

Leading Indicators of SH&E Performance:

- Number of focused SH&E inspections performed and documented.
- Number of SH&E compliance inspections performed and documented.
- Number of near misses reported and investigated.
- Number of SH&E-related rewards and recognitions dispensed among project stakeholders.
- Number of subcontractors not used due to SH&E disqualification.

Trailing (Lagging) Indicators of SH&E Performance (Parsons Employees):

- Number of hours worked on the project by Parsons employees.
- Number of Parsons employee injuries or illnesses leading to lost time.
- Number of Parsons employee injuries or illnesses leading to restricted duty or transfer.
- Total number of all Parsons employee recordable injuries or illnesses.

15.0 MEETINGS

Risk communication and planning meetings routinely shall take place on the project. This section of the PSHEP describes these meetings, their structure, their participants, their expected frequency, and whether or not they are to be documented. If these meetings are to be documented, then this section of the PSHEP also describes what is documented and where these documented meeting records are maintained.

Other meetings beyond these listed may be needed to help ensure that project risks are communicated, and risk controls are planned adequately.

- Project Kickoff and Premobilization Meetings (PM, staff, line supervisors, stakeholders)
  - Establishes initial site contacts, verifies site infrastructure availability, orders initial supplies, tools, and equipment, reinforces work initiation and SH&E expectations among stakeholders.
  - Confirms that necessary work instructions, activity hazard analyses, SH&E programs, and SH&E training and qualifications have been completed and have been communicated to the affected personnel Unresolved PSHEP implementation tasks shall be identified and a path to their resolution shall be agreed to.
  - These meetings shall be formally documented, with names of attendees, the agenda, meeting minutes, and actions items coming from the meeting. Action items shall be tracked to resolution.
  - The Project SH&E Manager maintains the meeting documentation on file.
- Daily/Pre-task Briefings (field employees)/ Toolbox Talks (PM, staff, stakeholders, field employees)
  - Conducted by field leader and field employees prior to beginning work.
  - provides a scheduled forum to discuss planned daily activities, project risks and mitigations, and the overall HSSE concerns of the project. For the Corning project Parsons oversight field staff meet following the contractor safety and operational briefing. The purpose of the meeting is to raise the consciousness of the workers before they start work. Important to the process is the affirmation of each and every team member to be mentally and physically fit for duty. All information discussed during the meeting is documented in the Field Authorization Form.
  - Includes the use of an activity hazard analysis, or other job-specific risk assessment and/or permit issuance (as needed).
- Stop Work Meetings and/ or Take 5 Briefings (field employees, PM
  - Conducted by any employee who notices an unsafe condition, act, or behavior that precludes continuing the work as planned.
  - Involves the use of an activity hazard analysis, or other job-specific risk assessment process, with modifications applied as necessary to account for the unplanned event.
  - May involve a lengthy work stoppage and invoke other reporting requirements to ensure the work is ready to resume.
  - These meetings shall be formally documented, with names of attendees, the agenda, meeting minutes, and actions items coming from the meeting. Action items shall be tracked to resolution.
  - This meeting will be documented, and records maintained in the electronic files. Meeting may be documented with the Take 5 Card (Exhibit 15-1). This documentation is maintained with the field notes.
  - Contact the Parsons PM before re-starting work to discuss any work pause or Stop Work event.
- Toolbox Talks
  - Conducted by stakeholders and employees daily.
  - Involves the preparation of any required permits (if necessary)
  - See Tailgate Briefing Form in Appendix F.
    For NYSDEC led tasks, Parsons performs the toolbox talk and documents the meeting using the Tailgate Briefing Form included in Appendix F.

- All Hands Meetings (all employees and stakeholders)
    - Involves everyone on the project. The PM typically leads these meetings to encourage the project team, to recognize and reward outstanding employees and stakeholders, and to ensure the Parsons SH&E core value is expressed.
    - These meetings shall be formally documented, with names of attendees, the agenda, meeting minutes, and actions items coming from the meeting. Action items shall be tracked to resolution.
    - The project manager will maintain the documentation for these meetings.

- Other Meetings
- None expected

The project manager or designee will maintain the documentation for these meetings.

16.0 COMMUNICATION, CONSULTATION, AND AWARENESS CAMPAIGNS

The project has an awareness program consistent with the Parsons SH&E awareness campaign and its various elements (e.g., signs, posters, banners, and focus briefings). This program promotes employee awareness of SH&E goals and daily risks, hazards, and exposures in the field. In addition to topics selected by Corporate Safety each month, the project will supplement the awareness program with information specifically applicable to the scope of work.

Safety awareness is covered in daily safety meetings.

A stakeholder PSHEP alignment meeting should be held before beginning any field work. The following representatives should attend the meeting:

- Parsons and Subcontractor Project Manager
- Parsons and Subcontractor Field Team Leader

Parsons should obtain stakeholders concurrence with the approach. The meeting should include a review of stakeholder roles and responsibilities and elements of control appropriate to project risks.

17.0 REWARDS AND RECOGNITION

Each Project should develop a “Rewards and Recognition” program to foster continuous improvement in SH&E performance.

17.1 Rewards And Recognition Procedure

Parsons recognizes Parsons employees and project teams who make a performance contribution to Parsons SH&E. This project recognizes achievements or accomplishments that contribute to the overall SH&E objectives of the company.

The following policy outlines acceptable methods of rewards and recognition and focuses on leading indicators rather than lagging indicators. Teams and individual employees can be rewarded through the Drive Recognition Program or with items from the Parsons Company Store and are encouraged to base incentives on leading SH&E indicators.

17.2 Examples of Leading Indicators

Examples of leading indicators or actions to reward and recognize are as follows:

- Participating in or leading a safety meeting.
- Providing suggestions for improving workplace SH&E.
- Creating or revising an AHA
- Reporting a Stop Work, Hazard ID, or Near-Miss.

Celebrations of achievements at a project or office level are still important. Project luncheons at milestone achievements are encouraged and are the appropriate place to recognize the collective achievements of working without incident.

18.0 ENFORCEMENT AND DISCIPLINE

The Project Manager has established a fair and consistent project policy for the disciplinary process related to employees and project stakeholders who are unable to abide by the project's SH&E expectations. In general, Parsons employees and contractor workers who intentionally create or contribute to situations that are immediately dangerous to life, health, the environment, or the security of the project are subject to immediate termination. The Project Manager, and the project's assigned Human Resources professionals, shall ensure that enforcement and discipline matters are handled fairly and fully consistently with applicable contracts, collective bargaining agreements, local, regional, and national laws and regulations, and the Parsons SH&E core value.

Continual improvement is an essential aspect of Parsons SH&E core value. The Project Manager, supervisors, and project stakeholders shall identify and immediately address unacceptable actions and behaviors. All members of the project team shall be on the lookout continually for any conditions, actions, or behaviors that increases the risk of injury, illness, property damage, or environmental insult. The first step to addressing at-risk conditions, actions, and behaviors is through personal communication, coaching, or mentoring.

Parsons and its subcontractors enforce all applicable SH&E requirements of regional, federal, municipal, state, local, and all other regulations; and where applicable OSHA 1910 and 1926 and NY City where applicable. Subcontractors must also comply with and enforce Parsons site requirements.

Parsons and its subcontractors must have written progressive disciplinary systems available for review in their Human Resources departments.

18.1 Notice Of Violation Of Safety And Health Regulations

The project has a formal Notice of Subcontractor Violation of SH&E Regulations Program to ensure that violations are issued as the result of an IDLH situation, respiratory airborne hazards (RDLH), and/or when the subcontractor repeatedly fails to comply with SH&E requirements.

19.0 SUBSTANCE ABUSE IDENTIFICATION AND TESTING

Parsons is committed to providing a drug-free and healthful work environment. In collaboration with the Human Resources professionals assigned to the project, the Project Manager has established a fair and reliable substance abuse and identification and testing program.

Without exception, employees, contractor workers, and other project stakeholders shall be fit for duty while conducting work on behalf of Parsons, while on Parsons worksites, and while driving.

For this project, the client does not require specific drug and/or alcohol testing. All employees will comply with Parsons substance abuse programs.

The Parsons vehicle policy requires that if you are a U.S. employee all drivers involved in a vehicle accident while operating a Parsons' owned or leased vehicle are to undergo a complete alcohol drug screening within 4 hours of a motor vehicle incident. The only exception to the drug testing requirement will be accidents that occur when the Parsons' fleet driver is not in the vehicle (i.e., vehicles damaged while parked). You or your manager will need to schedule testing with I3screen, our Parsons vendor.

Resolution/Answer/Response

Important for Agency employees: If you are an agency employee and need alcohol and drug testing, reach out to your agency company directly -- do not follow the steps in this article or attempt to contact our Parsons vendor.

Alcohol and Drug Testing Procedures

Employee actions:

1. If you are involved in an accident while operating a Parsons owned or leased vehicle, immediately contact your manager.
2. You will be required to take a drug and alcohol test within 4 hours of the accident.
3. You or your manager will need to schedule the test.

Schedule post-accident testing - Employee or manager:

Immediately contact I3screen, our drug and alcohol testing vendor.

1. If the accident occurs during business hours - 6am PST to 5pm PST - Call 1 (877) 585-7366 and select option 4.
   - If the accident occurs after business hours, including weekends and holidays, call 1 (866) 457-4009. If the afterhours phone line is busy, leave a detailed message > A representative will call you back as soon as possible.
2. Provide your company name and Quest Account Number Non-Dot: 10534253.
3. Provide a reason for the test: Reasonable Suspicion or Post Accident.
4. Confirm the services needed: 10 - Panel Drug and Breath Alcohol Test (BAT).
5. Provide employee information:
   - First and last name
   - Social Security Number
   - Employee phone number
   - Address where accident occurred
6. I3screen team will identify a site that can perform the requested service > The team will provide you with information about the collection site.

- If calling after business hours, Quest 24/7 Team will locate a site. If a site is not available, a mobile collector will be dispatched to the employee's location, upon client approval.

7. Have a chain of custody form available as it may be required for testing. The form can be found in the glove department of the vehicle.
8. Send drug testing receipts and accident details to People Central via logging a ticket. You must send this information less than 24 hours from when the accident occurred. Log a ticket in this article > Provide the following information in the Description field and upload testing receipts:
   - Employee name
   - Cell phone number
   - Current zip code/location of accident
   - Date of accident
9. People Central will inform you of the test results.

NOTE: The employee MUST be driven to the testing facility by either their manager or another employee, or the

employee can take a taxi or ride share service, such as Lyft or Uber. Follow Parsons Risk Management Accident Reporting procedures.

If you need a chain of custody form, log a ticket in this article. Provide a mailing address.

Employee shall not drive a Parsons fleet vehicle until after a negative post incident Breath Alcohol and Panel Urine Drug Screen has been received.

FIGURES

TABLES

Table 10.1 Primary Chemicals Of Concern

Chemicals of Concern	Groundwater concentrations	Monitoring Equipment	Action Level (50% of Exposure Limit)	Possible Routes of Exposure and Action Taken
SVOCs, including 1,4 Dioxane	Groundwater	10.6 eV Photoionization detector (1.5 Response Factor)	ACGIH- 10 ppm for 8 hours or 0.5 ppm sustained for 30 minutes on the PID (NIOSH limit)	Inhalation and Skin Absorption Remove to fresh air; wash skin after contact with contaminated media.
Hydrogen Sulfide	NA- abandonment and closure of old oil wells	H2S personal monitor	1 – TWA 5 – STEL (ppm)	Inhalation General ventilation, well venting, distance from source, remove ignition sources
Methane/Landfill gases	Various	Methane meter	<10 % LEL	Inhalation Risk of fire Air monitoring Ventilation. Eliminate ignition sources
Heavy Metals Cadmium Arsenic, Chromium	NA – airborne contaminant of concern	CAMP dust monitoring	OSHA: PEL 5 mg/m3 NIOSH: REL 10 mg/m3 a. <1 mg/m3 b. 1 – 5 mg/m3 >5 mg/m3	Inhalation Implement engineering controls (dust suppression) a. Continue monitoring b. Implement engineering controls to suppress or control dust. c. Continue dust suppression and Stop Work activities. Don full face respirator, Level C (qualitative or quantitative fit test)

Notes:

OSHA Permissible Exposure Limits (PELs) as published on the OSHA website

ppm = parts per million.

mg/m3 = milligrams of contaminant per cubic meter of air

ACGIH TLV = American Conference of Government Industrial Hygienist Threshold Limit Value

All readings collected with PID shall be sustained reading of 30 secs or more and collected within the breathing zone and/or work area.

Readings will be taken with the PID at the beginning of the day, changes in work activities, and during all sampling activities. If readings exceed Level D, then stop work, leave the area, and allow to ventilate. If action levels are maintained, then consult with Project Manager or Safety Officer on PPE appropriately.

Community Air Monitoring Plans (CAMPs) will be developed and implemented as necessary for remediation/construction projects. The NYSDOH Generic Community Air Monitoring Plan guidance will be used and referenced for project specific CAMPs.

EXHIBITS

Exhibit 5-1 – Competent Person and Activity Hazards Analysis / AHA Requirement

Safety and Health Requirement	OSHA /NYC Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
General Safety and Health	1926.20	Yes	Yes	Yes
Safety Training Construction Safety	1926.21 Local Law 196	Yes	Yes	Yes
First Aid and Medical	1926.23, 50	Yes	Yes	Yes
Fire Protection and Prevention	1926.24, 150-155, 352	Yes	Yes	Yes
Housekeeping	1926.25	No	No	No
Personal Protective Equipment	1926.28, 95-98, 100-107	Yes	Yes	Yes
Emergency Employee Action Plans	1926.35	N/A	Yes	Yes
Gases, Vapors, Dusts and Mists	1926.55	Yes	Yes	Yes
Hazard Communication	1926.59	Yes	Yes	Yes
Hazardous Waste Operations and Emergency Response	1926.65 1910.120	Yes	Yes	Yes
Accident Prevention Signs and Tags	1926.200	N/A	N/A	N/A
Waste Disposal	1926.252	Yes	Yes	Yes
Tools	1926.300-307	N/A	Yes	Yes
Controlling Hazardous Energy Sources (Lockout, Tagout, Tryout and equipment Opening/ Line Breaking)	Controlling Hazardous Energy Sources (Lockout, Tagout, Tryout and equipment Opening/ Line Breaking)	Yes	Yes	Yes
Motor Vehicles, Mechanized Equipment	1926.600-603	Yes	Yes	Yes
Site Clearing	1926.604	N/A	Yes	Yes
Marine Operations and Equipment	1926.606	Yes	Yes	Yes
Excavations (includes underground work and subsurface clearing)	1926.650-652	Yes	Yes	Yes
Excavation Permit	N/A	Yes	Yes	Yes
Noise Exposure	1910.95 and 1926.52	Yes	Yes	Yes
Confined Spaces in Construction	Confined Spaces in Construction	Yes	Yes	Yes
Traffic Control	General Duty Clause and NYS DOT Traffic Control Manual	Yes	Yes	Yes
Waste Transportation and Handling	• US 40 CFR part 262, subpart E • US 40 CFR section 263.20 • US 40 CFR section 239- 282	Yes	Yes	Yes
Working on or around Water	1926.106	Yes	Yes	Yes

See attached legal compliance register. Note that AHA forms will be used for specific activities.

The need for drilling permits in the Corning, NY and surrounding areas will be evaluated and acquired by the Parsons drilling subcontractor prior to the initiation of drilling activities.

Exhibit 10-1 – Activity Hazards Analysis (AHA) Template

Activity/Work Task:	Overall Risk Assessment Code (RAC) (Use highest code)					
Project Location:	Risk Assessment Code (RAC) Matrix					
Contract Number:	Severity	Probability				
Date Prepared (MM/DD/YY):		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
Reviewed by (Name/Title):	Marginal		M	M	L	L
Employer / GBU: Parsons	Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.) **References:**	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	RAC Chart
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	E = Extremely High Risk H = High Risk
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	M = Moderate Risk L = Low Risk

Job Steps	**Hazards**	**Controls**	**P**	**S**	**RAC**

Note: This page will continue for more pages, the header will continue with subsequent entries. ParShare link: AHA Template

Exhibit 10-1 – Activity Hazards Analysis Template (Continued)

Activity/Work Task: Entering Excavation			Overall Risk Assessment Code (RAC) (Use highest code)			
Project Location:			Risk Assessment Code (RAC) Matrix			
Job Steps (Contd)	**Hazards**	**Controls**		**P**	**S**	**RAC**

Equipment to be Used	**Training Requirements/Competent or Qualified Personnel name(s)**	**Inspection Requirements**

Note: This page will continue for more pages, the header will continue with subsequent entries. ParShare link: AHA Template

Exhibit 10-2 – SH&E Activity Hazards Analysis Training Record

PARSONS

SH&E Activity Hazards Analysis Training Record

Job Number:		
AHA Number:		
Job Location		
Date:		
Name of Trainer:		
Subjects Covered:		
Training Aids Used:		

Attendees – Please Sign Name Legibly Below

Use additional sheets if necessary.

Exhibit 10-3 - Decontamination Procedure

*Decontamination procedures can be modified by the Project Safety Manager or SSO based on work activities and potential contamination.

STATION	NAME	DESCRIPTION
Station 1	Segregated Equipment Drop	Deposit equipment used on the site (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.
Station 2	Suit, Safety Boots, and Outer Glove Wash	Thoroughly wash chemically resistant suit, safety boots and outer gloves. Scrub with long-handle, soft-bristle scrub brush and copious amounts of Alconox/water solution. Necessary equipment includes: ▪ Wash tub (30 gallon or large enough for person to stand in) ▪ Alconox/water solution ▪ Long-handle soft-bristle scrub brushes
Station 3	Suit, Safety Boots, and Outer Glove Rinse	Rinse off Alconox/water solution using copious amounts of water. Repeat as many times as necessary. Necessary equipment includes: ▪ Wash tub (30 gallon or large enough for person to stand in) ▪ Spray unit ▪ Water ▪ Long-handle, soft-bristle scrub brushes
Station 4	Outer Gloves Removal	Remove the outer gloves and deposit in individually marked plastic bags. Necessary equipment includes: ▪ Plastic bag
Station 5	Canister, Air Tank, or Mask Change	If a worker leaves the exclusion zone to change a canister, mask, or air tank, this is the last step in the decontamination procedures. The worker's canisters or tank are exchanged, new outer glove donned, and joints taped. Worker returns to duty. Otherwise, the worker proceeds to Station 6. Necessary equipment includes: ▪ Canisters, air tanks, or mask ▪ Tape ▪ Gloves
Station 6	Removal of Chemically Resistant Suit	With assistance of helper, remove suit. Deposit in container with plastic liner. Necessary equipment includes: ▪ Container with plastic liner
Station 7	Inner-Glove Wash	Wash inner gloves with Alconox/water solution that will not harm skin. Repeat as many times as necessary. Necessary equipment includes: ▪ Alconox/water solution ▪ Wash tub ▪ Long-handle, soft-bristle brushes
Station 8	Inner-Glove Rinse	Rinse inner-gloves with water. Repeat as many times as necessary. Necessary equipment includes: ▪ Water ▪ Wash tub

Exhibit 10-3 - Decontamination Procedure - Continued

Station 9	Respirator Removal	Remove face-piece. Avoid touching face. Wash respirator in clean , sanitized solution, allow to dry and deposit face-piece in plastic bag. Store in clean area. Necessary equipment includes: ▪ Plastic bags ▪ Sanitizing solution ▪ Cotton
Station 10	Inner-Glove Removal	Remove inner gloves and deposit in container with plastic liner. Necessary equipment includes: Container with plastic liner
Station 11	Field Wash	Wash hands and face. Necessary equipment includes: ▪ Water ▪ Soap ▪ Tables ▪ Wash basins or buckets ▪ Clean towels
Station 12	Redress	If re-entering Exclusion Zone put on clean field clothes (e.g., Tyvek, gloves, etc.). Necessary equipment includes: ▪ Table ▪ Clothing The SSO will monitor the decontamination system for effectiveness.

Exhibit 15-1 – Take 5 Card

Take 5 Card

PARSONS	Safety – The first thing you do!

Date:______________________________

Project/Task:______________________________

Your Name:______________________________

Before you begin any new task pause for 30 seconds and ask yourself the following questions. Take corrective actions as necessary prior to beginning work.

- ☐ Do I know exactly what I am doing?
- ☐ Have I reviewed the AHA for this task?
- ☐ Do I have all the right people involved?
- ☐ Is there any potential that I or my coworkers could get hurt?
- ☐ Are there any questions I should be asking fellow employees?
- ☐ Should I talk to my supervisor?
- ☐ Have I read the Work Plan and fully understand the procedures relating to this job?
- ☐ Am I using the proper tools?
- ☐ Do I have the proper PPE?
- ☐ Will I be working as safely as I know how?
- ☐ Do I see anything that just doesn't look quite right?
- ☐ Am I in a hurry? Would I be safer if I slowed down?

Each of these questions should be answered to your full satisfaction before you proceed with the work. Remember, no job is so important that you must jeopardize your safety.

Job Hazards? (List direct hazard of job duties)

1. Hazards:______________________________

   Mitigation: ______________________________

2. Hazards:______________________________

   Mitigation: ______________________________

3. Hazards:______________________________

   Mitigation: ______________________________

Work Area	**Yes**	**No**
Work Area Clean	☐	☐
Permits Attained	☐	☐
Standard PPE (Hard hat, vest, glasses, gloves, safety boots)	☐	☐
Additional PPE needed:		

Briefly review hazards and mitigations again after lunch.

APPENDIX A DASH CARD TEMPLATE

PARSONS

PARSONS SAFETY "DASH" CARD

Corning Study Area Site

Job Number: 451961

Site Location: Corning Study Area

Potential Site COCs: Cadmium, chromium, lead, arsenic, SVOCs

PPE Required: Level D (Hardhat, Safety Glasses, Steel-Toe Boots, High Visibility Vest, Pants, Nitrile Gloves or Leather/Cut-Resistant gloves, face masks, and hearing protection (only around heavy equipment or machines that produce loud noise).

IN AN EMERGENCY, **DIAL 9-1-1 FIRST**

In the event of an unexpected situation or unplanned occurrence, call 9-1-1 immediately. Tell the 9-1-1 operator the physical location of the event, nature of injury, and have a person on alert to direct emergency help when it arrives onsite. One person should stay with the injured person at all times.

Once 9-1-1 is called and/ or the injury is being cared for, call the Project Manager (PM, Nate Kranes). If the PM is unavailable, call Matt Vetter, Tom Drachenberg or Diana Ceaser.
The PM is the person responsible for calling/notifying the appropriate authorities.

Parks PM: Nate Kranes
Mobile: 315-727-0261
Corning PM: Matt Vetter
Mobile: 315-418-8930
Program PM: Tom Drachenberg
Mobile: 315-484-3217
Program H&S Coordinator: Diana Ceaser
M: 908-619-0220
WorkCare: 888-449-7787

Parsons 24-hour Emergency Contact / Emergency Answering Service: 866-727-1411

DIRECTIONS TO NEAREST HOSPITAL/CLINIC	
Hospital: Guthrie Corning Hospital 1 Guthrie Drive Corning, NY 14830 607-937-7200	**Local Occupational Care Center:** *Occupational/Industrial Medicine* – Erwin (Arnot Health) 600 Ivy St Ste 106 Elmira, NY 14905 607-737-4174

EMERGENCIES AND EMERGENCY MANAGEMENT

To report any emergency by phone, dial 911 and be prepared to describe the emergency and its location.

The project shall display posters and stickers with the proper emergency number near phones and in common areas.

If there is a Life-Threatening or significant medical event (e.g., not breathing, no heartbeat, unconscious, open wound, amputation, obviously broken arm, or leg, etc.) then the first employee on the scene should:

1. Call for help
2. Secure the scene
3. Call 911
4. Begin first aid/CPR if trained

For Non-Emergency, Non-Life-Threatening Work-Related Injury, or Illness

Upon notification of a non-life-threatening illness or injury event the Project Manager and Field Team Lead will:

1. Make sure that first aid/CPR trained employees are on scene and assisting the injured.
2. Make sure that any ancillary work ceases to make scene safe for responders.
3. Contact the SHSO, to determine if WorkCare shall be called.
4. If determined, contact WorkCare and allow the injured employee to speak with a WorkCare doctor or nurse.
5. Follow WorkCare guidelines; drive the employee to the clinic if directed and stay with him/her until the visit is concluded.
6. Provide the employee with “Questions to Consider Asking Your Doctor During a Clinic Visit.”
7. Provide the employee with “Memo to Treating Medical Professional” prior to the employee going into the exam room.
8. Participate in the incident investigation process upon return to the site.

To coordinate the WorkCare triage process, it is imperative that Parsons’ employees report all work-related injuries immediately to their supervisors.

For work-related injuries or illnesses that may require physician direction on appropriate treatment, Parsons’ employees should then promptly contact WorkCare, ideally before seeking medical care, as this will provide the greatest opportunity for appropriate intervention.

If an injured employee requires medical care for a work-related injury/illness, the Order for Treatment of Work-Related Injury/Illness Form MUST be sent with the injured worker and/or faxed to the occupational medicine clinic at the time of the initial evaluation.

WorkCare’s Incident Intervention is available 24/7 and 365 days per year.

WorkCare contact number is 1.888.449.7787.

Be prepared to provide the following:

- Injured worker’s name
- Injured worker’s contact number
- Injured worker’s location (at a minimum include the city and state)
- Employee ID number
- Employee’s Global Business Unit (GBU)
- Employee’s project or office location
- Functional manager’s name

APPENDIX B LEGAL COMPLIANCE RECORD

Appendix B
NYSDEC Stand-By Contract No. D009811
Content Revision Date: 5/13/2021

Item #	Description / identity of relevant SH&E risk	Identity / citation of related legal compliance obligation	How does one gain access to the text of this legal compliance obligation?	Remarks
1	General Safety & Health	• US OSHA 29 CFR 1926.20	• www.osha.gov	
2	Safety Training Construction Safety	• US OSHA 29 CFR 1926.21 • Local Law 196	• www.osha.gov • https://www1.nyc.gov/site/buildings/safety/sst-safety.page	
3	Confined Spaces	• US OSHA 29 CFR 1926.21 • US OSHA 29 CFR 1910.147	• www.osha.gov	
4	Confined Space Permit System	See above	• www.osha.gov	
5	First Aid and Medical	• US OSHA 29 CFR 1926.23 • US OSHA 29 CFR 1926.50	• www.osha.gov	
6	Fire Protection and Prevention	• US OSHA 29 CFR 1926.24 • US OSHA 29 CFR 1926.150-155 • US OSHA 29 CFR 1926.352 • NFPA 30 and 30A	• www.osha.gov • www.nfpa.org	
7	Housekeeping	• US OSHA 29 CFR 1926.25	• www.osha.gov	
8	Sanitation	• US OSHA 29 CFR 1926.27 • US OSHA 29 CFR 1926.51	• www.osha.gov	
9	Personal Protective Equipment / Respiratory Protection	• US OSHA 29 CFR 1926.28 • US OSHA 29 CFR 1926.95-98 • US OSHA 29 CFR 1926.100-107 • US OSHA 29 CFR 1910.134	• www.osha.gov	
10	Emergency Employee Action Plans	• US OSHA 29 CFR 1926.35	• www.osha.gov	
11	Noise Exposure	• US OSHA 29 CFR 1910.95 • US OSHA 29 CFR 1926.52	• www.osha.gov	
12	Radiation Protection	• US OSHA 29 CFR 1926.53 • US OSHA 29 CFR 1926.54	• www.osha.gov	
13	Gases, Vapors, Dusts and Mists	• US OSHA 29 CFR 1926.55	• www.osha.gov	
14	Hazard Communication	• US OSHA 29 CFR 1926.59 • US OSHA 29 CFR 1910.1200	• www.osha.gov	
15	Process Safety Management	• US OSHA 29 CFR 1910.119 • US OSHA 29 CFR 1926.64	• www.osha.gov	
16	Hazardous Waste Operations and Emergency Response	• US OSHA 29 CFR 1910.120 • US OSHA 29 CFR 1926.65	• www.osha.gov	
17	Accident prevention signs and tags (Posting of required training)	• US OSHA 29 CFR 1926.200 • Local Law 196	• www.osha.gov • https://www1.nyc.gov/site/buildings/safety/sst-safety.page	
18	Signaling	• US OSHA 29 CFR 1926.201	• www.osha.gov	
19	Barricades	• US OSHA 29 CFR 1926.202	• www.osha.gov	
20	Material Storage	• US OSHA 29 CFR 1926.250	• www.osha.gov	

Item #	Description / identity of relevant SH&E risk	Identity / citation of related legal compliance obligation	How does one gain access to the text of this legal compliance obligation?	Remarks
21	Waste Disposal	• US OSHA 29 CFR 1926.252 • US EPA 40 CFR Part 260-273	• www.osha.gov • www.epa.gov	
22	Tools	• US OSHA 29 CFR 1926.300-307	• www.osha.gov	
23	Arc Welding	• US OSHA 29 CFR 1926.351	• www.osha.gov	
24	Electrical	• US OSHA 29 CFR 1926.400-415	• www.osha.gov	
25	Motor Vehicles, Mechanized Equipment	• US OSHA 29 CFR 1926.600-603	• www.osha.gov	
26	Maintenance of Electrical Equipment	• US OSHA 29 CFR 1926.43	• www.osha.gov	
27	Environmental Deterioration of Electrical Equipment	• US OSHA 29 CFR 1926.432	• www.osha.gov	
28	Scaffolding	• US OSHA 29 CFR 1926.450-454	• www.osha.gov	
29	Aerial Lifts	• US OSHA 29 CFR 1926.453	• www.osha.gov	
30	Fall Protection	• US OSHA 29 CFR 1926.500-503	• www.osha.gov	
31	Cranes, Derricks, Hoists, Elevators and Conveyors	• US OSHA 29 CFR 1926.550	• www.osha.gov	
32	Site Clearing	• US OSHA 29 CFR 1926.604	• www.osha.gov	
33	Excavations (ground disturbance)	• US OSHA 29 CFR 1926.650-652	• www.osha.gov	
34	Excavation Permit	N/A	• N/A	
35	Powered Industrial Trucks (forklifts)	• US OSHA 29 CFR 1910.178	• www.osha.gov	
36	Marine Operations and Equipment	• US OSHA 29 CFR 1926.606	• www.osha.gov	
37	Traffic Control	• General Duty Clause • NYS DOT Traffic Control Manual	• www.osha.gov • www.dot.ny.gov	
38	Waste Transportation and Handling	• US 40 CFR part 262, subpart E • US 40 CFR section 263.20 • US 40 CFR section 239-282	• www.dot.gov • www.epa.gov	
39	Working on or around Water	• US OSHA 29 CFR 1926.106	• www.osha.gov	
40	Illumination	• US OSHA 29 CFR 1926.26 • US OSHA 29 CFR 1926.5	• www.osha.gov	
41	Acceptable Certifications	• US OSHA 29 CFR 1926.29	• www.osha.gov	
42	Incorporation by Reference	• US OSHA 29 CFR 1926.3	• www.osha.gov	
43	Ventilation	• US OSHA 29 CFR 1926.57 • US OSHA 29 CFR 1926.353	• www.osha.gov	
44	Rigging	• US OSHA 29 CFR 1926.251	• www.osha.gov	
45	Gas Welding and Cutting	• US OSHA 29 CFR 1926.350	• www.osha.gov	
46	General Electrical	• US OSHA 29 CFR 1926.416	• www.osha.gov	
47	Lockout Tagout	• US OSHA 29 CFR 1926.417 • US OSHA 29 CFR 1910.147	• www.osha.gov	
48	Lockout Tagout Permit System	See above	• www.osha.gov	
49	Batteries/Battery Charging Equipment	• US OSHA 29 CFR 1926.44	• www.osha.gov	
50	Underground Construction	• US OSHA 29 CFR 1926.800	• www.osha.gov	
51	Ladders	• US OSHA 29 CFR 1926.1053	• www.osha.gov	

Item #	Description / identity of relevant SH&E risk	Identity / citation of related legal compliance obligation	How does one gain access to the text of this legal compliance obligation?	Remarks
52	Concrete and Masonry Construction	• US OSHA 29 CFR 1926.700-706	• www.osha.gov	
53	Steel Erection	• US OSHA 29 CFR 1926.750-761 and SENRAC	• www.osha.gov	
54	Caissons	• US OSHA 29 CFR 1926.801	• www.osha.gov	
55	Cofferdams	• US OSHA 29 CFR 1926.802	• www.osha.gov	
56	Compressed Air	• US OSHA 29 CFR 1926.803	• www.osha.gov	
57	Demolition	• US OSHA 29 CFR 1926. 850-860 inclusive	• www.osha.gov	
58	Power Transmission and Distribution	• US OSHA 29 CFR 1926. 950-960 inclusive	• www.osha.gov	
59	Rollover Protective Structures; Overhead Protection	• US OSHA 29 CFR 1926. 1000-1003 inclusive	• www.osha.gov	
60	Stairways and Ladders Scope	• US OSHA 29 CFR 1926. 1050	• www.osha.gov	
61	S/L General Requirements	• US OSHA 29 CFR 1926.1051	• www.osha.gov	
62	Stairways	• US OSHA 29 CFR 1926.1052	• www.osha.gov	
63	Ladder/Stair Training	• US OSHA 29 CFR 1926.1060	• www.osha.gov	
64	Diving Scope	• US OSHA 29 CFR 1926.1071-7072	• www.osha.gov	
65	Dive Team Quals	• US OSHA 29 CFR 1926.1076	• www.osha.gov	
66	Dive Safe Practices Manual	• US OSHA 29 CFR 1926.1080	• www.osha.gov	
67	Pre-dive Procedures	• US OSHA 29 CFR 1926.1081	• www.osha.gov	
68	Procedures During Dive	• US OSHA 29 CFR 1926.1082	• www.osha.gov	
69	Post Dive Procedures	• US OSHA 29 CFR 1926.1083	• www.osha.gov	
70	SCUBA Diving	• US OSHA 29 CFR 1926.1083	• www.osha.gov	
71	Surface-Supplied Air Diving	• US OSHA 29 CFR 1926.1085	• www.osha.gov	
72	Mixed-gas Diving	• US OSHA 29 CFR 1926.1086	• www.osha.gov	
73	Live boating	• US OSHA 29 CFR 1926.1087	• www.osha.gov	
74	Diving Equipment	• US OSHA 29 CFR 1926.1090	• www.osha.gov	
75	Diving Recordkeeping Requirements	• US OSHA 29 CFR 1926.1092	• www.osha.gov	
76	Traffic Movement Restriction Times	• N/A	• N/A	
77	Line Breaking	• US OSHA 29 CFR 1910.119 • US OSHA 29 CFR 1926.54	• www.osha.gov	
78	Major Material Movements	• N/A	• N/A	
79	Right-of-way Restrictions	• N/A	• N/A	
80	Bicycles/Golf Carts	• N/A	• N/A	

APPENDIX C PARSONS CONTRACTOR COMPETENT PERSON CERTIFICATION FORM

Definition

A competent person is a formally-designated person having the ability to recognize existing and predictable hazards and has the authority to correct them.

Responsibility

The designated contractor competent person is responsible for recognizing and correcting SH&E risks/hazards. This person has the authority to stop work due to a perceived SH&E concern on the jobsite. This contractor manager and designated competent person are considered field contacts for Parsons projects.

This form shall be completed by each contractor manager and the contractor-designated competent person. ***Where a contractor is responsible for multiple crafts, it will be necessary to maintain additional designated competent persons and forms.*** Each contractor on a Parsons project shall submit this completed form to the Parsons project manager before beginning work on the project and must update it any time the designated competent person changes.

Acknowledgment

I,____representing, ____

Contractor Manager (Printed) **Contractor Company Name (Printed)**

have assigned ______________________________to be the competent person in the areas indicated and

Contractor Competent Person (Printed)

I acknowledge that this individual has been thoroughly trained, is experienced in hazard recognition, and has the authority to stop work and correct hazards in the event of a potential hazardous or imminent danger situation.

____ ______________

Contractor Manager (Signature) **Date**

I acknowledge that I have been thoroughly trained and have the experience to perform the duties as the competent person in the areas marked below, and I understand that I have the responsibility and authority to correct hazards and to stop work in the event of a potential hazardous or imminent danger situation.

____ ______________

Contractor Competent Person (Signature) **Date**

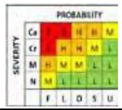
(Check the areas in which the designated competent person is permitted to execute the role of Contractor Competent Person.)

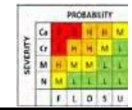
☐	Air Pollution and Emissions	☐	Environmental Assessments	☐	Mechanical Demolition
☐	Asbestos	☐	Excavations and Trenches	☐	Protected Ecological and Cultural Resources
☐	Bolting, Riveting, and Fitting	☐	Fall Protection	☐	Resource Conservation
☐	Buried Items	☐	First Aid and CPR	☐	Respiratory Protection
☐	Concrete, Forms, and Shoring	☐	Hearing Protection	☐	Rigging
☐	Cranes and Derricks	☐	Ladders	☐	Scaffolding
☐	Demolition	☐	Lead	☐	Tunnels and Shafts
☐	Drinking Water	☐	Management of Hazardous Materials and Hazardous Solid Wastes	☐	Underground Construction
☐	Electrical			☐	Wastewater
☐	Emergency Response to Spills and Releases	☐	Marine Work and Diving	☐	Welding and Cutting
		☐	Material and Personnel Hoists		
☐	Other				

APPENDIX D RISK REGISTER

PARSONS

Appendix D
NYSDEC Stand-By Contract No. D009811
Risk Register





Activity	HOC Confirmation	Hazard Identification	At Risk	Pre-Risk Mgt Evaluation Matrix			Pre-Risk Mgt Treatment	Risk Management & Control -- Safety & Health		Risk Management & Control -- Environmental			Responsible Person	Cost Contingency	Post-Risk Mgt Evaluation Matrix			Residual Risk Action
				Probability	Severity	RAC (Pre-Risk)		Engineering/ Administrative Controls	PPE	Waste Management	Engineering/ Administrative Controls	Site Condition Controls			Probability	Severity	RAC (Post-Risk)	
General Field Activities	Yes	Uneven terrain, Biological, Weather, Dehydration, Struck by/against, Noise, contact with hazardous substances, traffic, ergonomic, S/T/F, pinch points, hand tools	Site personnel	Likely	Critical	MODERATE	Reduce	Review AHAs. Wear sunscreen, PPE, Procedures, walk the job path, stay hydrated	Level D - Modified, cut resistant gloves	NA	Procedures, Training/education, Checklists/audits, Instructions	NA	Field Team Leader	Covered in Budget	Seldom	Critical	LOW	NA
Working in Urban Areas	Yes	Security issues, contact with public, theft vandalism or civil disturbance	Site personnel	Likely	Critical	MODERATE	Reduce	Review AHAs, use a buddy system, avoid working at night, have a fully functional cell phone	Level D	NA	Procedures, Training/education, Checklists/audits, Instructions	NA	Field Team Leader	Covered in Budget	Seldom	Critical	LOW	NA
Hand Tool Usage	Yes	S/T/F	Site personnel	Seldom	Catastrophic	HIGH	Eliminate	Review AHAs, procedures, Lock Out/Tag Out	Level D - Modified; insulated gloves	NA	Lock Out, Tag Out; training/education, Checklists, instructions, procedures	NA	Field Team Leader	Covered in Budget	Seldom	Critical	MODERATE	NA
Heat Stress / Cold Stress	Yes	Heat / Cold Stress	Site personnel	Likely	Catastrophic	HIGH	Eliminate	Review AHAs, procedures, Weather	Level D	NA	Training/education, Checklists, instructions, procedures, Proper PPE, and Break areas	NA	Field Team Leader	Covered in Budget	Seldom	Critical	MODERATE	NA
Field Oversight of Drilling, and construction contractor	Yes	Weather, traffic, heavy equipment, S/T/F, biological, pollen, struck by/against	Site personnel	Likely	Catastrophic	HIGH	Eliminate	Review AHAs, PPE, be awae of surroundings, procedures, Weather	Level D - Modified	NA	Training/education, Checklists, instructions, procedures	NA	Field Team Leader	Covered in Budget	Seldom	Critical	MODERATE	NA
Field Sampling	Yes	S/T/F, housekeeping, pinch hazards, weather, noise, chemical, traffic, ergonomic, electrical, physical hazards, struck-by	Site personnel	Likely	Catastrophic	HIGH	Eliminate	Review AHAs, NYC DDC Site procedures, training, proper tool for the job, inspections	Level D - Modified Level D as needed-	NA	Training/education, Checklists, instructions, procedures. Air Monitoring.	NA	Field Team Leader	Covered in Budget	Seldom	Critical	MODERATE	NA
Vehicle Operations	Yes	Accidents, struck-by, vehicle damage	Site personnel	Likely	Catastrophic	HIGH	Eliminate	Maintain and inspect vehicle, Drive Defensively: follow speed limits and signs, take rest breaks	None	NA	Training/education, Checklists, instructions, procedures	NA	All	Covered in Budget	Seldom	Critical	MODERATE	NA

APPENDIX E SITE TRAINING MATRIX

Appendix E –Site Training Matrix
NYSDEC Stand-By Contract No. D009811

Employee Name / Employee Title / Employee Function	Required Compliance / Risk Control / Risk Management Training	Required Licenses / Designations of Authority / Competencies / Qualifications / Certifications	Frequency of Required Refresher Training / Assessment of Continuing Competency
Parsons field staff and Contractors performing Project Work	Parsons PSHEP and SSHEP review and sign-off	Sign PSHEP and SSHEP OSHA training certification or wallet card	Prior to working on site
Parsons personnel performing field work on sites with Environmental issues	40-Hr Hazwoper Training and/or 8-Hr. Annual Refresher – if contamination and potential for exposure during scope of work	Obtain Hazwoper training certificate	Minimum training for working on site
Parsons personnel performing field work	Daily Tailgate to cover SOW and daily hazards	Sign tailgate form	Each field day prior to beginning work on site
Parsons personnel performing field work	Site Orientation	Sign tailgate form	First day of field event or if new personnel are onsite
One field staff per property	First Aid / CPR / AED	Designated provider of first aid / CPR	Every 2 years (with bloodborne pathogens training)
Project field personnel including visitors	Minimum PPE: Hardhats, gloves, eye protection, safety boots, safety vests and hearing protection (where required) Additional PPE as required by task specific AHAs	PSHEP and SSHEP review	On initial assignment; upon changes to PPE use; upon changes to tools or equipment
Parsons and subcontractor field staff performing field work	Emergency Action Plan	Can be included in PSHEP review or provided verbally during tailgate safety meeting. Have DASH Card available	On initial assignment; upon material changes to emergency action plan changes
Parsons field staff including project manager, construction manager, site construction representatives, samplers, property representative, and subcontractor field staff	Hazard Communication	PSHEP review and location of SDS	On initial assignment; when new chemicals are added to the work environment
All visitors and contractors	Check in with site contact	PSHEP/Project and Facility Orientation	According to NYC DDC requirements
Contractors	Task / Equipment specific training	Signed Competent Person Form or equivalent	Prior to working on site, refresher as per regulatory requirements or a needed to validate competency

Note: Training referenced above is limited to worker health and safety. It does not cover other subcontractor non-health and safety-related training requirements.

APPENDIX F PROJECT SAFETY, HEALTH, AND ENVIRONMENTAL PLAN (PSHEP) MODEL-HEALTH AND SAFETY FORMS

Daily SH&E Planner

Contractor Mobilization Meeting Checklist Form

Weekly SH&E Inspection Checklist

Safety, Security, Health, and Environmental Orientation Acknowledgement

SH&E Risk Mitigation Two-Week Look-Ahead Form

Notice of Subcontractor Violation of Safety, Health, and Environmental Regulations

Notice of Noncompliance with Safety, Health, and Environmental Regulations

Certification of Contractor Employee Training Form

Take 5 Card

Tailgate Briefing Form

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OWN ZERO

Be bold.

Own the moment.

Your brain is wired to go along with social norms and not speak up.

When you see an unsafe act or condition, **speak up to make a difference.**

Daily SH&E Planner (Sheet 1 of 3)

Personal Safety & Health Planner for Your Daily SH&E Huddle	
Employee Name:	Date:
Employee Number:	Craft:
Supervisor:	Location of Work:
Work Description:	

Employee Planning Checklist

Complete the checklist for each new work operation. Check the "YES" box for those items needed to safely perform your work. All boxes marked "YES" should be properly addressed before the work operation begins.

Employee Daily Work Area Assessment

All conditions must be satisfied in order to start or continue working. Formally check your work area at least four times a day and at the start of teach new work operation. Report all problems to your supervisor.

Employee Planning Checklist

Personal Protective Equipment	Yes	N/A
Hard Hat/Safety Glasses	☐	☐
Face Shield	☐	☐
Goggles – Cutting, Chemical, Dust	☐	☐
Hearing Protection	☐	☐
Respirator	☐	☐
Gloves – Type	☐	☐
Clothing – Type	☐	☐
Foot Protection	☐	☐
Other	☐	☐
Special Equipment	**Yes**	**N/A**
Harness/Double Lanyards/Decelerator Device	☐	☐
Lifeline – Horizontal, Vertical, Retractable	☐	☐
Air Monitor	☐	☐
Tripod/Rescue Devices	☐	☐
Barricades/Flagging	☐	☐
Fire Extinguishers	☐	☐
Signs	☐	☐
Electrical Insulating Materials, Blankets, Tools, Gloves	☐	☐
Chemical/Oil Spill Kits	☐	☐
Communication Devices – Radios, Horns	☐	☐

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Daily SH&E Planner (Sheet 2 of 3)

Employee Planning Checklist (Contd)

Environmental Issues	**Yes**	**N/A**
Resource Conservation/Sustainability	☐	☐
Air Pollution/Emissions	☐	☐
Wastewater Discharges	☐	☐
Drinking Water	☐	☐
Management of Hazardous Materials and Hazardous and Solid Wastes	☐	☐
Emergency Response to Spills and Releases	☐	☐
Environmental Assessments	☐	☐
Buried Items	☐	☐
Protected Ecological and Cultural Resources	☐	☐
Specific Reports (Required by Environmental Regulation) on Toxic or Hazardous Chemicals Usage and Storage	☐	☐
Other	☐	☐
	☐	☐
Work Permits	**Yes**	**N/A**
Activity Hazards Analysis	☐	☐
Trench and Excavation Notice	☐	☐
Confined Space Permit	☐	☐
Welding and Cutting Permit	☐	☐
Crane and Hoist Lift Plan	☐	☐
Crane Suspended Work Platform	☐	☐
Other	☐	☐
Tagging Procedure	**Yes**	**N/A**
Scaffolding	☐	☐
Lockout and/or Tagout	☐	☐
Other	☐	☐
Management of Change (MoC)	**Yes**	**N/A**
Have the procedures for the MoC been reviewed, evaluated, and discussed with the team and when it applies?	☐	
Did a team member give an example of an MoC during the safety huddle?	☐	
Does the work activity require an MoC? If yes, has it been authorized by applicable management?	☐	☐
Has the safety information been updated to incorporate any change in product, equipment, material, or process?	☐	☐
Have all affected staff/employees been informed and trained on the new equipment, process, or other changes?	☐	☐

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Daily SH&E Planner (Sheet 3 of 3)

Employee Daily Work Area Assessment

Times				
Initials				

	Yes	N/A
A means of safe access and egress is provided to my work area.	☐	☐
My work area is clean and organized.	☐	☐
I have the tools and equipment necessary to perform my work.	☐	☐
My work area has adequate lighting.	☐	☐
I know how to, and have the means available, to summon emergency assistance.	☐	☐
I have a copy of, or have been trained on, the SDS for the hazardous material I am working with.	☐	☐
The equipment I am working on, or working in, has been properly tagged out/ locked out, cleaned, vented, and drained, as well as stored energy released as required.	☐	☐
My work operation is properly controlled so that other workers will not be adversely affected by dust, fumes, sparks, slag, welding flash, floor holes, fall hazards, falling objects, overhead loads, slippery surfaces, etc.	☐	☐
I have performed an act of safety.	☐	☐
I have the necessary training to safely perform my work.	☐	☐
I will not be handling liquid chemicals, fuels, etc. and do not need spill response equipment and supplies; or I have the materials and know how to get assistance if needed.	☐	☐
I will not be discharging any wastewater or storm water from my work area.	☐	☐
The work I am doing is not covered by an environmental permit.	☐	☐
I do not generate any chemical wastes as part of work.	☐	☐
I have the authority to stop unsafe operations!	☐	☐

Supervisor's Safety & Health Audit

Times:									
Initials:									

Safety, Health, and Environmental Suggestions:

Contractor Mobilization Meeting Checklist Form

Date:	**Project/Location:**
Parsons Representative:	**Contractor Representative:**

The following project site safety, health, security, and environmental requirements, procedures, and hazards have been identified and reviewed with the contractor:

Mark with "X"	Item	Mark with "X"	Item	Mark with "X"	Item
☐	Air Pollution and Emissions	☐	Fall Protection, Guardrails, and/or Scaffolding	☐	Personal Protective Equipment
☐	Asbestos			☐	Process Safety Management (PSM)
☐	Buried Items	☐	Fire Protection		
☐	Competent / Qualified Person	☐	Hazardous Materials and Wastes	☐	Protected Ecological and Cultural Resources
☐	Confined Spaces (Permit / Non-Permit)	☐	Hot Work, Welding, and/or Cutting	☐	Resource Conservation and Sustainability
☐	Cranes / Hoists / Annual Inspection Certificate(s)	☐	Ladders	☐	Site Security, Visitor Control, and Public Exposure
☐	Demolition	☐	Lead Paint	☐	Specific Reports (Required by Environmental Regulation) on Toxic or Hazardous Chemicals Usage and Storage
☐	Drinking Water	☐	Lockout / Tagout		
☐	Electrical	☐	Management of Hazardous Materials and Hazardous Solid Wastes		
☐	Emergency Response to Spills and Releases			☐	SSHEP, Emergency Mgmt. and Response Plan
☐	Environmental Assessments	☐	Overhead Power Lines	☐	Wastewater Discharges
☐	Excavations and Trenches	☐	Permits (Excavations, Scaffolding, Demolition, Traffic, Confined Spaces, etc.)	☐	Vehicle and Heavy Equipment
				☐	Other:

Protection of the Public:

Additional Project Concerns:

Attendees:

Name	Title	Company

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Weekly SH&E Inspection Checklist (Sheet 1 of 2)

	Week Ending Date:
Project Name	**Project Number:**
Name of Auditor:	**Signature:**

Check each box during your inspection or indicate N/A. Substandard conditions found must be identified on the back of this checklist

☐	**Electrical:** temporary power, circuits marked, GFCI protection, damaged cords, cords protected, correct outlets, and signage.
☐	**Environmental:** Air emissions controlled, hazard com program, specific MSDS sheets, fuel signage, spillage dike, dust control, HAZMAT storage, and waste disposal.
☐	**Excavations:** Guarded, Soil Condition, Trenching Controls, Blue Stake/Equivalent, Daily Inspections Subcontractor, and Proper Access.
☐	**Fire Safety:** Extinguishers; Proper Size, Numbers, Proper Locations, Hose Stations, Hot Work Permit, Fuel Storage.
☐	**Framing Activities**: Proper Positions, Monitor, Fall Protection, Housekeeping, Forklift Activity, Training, and Tool Use.
☐	**Guarding:** Floors, Walls, Windows, Leading Edge, Roof, Elevator Shafts, Open Holes, Material, Quality, and Handrail
☐	**Housekeeping:** Office, Walkways, Waste Material, Lay Down Yard, Grounds, and Subcontractor Areas, Food Debris.
☐	**Ladders:** Height, Secured Top/ Bottom, Condition, Employee Position; Three Points of Contact.
☐	**Material Handling:** Rigging, Material Condition, Training, Tasks, Proper Lifting, Wheelbarrows, Stacking/Storage.
☐	**Medical:** First Aid Kits, Numbers Posted, Address Knowledge, Nearest Emergency Assistance, CPR/First Aid Training.
☐	**Mobile Equipment:** Inspections, Condition, Backup Alarms, Leaks, Fuel Storage, Proper Parking, and Training.
☐	**PPE**: Hearing, Head, Hand, Eye, Foot, Fall, Seatbelts, Respiratory,
☐	**Sanitary:** Drinking Water, Toilets Clean and Adequate, Soap and Water for Washing
☐	**Scaffolds**: Component Damage, Footing, Secured, Guardrail, Training, Inspections, Pins & Bracing, Planking, and Ladders.
☐	**Tools:** Damage, Cords, Blades, Guards, Hoses, Handles, Switches, Training, Proper Use, Storage, Adequate.
☐	**Training:** Forklift, Man Lift, Water Truck, Orientation, Task, Hazards, Power Tools, Scaffolds, and Trenching.
☐	**Welding:** Hot Work Permit, PPE, Gas Checks, Confined Space, Tank Storage, Equipment Inspections, and Fire Protection
☐	**Miscellaneous:** Any condition or behavior not identified on this checklist.

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Weekly SH&E Inspection Checklist (Sheet 2 of 2)

		Week Ending Date:	
Project Name		**Project Number:**	
Name of Auditor:		**Signature:**	

Hazard Type	1.	Improper or Inadequate Guarding	8.	Substandard Housekeeping
	2.	Improper Wiring	9.	Hazardous Environmental Conditions
	3.	Defective Tools, Equipment, Substances	10.	Radiation Exposures
	4.	Hazardous Arrangements	11.	Congestion or Restricted Movement
	5.	Inadequate Illumination	12.	Inadequate Warning System
	6.	Inadequate Ventilation	13.	Fire & Explosive Hazard
	7.	Improper Personal Protective Equipment	14.	Other:
Basic Causes	1.	Inadequate Engineering	7.	Inadequate Leadership & Supervision
	2.	Normal Wear & Tear	8.	Physical Incapacity
	3.	Inadequate Purchasing	9.	Lack of Knowledge
	4.	Inadequate Maintenance	10.	Improper Motivation
	5.	Inadequate Work Standards	11.	Mental Incapacity
	6.	Abuse	12.	Other:
Hazard Classification	**Class A: Likelihood of Death** **Class B: Likelihood of Serious Injury** **Class C: Likelihood of Minor Injury**			

Items	**Hazard Type**	**Basic Cause**	**Hazard Class**	**Location**	**Remedial Action(s)**

Comments:

I, (printed name of new project employee), acknowledge receiving, reviewing, and understanding the safety, security, health, and environmental orientation information for working on this project. I understand that I shall not perform work on this project unless I am knowledgeable and have received the necessary training to safely and effectively carry out the work I am assigned. I understand that I have the authority and responsibility to stop work and ask my supervisor about any safety, security, health, and environmental matters for which I am unsure or for which I am untrained.

Subject matter covered in my orientation included the following.

- SH&E roles and responsibilities
- PSHEP overview
- Project rules and disciplinary policies
- Reporting incidents and unsafe conditions
- Near miss reporting
- Hazard communication
- Emergency/evacuation plans
- Spill/release reporting and response actions
- Waste management
- Stormwater and wastewater management
- Other applicable environmental issues and regulatory requirements
- Individual Project scope of work
- Safety, health, environment, and other hazards at the site
- Review of all activities on-site and related Activity Hazard Analysis (AHAs)
- Proper use of PPE
- Work practices by which a worker can minimize risk from hazards
- Safe use of engineering controls and equipment on-site
- Acute effects of compounds at the individual sites
- Decontamination procedures
- Biological hazards training

______________________________	______________________________
Signature of New Project Employee	Signature of New Project Employee's Supervisor
______________________________	______________________________
Date Signed by New Project Employee	Signature of New Project Employee's Mentor

Signed acknowledgments shall be maintained in the new project employee's training file.

SH&E Risk Mitigation Two-Week Look-Ahead Form

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SH&E Plan for Week Ending:		**Subcontractor:**	
Project/ Location:		**Meeting Date:**	
Plan Prepared by:		**Dated:**	

Next Two Weeks Scope of Work:

Identified SH&E Risks/Exposures/Hazards Issues:

Identify Tasks requiring permitting (e.g., dewatering permit) or involving environmental regulatory issues (e.g., generation of new, uncharacterized waste):

Tasks with environmental risk of significant spills or releases:

Control Measures:

Additional Activity Hazards Analysis Required:

Subcontractors Mobilizing/Demobilizing:

Audit/Inspections Scheduled:

Competent Person Changes:

Planned Orientation/Training:

Recommendations/Comments/Concerns:

Note: This information should be incorporated into the meeting minutes.

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Notice of Subcontractor Violation of Safety, Health, and Environmental Regulations

	Date:	
Contractor Name:		
Address:		
Attention:		

This letter officially notifies you that you have been found to be in violation of the following Safety, Health, and Environmental Regulations: ______________________________
on (date) ____________________, by ______________________________

Confined Space Entry	☐	Lockout/Tagout	☐	Hot Work	☐	Personal protective equipment
Knowledge of environmental requirements	☐	Awareness of warning alarms	☐	Evacuation routes	☐	Backup alarms
Assembly locations	☐	Fall Protection	☐	Scaffolding	☐	Environmental/hazardous material storage
Trenching	☐	Safe Work Practices	☐	Security Practices	☐	Spill to the environment
Waste storage or disposal	☐	Wastewater discharge	☐	Buried items	☐	Violation of environmental regulation

Other:
Environmental:
____
This/These violations occurred at the following locations:
At the following times and dates:
The name of the employee(s) was (were):

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Notice of Noncompliance with Safety, Health, and Environmental Regulations

Under conditions of this enforcement procedure check all items that apply:

☐	1.	You are being notified of this violation and should take corrective action to prevent a reoccurrence. The corrective action shall be documented to the Parsons Construction Management representative immediately.
☐	2.	You must submit a plan for compliance to your Parsons Construction Management representative and the Construction Safety Manager within two days of receipt of this letter. The compliance plan must include the means or methods of compliance and the date that the requirements for compliance will be completed. Once compliance has been achieved, a follow up letter must be sent to the Parsons Construction Management representative and Construction Safety Manager. Failure to comply will result in disciplinary action against your Company.
☐	3.	You are required to review the stated procedures with your Parsons Construction Management representative. Work may not commence on the site until the review is complete and the Subcontractor responds formally that the procedure is understood and will comply.
☐	4.	You are required to review the stated procedures with your Parsons Construction Management representative. Work may not commence on the site until the review is complete and you **must** confirm formally the disciplinary action to be taken against the supervisor and employees.
☐	5.	All work on the site will stop until the Parsons Construction Management representative reviews all the facts with the Subcontractor and determines if the contract between the parties will be terminated.

Sincerely,

Parsons Representative

cc:
Issuing Construction Manager Representative
Job File
GBU Safety Director
Project Manager

Certification of Contractor Employee Training Form

Name, title, and employer of trainer: ____

Training subject: ____

Training materials used: ____

Name of contractor employee trained: ____

Date of hire/assignment: ____

I, certify that I have received training as described above in the following areas.

Name of Contractor Employee (Printed)

- The potential occupational hazards in general in the work area and associated with my job assignment.
- General SH&E requirements indicate the safe work conditions, safe work practices, personal protective equipment, and environmental requirements required for my work.
- The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals, and how to understand this information.
- My right to ask questions, or provide any information to the employer on safety, health, or environment either directly or anonymously without any fear of reprisal.
- Disciplinary procedures the employer will use to enforce compliance with general safety requirements.

I understand this training and agree to comply with general safety requirements for my work area.

____ ____

Contractor Employee Signature **Date**

Take 5 Card

PARSONS	Safety – The first thing you do!

Date:____
Project/Task:____________________________________
Your Name:_____________________________________

Before you begin any new task pause for 30 seconds and ask yourself the following questions. Take corrective actions as necessary prior to beginning work.

- ☐ Do I know exactly what I am doing?
- ☐ Have I reviewed the AHA for this task?
- ☐ Do I have all the right people involved?
- ☐ Is there any potential that I or my coworkers could get hurt?
- ☐ Are there any questions I should be asking fellow employees?
- ☐ Should I talk to my supervisor?
- ☐ Have I read the Work Plan and fully understand the procedures relating to this job?
- ☐ Am I using the proper tools?
- ☐ Do I have the proper PPE?
- ☐ Will I be working as safely as I know how?
- ☐ Do I see anything that just doesn't look quite right?
- ☐ Am I in a hurry? Would I be safer if I slowed down?

Each of these questions should be answered to your full satisfaction before you proceed with the work. Remember, no job is so important that you must jeopardize your safety.

Job Hazards? (List direct hazard of job duties)

4. Hazards:____
   Mitigation: ______________________________________
5. Hazards:____
   Mitigation: ______________________________________
6. Hazards:____
   Mitigation: ______________________________________

Work Area	**Yes**	**No**
Work Area Clean	☐	☐
Permits Attained	☐	☐
Standard PPE (Hard hat, vest, glasses, gloves, safety boots)	☐	☐
Additional PPE needed:		

Briefly review hazards and mitigations again after lunch.

Tailgate Briefing Form

The Tailgate Briefing is intended to be used in conjunction with Project Safety Health and Environmental Plan (PSHEP) worker-developed Activity or Job Hazard Analysis (AHA/JSA) applicable Work Permits and the results of pre-planning meetings and communications.

1. Have field personnel and adjacent property owners that could be affected been made aware of the hazards, special procedures, and/or permit requirements?

Yes	No

2. Are all personnel aware of the requirement to inspect all equipment & tools before the first use of the day, establish workplace controls/barricades and only allow trained and authorized staff in the workzone?

Yes	No

3. Has there been any change in work area conditions that requires additional discussion?

Yes	No

4. Are all personnel aware of their obligation to STOP work in view of changing conditions or activities not included in the PSHEP or AHA?

Yes	No

5. Are all personnel "Fit for Duty" and physically and mentally prepared to complete their assigned tasks in a safe manner. Employees should be asked but are not required to share any known pre-existing medical conditions so that others may assist as appropriate.

Yes	No

Date & Time of Meeting: ____________________

Person Leading Discussion (Name & Company): ____________________ ______________

Relevant Topics Discussed (Observations/Suggestions/Weather Concerns):

Acceptance of AHA/PSHEP/HASP Review, Onsite Fit For Duty (FFD)						
Name	**Signature**	**Company**	**Initial**	**Onsite Time**	**Initial**	**Offsite Time**

APPENDIX G ACTIVITY HAZARD ANALYSIS (AHA) FORMS

LIST OF AHAS

AHA-001	General Field Activities
AHA-002	Operation of Motor Vehicle
AHA-003	CAMP Operations
AHA-004	Underground Utility Clearance
AHA-005	Drilling Activities and Sample Collection
AHA-006	Monitoring Well Gauging, Slug Testing, and Sampling
AHA-007	Surface Water Sampling
AHA-008	IDW Management and Sampling
AHA-009	Access to Residential Properties
AHA-010	Sediment Sampling
AHA-011	Sample Processing
AHA-012	Waste Characterization Sampling – Orphan Well Program
AHA-013	Site Visit or Site Walk with Ticks and Biohazards
AHA-014	Driving to and from the Site
AHA-015	Construction oversight/Site visit

Activity/Work Task: General Field Activities	Overall Risk Assessment Code (RAC) (Use highest code): **M**
Project Location: New York (Various Locations)	
Project Number:	
Date Prepared: 1/16/2020	
Prepared by (Name): M. Colbert	
Reviewed by (Name): Greg Ertel	
Employer / GBU: Parsons	

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal		M	M	L	L
Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)
References:
PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
Outdoor, Indoor, Physical Activity	Heat Stress ▪ Prickly Heat (Heat rash) ▪ Heat Cramps ▪ Heat Exhaustion ▪ Heat Fatigue ▪ Heat Collapse ▪ Heat Stroke	▪ Adjust work schedules. ▪ Mandate work slowdowns as needed. ▪ Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided. ▪ Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods. ▪ Maintain worker's body fluids at normal levels. ▪ Train workers to recognize the symptoms of heat related illness. ▪ Monitor workers physical conditions ▪ Monitor outside temperature versus worker activity. ▪ The SSO will implement the cold/heat stress control program as appropriate to conditions.	S	Cr	M

	Cold Related Injuries Frostbite Hypothermia	▪ Educate workers to recognize the symptoms of frostbite and hypothermia ▪ Have appropriate PPE for the conditions, including jackets, gloves/mittens, winter boots and hat ▪ Identify and limit known riskfactors: ▪ Assure the availability of enclosed, heated environment on or adjacent to the site. ▪ Assure the availability of dry changes of clothing. ▪ Assure the availability of warm drinks. ▪ Start (oral) temperature recording at the job site: ▪ At the Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status. ▪ At a worker's request. ▪ As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20oF, or wind-chill less than 30oF with precipitation). ▪ As a screening measure whenever weather conditions and task have a risk of hypothermia, the SSO will implement the cold/heat stress control program as appropriate to conditions.	S	Cr	M
	Slips, Trips, Falls	▪ Workers will be aware of potentially slippery surfaces and tripping hazards. Keep all areas dry, clean, and free of debris to deter any unnecessary trips and falls. ▪ Avoid, remove, communication, and mark (if possible) hazards. ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Be aware of changing surfaces due to excavation and backfilling operations ▪ Be aware of covered surfaces due to installation of geotextile materials ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Be aware of unmark excavation edges of new excavation areas (crumbling edge) ▪ Temporary fencing can blow over from wind or fall over if not attached properly ▪ Clean up all spills immediately and dispose properly. ▪ Avoid working at dusk, dawn, or at night. Utilize adequate lighting when indoors. ▪ Personnel will notify the SSO of any unsafe conditions.	O	M	M
	Rain	▪ Have proper PPE (i.e., rain gear, footwear, etc.) available. Be aware of slip hazards, puddles, etc.	O	M	M
	Sunshine	▪ Have sunscreen available for ultraviolet protection. Have water for dehydration.	S	N	L
	Snow	▪ Have warm clothes available for cold temperatures.	O	N	L
	Lightning	▪ Do not begin or continue work until lightning or thunder heard for 30 minutes. ▪ Check weather forecast: reschedule if there is a severe weather warning.	O	M	M

	High winds, dust storm	▪ Wear goggles if dust/debris is visible. ▪ Stop work if vision is significantly impaired or creates unsafe conditions.	S	N	L

	Pollen	▪ Take medication (i.e., antihistamine) to minimize allergic reaction to pollen. Wear dust mask, if necessary.	O	N	L
	Working Near Water/Drowning Protection	▪ Parsons selects personal flotation devices (PFDs) and requires employees to wear them when work is conducted in areas where the danger of drowning exists. ▪ Don PFD when working within 10 feet of water. ▪ Have a throwable rescue device with 75' rescue line readily available ▪ Buddy system required when working near water	U	Cr	L
	Walking on uneven or wet terrain (i.e., slopes, leaves, covered objects, holes, etc.)	▪ Wear steel toe rubber boots versus over-the-shoe rubber boots. Use walking stick or other object for additional support/balance and to check for animal burrows/holes.	O	M	M
	Biological Hazards - insects, rodents, animals, etc.	▪ Wear appropriate clothing (hat, long-sleeve shirt, long pants, gloves, boots, Tyvek, etc.). ▪ Apply bug repellant spray or lotion to exposed skin. ▪ Personnel will be aware of potential exposure to biological hazards. ▪ Perform a tick check throughout and at the end of the day. Apply DEET or wear permethrin treated clothing. If a tick is embedded review the WorkCare Tick guidance and safely remove as soon as possible. Save tick if possible. If symptoms develop or tick is embedded more than 12 hours call Work care for guidance.	U	M	L
	Vegetation	▪ Create a clear path or route with mechanical equipment, whenever possible. Wear appropriate PPE for the vegetation (i.e., leather gloves, Carhartt coveralls and face shield for vegetation that could cause cuts/punctures and/or is higher than waist level.	U	M	L
	Traffic (Including Pedestrians)	▪ Use cones, flags, and other traffic control devices to delineate work zone ▪ Don proper PPE, including reflective vest. ▪ Look both ways before exiting vehicle, have an emergency kit in the vehicle. ▪ Refer to AHA 018: Traffic Management.	O	M	M
	Site Hazards Material Exposure	▪ Training and safety awareness of potential exposure to contaminates at the site. ▪ Training of all personnel decontamination procedures (if appropriate to visit). Provide adequate hygiene and decontamination supplies. Refer to AHA 003: Personal Decontamination, and AHA 004: Decontamination of Tools and Equipment. ▪ Practice contamination avoidance work upwind if feasible, limit contact to the extent possible, do not eat in areas with COC's, keep drink containers covered. ▪ Appropriate PPE will be worn dependent on-site conditions and actions levels. (if appropriate to visit) ▪ Must sign off on health and safety plan. ▪ Visitor will be escorted around site by an individual with current 40-hour HAZWOPER training, unless cleared with the SSO.	S	M	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
PPE (Level D) - Long pants, safety glasses, hard hat (in presence of heavy equipment), high-visibility vest/clothing, steel-toed boots, gloves, goggles. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate Equipment inspection as necessary, recorded in field book.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 001 General Field Activities** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Operation of Motor Vehicle	Overall Risk Assessment Code (RAC) (Use highest code)					M
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**					
Project Number:	**Severity**	**Probability**				
Date Prepared: 1/17/2020		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name): M. Colbert	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
Reviewed by (Name): Greg Ertel	Marginal	H	M	M	L	L
Employer / GBU: Parsons	Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)
References:
PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
Driving to and from the job site	Vehicle Accident	▪ All employees shall complete the Workday Learning safety module on Defensive Driving. ▪ Plan your travel route and check maps for directions or discuss with colleagues. ▪ Complete a Vehicle Inspection Report before driving and check for proper equipment/supplies. ▪ Clean windows and mirrors as needed throughout thetrip. ▪ Have sunglasses available to reduce sun glare and wear as needed. ▪ Follow vehicle maintenance schedule to reduce possibilities of breakdown while driving. ▪ Use Defensive Driving Techniques; avoid following too closely 3-4second distance, drive within speed limit or as conditions allow, focus on task do not eat or use phone or electronic devices while driving, Get Out And Look (GOAL) before	S	Cr	M

		backing, use a spotter as needed for backing and maneuvering Inspection Requirements Inspect all fluid level, air pressure in tires, adjust mirrors and seat positions appropriately, watch fuel level and fill up when level is low.			
	Environmental Release – fire when fueling, fire in area	▪ Look for gas station in safe area, avoid if heavily congested or in unsafe neighborhood ▪ Do not fuel if others in area are smoking or on cell phones ▪ Do not overfill, stop after pump turns off. ▪ Do not park warm vehicle in tall grass or vegetation ▪ Have a fire extinguisher in the vehicle	U	Cr	L
	Distraction while driving	▪ Stop driving a vehicle, regardless of the speed (i.e., even 5 mph) or location (i.e., private road), when the potential of being distracted by conversation exists.	S	Cr	M
	Fatigue/Falling asleep	▪ Get adequate rest prior to driving. Take a break every 2 hours, do not work and drive more than 12 hours in one day.	S	Cr	M
	Weather /Road conditions	▪ Check road and weather conditions prior to driving. Reschedule trip if advisories are issued or severe weather is forecast	O	M	M
	Theft/Crime of parked vehicle	▪ Lock the vehicle when leaving the area ▪ Store valuables in secure area and cover ▪ Avoid parking in unlit or unsecured areas	U	M	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Wear seat belt at all times; make sure that clothing will not interfere with driving.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical	Vehicle inspection checklist

	Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 002 Operation of Motor Vehicle** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: CAMP Operations	Overall Risk Assessment Code (RAC) (Use highest code)						**M**
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**						
Project Number:	**Severity**	**Probability**					
Date Prepared: 1/20/2020		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name): J. Mikochik	Catastrophic	**E**	**E**	**H**	**H**	**M**	
	Critical	**E**	**H**	**H**	**M**	**L**	
Reviewed by (Name): Greg Ertel	Marginal	**H**	**M**	**M**	**L**	**L**	
Employer / GBU: Parsons	Negligible	**M**	**L**	**L**	**L**	**L**	

Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
CAMP Operations / Ambient Monitoring	Vapors (Including Site COCs and calibration gasses), particulates	▪ Approach area where vapors are suspected from upwind direction and stay upwind/crosswind of potential sources of vapors. (Use flagging to indicate wind direction). Fill calibration gas in a well-ventilated area, preferably outdoors. ▪ Inspection Requirements ○ Use a PM-10 aerosol and a mini-RAE 3000 PID to monitor upwind and down-wind locations during drilling activities. Refer to PSHEP for action levels. ○ Use a multi-gas meter (multi-RAE) to monitor worker breathing zone during drilling activities. Refer to the PSHEP for action levels. ○ Regularly inspect cal gas regulator, tedlar bag, and canister. ○ Monitor workers breathing zone at a minimum of once every30 minutes.	S	M	L

	Transport, Movement, and Use of Compressed Gasses	▪ Properly secure canisters within vehicle when transporting. ▪ Inspect canisters for signs of leaks and corrosion. ▪ Carefully transport canister to sampling area. ▪ Keep canisters away from ignition or heat sources. ▪ Detach regulator from canister when not in use. ▪ Slowly open values during operation.	S	Cr	M
	Working in Vicinity of Indoor/Outdoor Vehicle Traffic/Active Equipment Operation	▪ Keep out of travel paths of vehicles and roadways, where possible. ▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility equipment/vehicle operators. ▪ Review AHA 018: Traffic Management for further controls measurements and hazards.	S	Cr	M
	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA 001: General Site Activities	S	Cr	M
	Slips, Trips, Falls	▪ Workers will be aware of potentially slippery surfaces and tripping hazards. Keep all areas dry, clean, and free of debris to deter any unnecessary trips and falls. ▪ Avoid, remove, communication, and mark (if possible) hazards. ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Clean up all spills immediately and dispose properly. ▪ Avoid working at dusk, dawn, or at night. Utilize adequate lighting when indoors. ▪ Personnel will notify the SSO of any unsafe conditions.	O	M	M

	Manual Lifting/Ergonomic Hazards	• When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports should be considered. • Plan storage and staging to minimize lifting or carrying distances. • Have someone assist with the lift— especially for heavy (> 50lbs.) or awkward loads. (Note: If employee is not capable of carrying 50 lbs. or less, seek assistance.). • Make sure the path of travel is clear prior to the lift. • Use hand carts to move large, awkward loads ▪ Avoid carrying heavy objects above shoulder level.	S	M	L
	Pinch Points	▪ Be aware of potential pinch points. ▪ Utilize leather palmed gloves for all material handling.	S	M	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi- vis markers, etc., fire extinguisher, insect repellent. ▪ Level D PPE - Long pants, safety glasses, hard hat(in presence of heavy equipment), high-visibility vest/clothing, steel-toed boots, gloves, goggles. ▪ Equipment: Particulate monitor, PID, calibration gasses, tripod.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	▪ Ongoing environmental condition inspection (weather, wind, heat, cold). ▪ Ongoing personnel inspection (buddy system) ▪ Inspection of work area for general hazards as covered under this AHA prior to beginning any task. ▪ Take 5 Card when appropriate ▪ Get Out and Look (GOAL) ▪ Equipment inspection as necessary, recorded in field book. Inspection condition of CAMP equipment daily. Complete daily calibration of PID, weekly calibration of Multi-gas meter, and monthly inspection of fire extinguishers.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 003 CAMP Operations** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Underground Utility Clearance	Overall Risk Assessment Code (RAC) (Use highest code)						M
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**						
Project Number:	**Severity**	**Probability**					
Date Prepared: 1/20/2020		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name): J. Mikochik	Catastrophic	E	E	H	H	M	
	Critical	E	H	H	M	L	
Reviewed by (Name): Greg Ertel	Marginal	H	M	M	L	L	
Employer / GBU: Parsons	Negligible	M	L	L	L	L	

Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
Underground Utility Clearance	Slips, Trips, Falls	▪ Workers will be aware of potentially slippery surfaces and tripping hazards. Keep all areas dry, clean, and free of debris to deter any unnecessary trips and falls. ▪ Avoid, remove, communication, and mark (if possible) hazards. ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Clean up all spills immediately and dispose properly.	O	M	M

		▪ Avoid working at dusk, dawn, or at night. Utilize adequate lighting when indoors. ▪ Personnel will notify the SSO of any unsafe conditions.			
	General/Access	▪ Use the buddy system ▪ Alert property owner of presence before enter building. Display proper identification (ID badges, business cards, etc.). ▪ Avoid moving or touching household items/ personal property without talking to tenants first. ▪ Report any unsafe conditions. Use stop work authority if feeling unsafe	O	M	M
	Chemical – vapors	▪ Monitor area for %O2, %LEL, H2S, CO & VOCs prior to and during work as specified in PSHEP. ▪ Review action levels in the PSHEP.	S	Cr	M
	Manual Lifting/Ergonomic Hazards	▪ When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports should be considered. ▪ Plan storage and staging to minimize lifting or carrying distances. ▪ Split heavy loads into smaller loads. Rotate high demand tasks, take breaks as needed ▪ Have someone assist with the lift— especially for heavy (> 50lbs.) or awkward loads. (Note: If employee is not capable of carrying 50 lbs. or less, seek assistance.). ▪ Make sure the path of travel is clear prior to the lift. ▪ Do not lift manhole covers, open/lift hatches or other access points to vessels, tanks or subsurface structures without proper authorization to do so, proper tools and proper personnel protective equipment. ▪ Obey sensible lifting limits (50 lb. Maximum per person manual lifting) ▪ Use hand carts to move large, awkward loads ▪ Avoid carrying heavy objects above shoulder level.	S	M	L
	Sharp Objects/Hand Injuries	▪ Utilize Leather Gloves with Standard PPE ▪ Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects ▪ Use self-retracting knifes if needed. ▪ Cut away from the body and never towards another worker. • Maintain all hand and power tools in a safe condition.	O	M	M

Underground Utility Clearance (Cont'd)	Pinch Points	▪ Be aware of potential pinch points. ▪ Utilize leather palmed gloves for all material handling. ▪ Use proper tools, not hands, to open up manholes and covers for utility conduits	S	M	L
	Eye/Foot and Hand Hazards	▪ Eye/Face Protection – Safety glasses with side shields (ANZI Z87.1) ▪ Appropriate safety toed footwear is required ▪ Use sturdy leather work, or specialty gloves as required ▪ Use proper tools (e.g., crowbars) to open up utility conduits and manholes. Keep feet clear of area. ▪ Keep hands, feet, and body out of pinch points and hazardous areas ▪ Be aware of surrounding and proximity of other people when handling stakes and other equipment	S	Cr	M
	Electrical Hazards	▪ Where electrical cords are used, use a GFCI in-line cable or extension cord. Check for any frays in the wire and that all 3 prongs are intact. Damaged cords should be taken out of service. ▪ Ensure area is free of standing water and work is completed greater than 5 feet away from water. Inspect extension cords prior to use.	U	Ca	M
	Working in Vicinity of Indoor/Outdoor Vehicle Traffic/Active Equipment Operation	▪ Keep out of travel paths of vehicles and roadways, where possible. ▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility equipment/vehicle operators ▪ Refer to AHA 018: Traffic Management.	S	Cr	M
	Confined Space	▪ Monitor air when in vicinity of confined spaces of near potential hazardous atmospheres for %O2, %LEL, H2S, CO & VOCs prior to and during work as specified in PSHEP. ▪ Always use the buddy system. ▪ Be aware of locations of any confined spaces present inside of the facility building(s). Consult with knowledgeable facility personnel. ▪ Do not enter a confined space unless given a Parsons confined space entry Permit. ▪ Practice safe confined space entry procedure as specified in PSHEP and Confined Space Activity Hazard Analysis.	U	Ca	M

	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA 001: General Site Activities	S	Cr	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent. Level D PPE - Long pants, safety glasses, hard hat (in presence of heavy equipment), high-visibility vest/clothing, steel- toed boots, gloves, goggles. Equipment: Various Utility Clearing Equipment, Hand Tools, PID, MultiRAE (depending on location)	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate Equipment inspection as necessary, recorded in field book.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 004 Underground Utility Clearance** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity Hazards Analysis - Drilling Activities and Sample Collection

Activity/Work Task: Drilling Activities and Sample Collection	**Overall Risk Assessment Code (RAC) (Use highest code)** — **M**
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**
Job Number:	
Date Prepared: 2/11/2020	
Prepared by (Name/Title): J. Mikochik	
Reviewed by (Name/Title): Greg Ertel	
Employer/GBU: INF	

Risk Assessment Code (RAC) Matrix

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.

P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Notes: (Field Notes, Review Comments, etc.)
Level D: Hard hats, safety glasses, steel-toed boots (or equivalent), high visibility vest, gloves, ear plugs/muffs Tyvek as needed for bio or general contact hazards.
Upgrade to Level C not anticipated. If air monitoring indicates work cannot be conducted in Level D, work will stop, contact HS.
PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card

Job Steps	Hazards	Controls	P	S	RAC
General Drilling Activities (i.e., maneuvering drilling equipment at the site, drilling, handling soil cuttings, heavy equipment use)	General Chemical Exposure	• Monitor breathing zone with multi-gas meter according to action levels in the PSHEP. • Follow proper decontamination procedures when leaving the work and "exclusion zone" Establish a demarcated work area with cones and tape as needed to keep pedestrians and personnel that are not trained and qualified out of the work area.	S	M	L
Mobilize and Set-up Drilling Equipment and Compressor	Equipment Operation	• Verify air compressor vessel is approved and inspected before use • Inspect compressed air lines and connections – use Whip Checks on all connections	S	C	M

		• Hearing Protection required when working in proximity to loud equipment (if it is difficult to communicate in normal voice) • Only qualified operators will be allowed to operate heavy equipment, per safe work guidelines included in the OSHA General Industry (29 CFR 1910) and Construction Industry (29 CFR 1926) standards. • Conduct daily pre-use inspection of drill rig and equipment • Personnel will never walk directly behind or to the side of operating equipment without the operator's knowledge. • Do not wear loose-fitting clothing or other items such as rings or watches that could get caught in moving parts. Long hair will be restrained. • Maintain eye contact and exercise hand signals prior to maneuvering equipment. • No cell phone use while operating equipment • Stand clear of rotating objects (i.e., spinning augers)			
Material handling	Proper lifting techniques	• Bend from the knees when lifting objects from the ground up • Ask for help in lifting sandbags, augers, or other tools and equipment. Do not lift over 50 lbs. with single person lift • Rotate high demand tasks among staff, take breaks as needed	S	M	**L**
Moving around site	Slip, trips, falls	• Monitor work area for any potential holes, steps, or other trip hazards. • Keep work areas clear of debris or tools • Close all well boxes when not in use. Open well boxes pose a trip and fall hazard. • Clean all surfaces of any bentonite residues. Wet bentonite may pose a slip and fall hazard • Wear safety boots fully laced in good condition with adequate tread	S	C	**M**
Drilling, handling augers and other equipment	Pinch points, rotating objects	• Identify all pinch points prior to start of work • Only trained qualified rig operator to work in hazard area • Instruct all not to touch rotating augers, stand clear • Inspect emergency shut-off switches on the vehicles.	S	C	**M**

Vehicle Traffic	Damage to property Struck by/against	• All vehicles used at the site, including personal and rental vehicles, must be inspected daily • Use proper traffic control (cones, advance warning signs)when blocking traffic lanes or shoulders • Follow all posted signs and speed limits. • Drive defensively do not talk on cell phone or use electronic device while driving • Use a spotter when backing or for tight maneuvers • Wear an orange traffic safety vest when working around heavy equipment or near vehicular traffic.	U	M	**L**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements
Direct push drill rig (Geoprobe), Hollow Stem Augers, hand tools, power tools	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher training.	1. Daily equipment inspection (i.e., hydraulic, and compressed air lines, fire extinguishers, shut- off switches, back up sirens, tools) 2. Check PPE for abnormal wear and tear, rips, etc. 3. Look for objects that could pose potential trip hazards. 4. Survey work areafor overhead hazards, flying debris/particulates or splashes, vehicle traffic or heavy equipment operation, loud noises, etc.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 005 Drilling** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Monitoring Well Gauging, Slug Testing, and Sampling	Overall Risk Assessment Code (RAC) (Use highest code)					M
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**					
Project Number:	**Severity**	**Probability**				
Date Prepared: 1/16/2020		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name): M. Colbert	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
Reviewed by (Name/Title): Greg Ertel	Marginal	H	M	M	L	L
Employer / GBU: Parsons	Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, EHSARP Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**					
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				**RAC Chart**	
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				**E = Extremely High Risk** **H = High Risk**	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				**M = Moderate Risk** **L = Low Risk**	

Job Steps	Hazards	Controls	P	S	RAC
General/Work Area	Slips, Trips, Falls	▪ Use designated walkways whenever possible ▪ Avoid or remove all trip hazards by keeping materials/objects organized and out of walkways. ▪ Keep work surfaces dry ▪ Practice good housekeeping and keep work areas free of debris ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Avoid, remove, communicate and mark (if possible) hazards. ▪ Utilize adequate lighting ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall.	S	M	L

		▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan yourroute. ▪ Clean up all spills immediately and dispose properly. ▪ Personnel will notify the SSO of any unsafeconditions.			
	Working in Vicinity of Indoor/Outdoor Vehicle Traffic/Active Equipment Operation	▪ Keep out of travel paths of vehicles and roadways, where possible. ▪ Set up traffic cones and flagging to secure workarea ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility and subcontractor'sequipment/vehicle operators. ▪ Review AHA 018: Traffic Management for further controls measurements and hazards.	S	Cr	M
	Site Hazards Material Exposure	▪ Training and safety awareness of potential exposure to contaminants at thesite. ▪ Training of all personnel decontamination procedures. Provide adequate hygiene and decontamination supplies. ▪ Practice contamination avoidance, work upwind if feasible, limit contact to the extent possible, do not eat in areas with COC's, keep drink containers covered. ▪ Appropriate PPE will be worn dependent on-site conditions and actionslevels. ▪ Monitoring breathing zone with PID and/or Multi-gasmeter. ▪ Keep Safety Data Sheets for chemicals on site ▪ Must sign off on health and safety plan. ▪ Keep all sampling supplies and bottles upwind or crosswind. ▪ Visitor will be escorted around site by an individual with current 40-hour HAZWOPER training, unless cleared with the SSO.	S	M	L
	Theft of Equipment/Vehicles	▪ Do not leave equipment unattended. Place equipment in vehicle when not in use and ensure that vehicle is locked. ▪ Be aware of surrounding and keep lookout. ▪ Alert authorities of suspicious activities.	U	M	L
	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA 001: General Site Activities	S	M	M
	Slips, Trips, and Falls	▪ Refer to General/Work Area above.	S	M	L

Mobilization / Staging	Back Injury, Strains, Sprains, Foot Injuries	▪ Observe proper lifting techniques – lift with legs, elbows in, and keep back straight. ▪ Team lifts large/awkward loads. ▪ Use mechanical means to lift if the weight is awkward or the weight is greater than 50 pounds individually or 80 pounds for team lifting. ▪ Use mechanical devices (e.g., wagon, sled) to transport equipment over long distances. ▪ Take breaks frequently and rotate staff. ▪ Protect your knees with knee pads or other disposable padded material while kneeling on the ground. ▪ Keep equipment secure until needed. And avoid stacking Wear steel-toed boots.	S	M	L
Open Monitoring Well and Obtain Depth Measurements	Pinch Points	▪ Don proper PPE (work gloves and nitrile gloves) and unlock/open well. Use appropriate tools (socket wrench, pry bar) to assist with opening flush mount wells, do not use bare hands.	S	M	L
	Back Injury, Strains, Sprains	▪ Protect your knees with knee pads or other disposable padded material while kneeling on the ground. ▪ Use proper lifting techniques. Keep back straight, bend the knees, and lift with the legs. Use two people if load is heavier than 50 lbs. or awkward to handle.	S	M	L
	Site Hazards Material Exposure, Vapors, Splash Hazards	▪ Review above measures for General/Work Area. ▪ Stand upwind when opening well and obtaining depth measurements. ▪ Obtain PID and/or Mulit-gas readings of well inner casing prior to and immediately after removing inner cap. Record measurements on field log. ▪ Monitor breathing zone with PID and/or Multi-gas meter. Review Action Level Criteria in the PSHEP. If elevated readings persist for greater than 5 minutes, close-up/cap well, stop work, and leave the area. ▪ Use appropriate decontamination procedures. Refer to AHA 003: Personal Decontamination, and AHA 004: Decontamination of Tools and Equipment. ▪ Wear safety glasses and nitrile gloves. ▪ Reel-up water level monitoring device slowly.	S	M	L
Groundwater Sampling and Slug Testing	Sharp Objects (Tubing Cutter, Lab Glassware), Pinch Points	▪ Wear cut-resistant gloves when cutting tubing, rope, or twine. ▪ Close and safely store cutters when not in use. ▪ Visually inspect cooler upon opening for signs of damaged bottleware and broken glass. Wear cut-resistant and nitrile gloves. ▪ Be aware of the potential presence of pinch points when handling equipment (e.g., opening and closing equipment cases, metal-to-metal contact). ▪ Use nitrile and work gloves when attaching affixing tubing to pump. For motorized pump, keep hands clear of moving parts.	O	M	M

	Exposure to Contaminants and/or Preservatives	▪ Wear nitrile gloves when handling all environmental media and bottleware. ▪ Visually inspect cooler upon opening for signs of damaged or improperly capped bottleware which may have leaked preservatives.			
	Back Injury, Strains, Sprains	▪ Protect your knees with knee pads or other disposable padded material while kneeling on the ground. ▪ Use proper lifting techniques. Keep back straight, bend the knees, and lift with the legs. Use two people if load is heavier than 50 lbs. or awkward to handle.	S	M	L
	Site Hazards Material Exposure, Vapors, Splash Hazards	▪ Review above measures for General/Work Area. ▪ Stand upwind of well location. Establish exclusion zone around monitoring well/sampling area. ▪ Monitor breathing zone continuously with PID and/or Multi-gas readings. Obtain periodic headspace measurements from well casing and from purge container. ▪ Use appropriate decontamination procedures. Refer to AHA 003: Personal Decontamination, and AHA 004: Decontamination of Tools and Equipment. ▪ Wear nitrile gloves and safety glasses at all times while purging, handling bottleware, sampling, and containerizing groundwater. Ensure that purge water containers are properly sealed before moving/transporting and use proper hazard communication. ▪ Lower and remove pump, tubing, and other equipment from well slowly.	S	M	L
	Electrical Hazards	▪ Inspect extension cords for pump and related devices prior to use. Check for any frays in the wire. Damaged cords should be taken out of service or replacement equipment should be obtained. ▪ If a car or marine battery is used as electrical source, check for signs of corrosion. Attach and tighten each cable one at a time (posited/red first, black/negative second). Avoid placing near water. ▪ Avoid working in heavy precipitation. Shut off or remove power sources to any electronic equipment and move to dry area.	U	Ca	M
	Slips, Trips, and Falls	▪ Review above measures for General/Work Area. ▪ Be aware of the location of tubing and electrical cords at all times. Places cones on top as appropriate.	S	M	L
Packing Sample Coolers	Pinch points, Cuts from Glassware, Exposure to Preservatives	▪ Maintain awareness of procedures and be attentive while handling glassware ▪ Use care and do not rush. Coolers can be heavy. Cooler lids and bottles can be pinch points. ▪ Watch trunk/tailgate as coolers are placed in field vehicles to ship samples. ▪ When packing coolers, inspect the sample containers for damage using a combination of cut-resistant and nitrile gloves. ▪ Visually inspect coolers before placing hands inside. ▪ Always cut away from body and hands.	O	M	M

	Back Injury, Strains, Sprains	▪ Use proper lifting techniques. Keep back straight, bend the knees, and lift with the legs. Use two people if load is heavier than 50 lbs. or awkward to handle. ▪ Use mechanical means (e.g., sled, wagon, hand cart) to move and transport sample coolers.	S	M	L
Decontamination	Refer to AHA 004: Decontamination of Tools and Equipment		S	M	M
IDW Management	Refer to AHA 014: IDW Management and Sampling		S	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Modified Level D- Long pants, safety glasses, hard hat (when required), steel-toed boots, nitrile outer gloves, cut proof inner gloves, safety glasses or goggles, high-visibility vest/clothing. Equipment: peristaltic pump, bladder pump, pump accessories (e.g., control box, air supply), marine battery, tubing, tubing cutters, water level meter, water quality meter, slug, water level transducers, sample bottleware, coolers, bags of ice. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system). Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate. Get Out and Look (GOAL) Equipment inspection as necessary, recorded in field book. Complete daily calibration of PID, weekly calibration of Multi-gas meter, and monthly inspection of fire extinguishers.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 006 Monitoring Well Gauging and Sampling** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Surface Water Sampling	Overall Risk Assessment Code (RAC) (Use highest code)						M
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**						
Project Number:	**Severity**	**Probability**					
Date Prepared: 1/16/2020		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name): M. Colbert	Catastrophic	E	E	H	H	M	
	Critical	E	H	H	M	L	
Reviewed by (Name/Title): Greg Ertel	Marginal	H	M	M	L	L	
Employer / GBU: Parsons	Negligible	M	L	L	L	L	
Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, EHSARP Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**						
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				**RAC Chart**		
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				**E = Extremely High Risk** **H = High Risk**		
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				**M = Moderate Risk** **L = Low Risk**		

Job Steps	Hazards	Controls	P	S	RAC
Surface Water Sampling	Working on the water - drowning potential	▪ Check with cement plant about delivery schedule, confirm area is clear of boat traffic ▪ Wear footwear that has sufficient traction to reduce risk of slipping. ▪ Pay close attention to weight distribution when filling surface water sample bottleware on the edge of the riverbank. ▪ Wear a personal floatation device while conducting surface water sampling if within 10 feet of river's edge and whenever danger of falling into river exists. ▪ Have a throwable rescue device with 75' rescue line readily available ▪ Buddy system required when working near water	U	Cr	L
	Slips, Trips, Falls	▪ Use designated walkways whenever possible ▪ Avoid or remove all trip hazards by keeping materials/objects organized and out of walkways.	S	M	L

		▪ Keep work surfaces dry ▪ Practice good housekeeping and keep work areas free of debris ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Avoid, remove, communicate and mark (if possible) hazards. ▪ Utilize adequate lighting ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Clean up all spills immediately and dispose properly. ▪ Personnel will notify the SSO of any unsafe conditions.			
	Site Hazards Material Exposure, Vapors, Sample Preservatives, Splashes	▪ Training and safety awareness of potential exposure to contaminants at the site. ▪ Training of all personnel decontamination procedures. Provide adequate hygiene and decontamination supplies. Refer to AHA 003: Personnel Decontamination, and AHA 004: Decontamination of Tools and Equipment. ▪ Practice contamination avoidance, work upwind if feasible, limit contact to the extent possible, do not eat in areas with COC's, keep drink containers covered. ▪ Appropriate PPE will be worn dependent on-site conditions and actions levels. At a minimum, steel toed boots, nitrile gloves, and safety glasses should be worn when handling contaminated water and sample bottleware ▪ Monitoring breathing zone with PID and/or Multi-gas meter. ▪ Keep Safety Data Sheets for chemicals on site ▪ Must sign off on health and safety plan.	S	M	L
	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA 001: General Site Activities	S	M	M
	Sharp Objects, Pinch Points	▪ Maintain awareness of procedures underway and be attentive of sampling operations. Be aware of potential equipment-related pinch points. ▪ Don proper PPE (work gloves and nitrile gloves) when handling sampling equipment. ▪ Wear cut-resistant gloves while cutting.	O	M	M

		▪ Upon opening sample cooler, visually inspect for signs of damaged bottleware and broken glass. Wear cut-resistant and nitrile gloves.			
	Back Injury, Strains, Sprains, Foot Injuries	▪ Observe proper lifting techniques – lift with legs, elbows in, and keep backstraight. ▪ Team lift large/awkward loads. ▪ Use mechanical means to lift if the weight is awkward or the weight is greater than 50 pounds individually or 80 pounds for team lifting. ▪ Use mechanical devices (e.g., wagon, sled) to transport equipment and samples over long distances. ▪ Take breaks frequently and rotate staff. ▪ Keep equipment secure until needed. And avoid stacking Wear steel-toed boots.	S	M	L
Equipment Decontamination	Refer to AHA 004: Decontamination of Tools and Equipment		S	M	M
IDW Management	Refer to AHA 014: IDW Management and Sampling		S	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Modified Level D- Long pants, safety glasses, hard hat (when required), steel-toed boots, nitrile outer gloves, cut proof inner gloves, high visibility personal floatation device. Equipment: water quality meter, water sampling device (e.g., dipper sampler), sample bottleware, coolers, bags of ice. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system). Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate. Get Out and Look (GOAL) Equipment inspection as necessary, recorded in field book. Calibrate PID daily, and fire extinguisher monthly.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

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This is to acknowledge that I have had a chance to review a copy **AHA 007 Surface Water Sampling** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: IDW Management and Sampling	Overall Risk Assessment Code (RAC) (Use highest code)						H
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**						
Project Number:	**Severity**	**Probability**					
Date Prepared: 1/20/2020		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name): J. Mikochik	Catastrophic	E	E	H	H	M	
	Critical	E	H	H	M	L	
Reviewed by (Name): Greg Ertel	Marginal	H	M	M	L	L	
Employer / GBU: Parsons	Negligible	M	L	L	L	L	

Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
General Activities/Work Zone	Working in Vicinity of Indoor/Outdoor Vehicle Traffic/Active Equipment Operation	▪ Keep out of travel paths of vehicles and roadways, where possible. ▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility and subcontractor's equipment/vehicle operators	S	Cr	M
	Slips, Trips, Falls	▪ Use designated walkways whenever possible ▪ Avoid or remove all trip hazards by keeping materials/objects organized and out of walkways. ▪ Keep work surfaces dry ▪ Practice good housekeeping and keep work areas free of debris ▪ When entering residential and commercial buildings, be extra vigilant for hazards, particularly slipping hazards. Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Avoid, remove, communicate and mark (if possible) hazards.	S	Cr	M

		▪ Utilize adequate lighting ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Clean up all spills immediately and dispose properly. ▪ Personnel will notify the SSO of any unsafe conditions.			
	Site Hazards Material Exposure	▪ Training and safety awareness of potential exposure to contaminates at the site. ▪ Training of all personnel decontamination procedures (if appropriate to visit). Provide adequate hygiene and decontamination supplies. ▪ Practice contamination avoidance, work upwind if feasible, limit contact to the extent possible, do not eat in areas with COC's, keep drink containers covered. ▪ Appropriate PPE will be worn dependent on-site conditions and actions levels. ▪ Monitoring breathing zone with PID and/or MultiRAE. ▪ Have support personnel remain upwind of the work area ▪ Keep Safety Data Sheets for chemicals on site ▪ Must sign off on health and safety plan. ▪ Keep all sampling supplies and bottles upwind or crosswind. ▪ Visitor will be escorted around site by an individual with current 40-hour HAZWOPER training, unless cleared with the SSO.	S	M	L
	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA-001:General Activities	S	M	M
Unloading, Loading, Movement, and Transport of Drums/Totes	Slips, Trips, and Falls	▪ Refer to general slips, trips, and falls hazards in General/Work Area job step above. ▪ Be aware of footing at all times. Clear areas of obstacles before moving through.	S	Cr	M
	Falling/Sliding Items	▪ Secure drums/totes in truck bed prior to transport, in particular, if empty. Position items in front of truck bed opposed to back, as braking hard could cause them to slide forward and crash into cab of truck. ▪ Wear proper PPE when lifting and moving empty drums and totes – hard hat, safety glasses, steel toed boots, and heavy work gloves.	S	Cr	M
	Hand Injury and Pinch Points	▪ Be aware of potential pinch points. ▪ Used thick gloves for all material handling.	S	M	L
	Foot Injury	▪ While moving and transporting drums/totes, keep feet clear of drums. ▪ Safety-toed boots should be worn when moving and transporting drums.	S	M	L

	Ergonomics/Back Strains	▪ Use mechanical means (hand carts, trucks) to lift if the weight is awkward or the weight is greater than 50 pounds individually or 80 pounds for team lifting. ▪ Where possible, avoid lifting drum or totes with filled contents. Transfer contents to staging area containers using sump/trans pump. ▪ Avoid performing the same strenuous activity for extended periods.	O	M	M
	Environmental Release	▪ Inspect Spill Kit supplies & locate spill kits prior to performing maintenance. ▪ Properly secure drums and totes during transport.	U	M	L
Opening, Closing, and Filling Drums/Totes (Solid or Liquid Contents)	Pinch Points/Hand Injury	▪ Be aware of potential pinch points. Use proper tools for opening/closing lids. ▪ Use thick work gloves.	U	M	L
	Liquid Spills and Splashes, Environmental Release	▪ Care will be taken that the liquid being placed in the drum does not spill onto the top of the drum or the ground. Use a drum funnel to assist in the task. Do not overfill the funnel. Secondary containment will be used for added protection, such as a spill pallet or plastic sheeting contained by berms. ▪ If a pump is used fill drum/tote, ensure that pump hosing is sufficient secured inside of tank or drum, using clamps where necessary. Do not turn on pump until hosing is secured into drum/tote. Turn off pump when not in use. ▪ Secondary containment will be used for added protection, such as a spill pallet or plastic sheeting contained by berms. ▪ Wear safety glasses when filling drums/totes.	U	M	L
	Electrical Hazards	▪ Inspect extension cords for equipment prior to use. Check for any frays in the wire. Damaged cords should be taken out of service. ▪ If a car or marine battery is used as electrical source for pump, check for signs of corrosion. Attach and tighten each cable one at a time (posited/red first, black/negative second). Avoid placing near water.	U	Ca	M
	Ergonomics/Back Strains, Eye Injury	▪ Personnel will use caution when shoveling dirt into a drum to avoid spraying rocks or dirt. If possible, only one worker will fill a drum at a time and take turns shoveling. ▪ Wear safety glasses when filling drums/totes.	U	M	L
	Site Hazards Material Exposure/Vapors	▪ Wear appropriate PPE when opening drums (nitrile and work gloves, steel toed boots, safety glasses, hard hat). ▪ Screen headspace below drum/tote lid or cover with PID and/or MultiRAE upon opening to assess for the presence of strong vapors. Upon opening lid and filling contents, continuously monitoring breathing zone with PID and/or MultiRAE.	S	M	L
Oversee Delivery/Pick-up of Frac Tank	Refer to AHA 014: Roll-off Delivery		S	M	M
Transfer Liquid Waste to Frac Tank via Sump	▪ Pinch Points, Hand Injury, and Moving Parts	▪ Be aware of potential pinch points. Use proper tools for opening/closing drum/tote lids and for opening frac tank hatch.	U	Cr	M

Pump, Frac Tank Hatch Access		▪ Use thick work gloves when handling drums, totes, pump/hosing, generator, and when opening/closing hatch for frac tank.			
	▪ Electrical Hazards	▪ Inspect extension cords for equipment prior to use. Check for any frays in the wire. Damaged cords should be taken out of service. ▪ If a car or marine battery is used as electrical source for pump, check for signs of corrosion. Attach and tighten each cable one at a time (posited/red first, black/negative second). Avoid placing near water.	U	Ca	M
	▪ Refueling – Fire/Explosion Hazards, Environmental Release	▪ A Type ABC, 20-lb, fully charged fire extinguisher will be in an accessible area on-site. ▪ Prohibit storage of fuel in plastic containers. Store fuel can and generator in well-ventilated areas and keep away from combustible materials and heat sources. Keep fuel can and generator in secure area when not in use and properly secure during transport. ▪ Turn off generator before refueling. ▪ No smoking while onsite and when refueling. ▪ Have spill absorbent pads nearby to prevent the spread of spilled materials. ▪ Inspect safety gas can for defects (e.g., lid doesn't completely close) before usage, refilling, and during transport. ▪ Conduct refueling activities in flat areas with impervious surfaces (concrete, asphalt, etc.) and away from bare ground, surface water, and catch basins.	S	Cr	M
	▪ Ergonomics/Back Strains	▪ Use mechanical means (hand carts, trucks) to lift equipment if the weight is awkward or the weight is greater than 50 pounds individually or 80 pounds for team lifting. ▪ Avoid performing the same strenuous activity for extended periods.	U	M	L
	▪ Splash Hazards, Environmental Release	▪ Ensure that pump hosing is sufficient secured inside of frac tank, using clamps where necessary and hatch lid to secure. Do not turn on pump until hosing is secured. Turn off pump when not in use. ▪ Secondary containment will be used for added protection, such as a spill pallet or plastic sheeting contained by berms. ▪ Wear safety glasses during pumping operations	U	M	L
	▪ Slips, Trips, and Falls	▪ Refer to control measures listed above in General/Work Area job steps for general slips, trips, and falls. ▪ Be aware of location of hosing at all times. Mark with cones. ▪ Keep work surfaces dry when possible or wear non-slip rubber boots. ▪ Be aware of uneven footing. ▪ Maintain 3 points of contact when walking up/downstairs to access top of frac tank. Only rent frac tank that is equipped with sufficient handrails on stairs and on top.	U	Ca	M
	▪ Site Hazardous Material Exposure/Vapors	▪ Wear appropriate PPE when opening drums (nitrile and work gloves, steel toed boots, safety glasses, hard hat) and when opening frac tank hatch. ▪ Screen headspace of drum/tote and below hatch of frac tank before fully opening with PID and MultiRAE upon opening to assess for the presence of strong vapors or hazardous atmospheres.	O	M	M

		Continuously monitoring breathing zone with PID and MultiRAE during waste transfer process. ▪ If possible, position body upwind of hatch opening.			
Waste Characterization Sampling (Drums, Totes, and/or Frac Tank)	▪ Site Hazardous Material Exposure/Vapors	▪ Wear appropriate PPE when opening drums (nitrile and work gloves, steel toed boots, safety glasses, hard hat) and when opening frac tank hatch. ▪ Screen headspace of drum/tote and below hatch of frac tank before fully opening with PID and/or MultiRAE upon opening to assess for the presence of strong vapors or hazardous atmospheres. Continuously monitoring breathing zone with PID and/or MultiRAE during sampling activities and when drums/tote/frac tank are open. ▪ If possible, position body upwind of drum, tote, or frac tank hatch.	O	M	M
	▪ Pinch Points and Cuts from Glassware, Exposure to Preservatives	▪ Wear appropriate gloves (nitrile and cut-resistant gloves) and safety glasses when opening cooler and when handling bottleware that is either glass or contains preservatives. ▪ Visually inspect cooler upon opening and while packaging for signs of damaged bottleware and broken glass. ▪	O	M	M
	▪ Slips, Trips, and Falls	▪ Refer to control measures listed above in General/Work Area job steps for general slips, trips, and falls. ▪ Position bottleware, coolers, and sampling apparatus so as not to create a trip hazard. ▪ Keep work surfaces dry when possible or wear non-slip rubber boots. ▪ Be aware of uneven footing. ▪ Maintain 3 points of contact when walking up/downstairs to access top of frac tank. Only rent frac tank that is equipped with sufficient handrails on stairs and on top.	S	Ca	H
	▪ Splash Hazards, Environmental Release	▪ Secondary containment will be used for added protection, such as a spill pallet or plastic sheeting contained by berms. ▪ Wear safety glasses and nitrile gloves. ▪ Inspect Spill Kit supplies & locate spill kits prior to performing maintenance. ▪ Secure and close drums/totes when not in use.	U	M	L
Oversight of Pick-up/Transportation of Filled Drums and Totes	▪ Pinch Points, Hand Injury	▪ Be aware of potential pinch points. ▪ Used thick gloves for all opening and closing drums.	S	M	L
	▪ Ergonomics/Back Strains	▪ Do not attempt to move drums unless with appropriate mechanical means (e.g., drum dolly). ▪ Do not attempt to lift drums into truck manually. Subcontractor shall provide lift gate on truck.	S	M	L
	▪ Vehicle and heavy equipment traffic in work area	▪ Be mindful of surroundings. ▪ Keep out of travel paths of vehicles and roadways, where possible. ▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility and subcontractor's equipment/vehicle operators	S	Cr	M
Oversight of Vac Truck Operations (Removal	▪ Vehicle and heavy equipment traffic in	▪ Be mindful of surroundings. ▪ Keep out of travel paths of vehicles and roadways, where possible.	S	Cr	M

of Frac Tank Contents)	work area	▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Use a spotter. Have one person conduct ground assistance at all times. ▪ Maintain eye contact/communication with facility and subcontractor's equipment/vehicle operators			
	▪ Noise	▪ Hearing protection will be worn in hazardous noise areas or working around heavy machinery or equipment. ▪ Wear earplugs when noise level from equipment exceeds 90 decibels (dBA) averaged over an eight-hour day.	S	M	L
	▪ Slips, Trips, and Falls	▪ Refer to control measures listed above in General/Work Area job steps for general slips, trips, and falls. ▪ Be aware of location of hosing at all times. Mark with cones. ▪ Keep work surfaces dry when possible or wear non-slip rubber boots. ▪ Be aware of uneven footing. ▪ If access to top of frac tank needed, maintain 3 points of contact when walking up/downstairs to access top of frac tank. Only rent frac tank that is equipped with sufficient handrails on stairs and on top.	U	Ca	M
	▪ Pressure Bursts / Struck By	▪ Beware of joints and weak points in the hose during pump operations. Avoid stepping over hose as much as possible. If burst were to occur, stay away from the breach in the hose and turn off pump immediately. ▪ Check that all mechanical hose connections are secure. Make sure all manual connections are "positive locked" and have safety cables (otherwise known as chokers, hose anchors or whip checks) properly attached. Slowly open valves. ▪ Wear proper PPE – safety glasses, hard hat, and steel-toed boots. ▪ Ensure individuals are trained on the proper operation of the vac truck equipment.	S	Cr	M
	▪ Environmental Release, Splash Hazards ▪ Compliance with DOT Shipping regulations	▪ Secondary containment will be used for added protection, such as a spill pallet or plastic sheeting contained by berms. ▪ Wear safety glasses and nitrile gloves. ▪ Inspect Spill Kit supplies & locate spill kits prior to performing activities. ▪ Inspect hoses prior to use for signs of ▪ Assess material to ensure it does not meet hazardous material shipping requirements, if designated as HAZMAT use a trained and authorized shipper with proper paperwork and approved shipper	U	M	L
	▪ Site Hazards Material Exposure/Vapors	▪ Wear appropriate PPE (nitrile and work gloves, steel toed boots, safety glasses, hard hat) during oversight ▪ Continuously monitoring breathing zone with PID and/or MultiRAE during vac truck operations. ▪ If possible, position body upwind of work zone.	O	M	M
Oversight of Frac Tank Clean-Out	▪ Use of Pressure Washer – Slips, Trips, Fall, Eye-	▪ Ensure individuals are trained on the proper operation of the pressure washer and understand hazards associated with the pressurized equipment.	S	Cr	M

	Face Injuries	▪ Keep out of line of fire of pressure washer. Make sure that all workers and bystanders are cleared from area before operating. ▪ Workers shall wear proper PPE (safety glasses with side shields + a face shield) ▪ Turn off valves when not in use. ▪ Be aware of location of hosing at all times. Mark with cones. ▪ Keep work surface area dry and wear slip resistant boots.			
	▪ Site Hazardous Material Exposure/Vapors, Confined Space	▪ Make sure workers are properly trained with the task and are aware of site chemical hazards in advance of the work. Workers entering into frac tank shall possess HAZWOPER and confined space training. Subcontractor shall complete necessary confined space paperwork and supply to Parsons in advance. Parsons shall document that confined space entry procedures are being followed by subcontractor (presence of attendant, proper PPE, decontamination procedures, air monitoring, etc.). ▪ Practice contamination avoidance. Have support personnel remain upwind of the work area ▪ Wear Level D PPE. Workers completing the cleanout may require more stringent PPE. ▪ Monitoring breathing zone with PID and/or MultiRAE. Workers completing the cleanout shall also complete monitoring while inside of tank.	S	Cr	M
Equipment Decontamination	Refer to AHA 004: Decontamination of Tools and Equipment		S	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent. Level D PPE - Long pants, safety glasses, hard hat (in presence of heavy equipment), high-visibility vest/clothing, steel-toed boots, gloves, goggles.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29CFR1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Inspect drugs and totes for any signs of bulging daily. Inspect conditions of frac tank (rails and steps) Take 5 Card when appropriate Get Out and Look (GOAL)

	necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Equipment inspection as necessary, recorded in field book. Complete daily calibration of PID, weekly calibration of Multi-gas meter, and monthly inspection of fire extinguishers.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 008 IDW Management and Sampling** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

NAME	SIGNATURE	COMPANY	DATE	CRAFT	TRAINER	TRAINER SIGNATURE
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Activity/Work Task: Access to Residential Properties	Overall Risk Assessment Code (RAC) (Use highest code)						**M**
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**						
Project Number:	**Severity**	**Probability**					
Date Prepared: 1/20/2020		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name): J. Mikochik	Catastrophic	E	E	H	H	M	
	Critical	E	H	H	M	L	
Reviewed by (Name): Greg Ertel	Marginal	H	M	M	L	L	
Employer / GBU: Parsons	Negligible	M	L	L	L	L	

Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.**	
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	**RAC Chart**
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
General Activities - Exterior	Vehicle Traffic	▪ Keep out of travel paths of vehicles and roadways/driveways, where possible. Refer to AHA 002: Operation of Motor Vehicle ▪ Set up traffic cones and flagging to secure work area ▪ Wear Level D PPE and reflective safety vest ▪ Maintain eye contact/communication with facility equipment/vehicle operators	S	Cr	M
	Theft of Equipment/Vehicles	▪ Do not leave any equipment or personal items unattended. ▪ Ensure that vehicle is locked, and values removed to the extent practical. ▪ Be aware of surrounding and keep lookout. ▪ Alert authorities of suspicious activities.	U	M	L

	Heat/Cold Stress Biological Hazards Adverse Weather Uneven/Wet Terrain	▪ Refer to AHA 001: General Site Activities	S	M	M
	Interaction with residents	▪ Interaction with residents must by courteous and non-confrontational. Community members with questions about the project shall be given Corning specific information. Further questions can be referred to the Project Manager. ▪ If interactions feel suspicious or begin to be confrontational, leave the area and seek shelter in a vehicle or within the work group. Do not engage. ▪ While working in yards, children or pets may inadvertently enter the work area. In these cases, stop work and facilitate getting the child or pet back to a safe location. Do not engage with dogs as a general rule for their reaction to strangers may be unknown. ▪ Use caution when crossing streets and while on sidewalks. Screen the path of travel for obstructions and hazards before walking/ travelling/ crossing roadways.	L	M	M
Building and Property Entry/Access	Slips, Trips and Falls	▪ Be aware of slippery surface and potential trip hazards. ▪ Politely ask tenants if obstructions/trip hazards can be removed fromwalkways. ▪ Do not talk or text on cellphone or look at documents while walking, focus ontask. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Clean up all spills immediately and dispose properly. ▪ Utilize proper illuminating. Never walk in low-lit areas. ▪ Wear appropriate PPE including non-slip steel toe rubber boots when working on wet or slick surfaces. Do not carry more than 50 lbs. by yourself	O	M	M
	Ergonomics	▪ Do not lift/carry objects heavier the 50 lbs. without assistance or use a mechanical means (e.g., dolly cart) ▪ Avoid twisting and maintain the load close to the body aspractical ▪ Bend at the knees, rather than waist	O	M	M
	Attack from Pets	▪ **Pre-entry procedures** (complete before mobilization to property): ○ Contact property owner to ask if they have pets and are willing to secure in separate room (or inside if work is being completed outside) during exterior/interior walkthrough and sampling activities. ▪ **Post-Entry Procedures** (Upon entering property): ○ Verify pets are secured. Wait until they are secured, or don't enter house (re-schedule if necessary).	O	M	M

	General Security	▪ **Pre-entry procedures** (complete before mobilization to property): ○ Compare property owner/tenant names to state sex offenderregistry. ○ Contact property owner to explain the building walkthrough/sampling procedures. ○ Notify local police department and non-emergency 911 center in advance of work to explain activities which will be taking place and timeframe of activities. ○ Establish sufficient support team (buddy system and office support staff). Establish standard procedures for resident entry and communication (exchange company cellphone numbers with team).	O	M	M

- **Entry Procedures** (At Door):
  - Use the buddy system, or teams of three if possible.
  - Carry Alert GPS FOB, and active GPS tracking applications on phones.
  - Introduce yourself and request access to performed scheduled activities on property. If activities are unscheduled, present/reference letter sent to them (or owner), contractor introduction letter, and present them with the offer to conduct the desired activities (e.g., sampling) on behalf of NYSDEC/NYSDOH. Leave premise if owner/tenant does not desire that you enter premise.
  - Notify office support staff via text upon entering building (e.g., Entering ### Main Street).
  - Enter house and don disposable boot covers.
  - Carefully explain the proposed activities (e.g., sampling, building walkthrough) and staff placement:
    - One employee at sample point (if applicable)
    - One employee between sample point and stairs (if in basement) or nearest exit
    - Line of sight between employees to be maintained at all times.
    - One person is vehicle as back up
  - Employees communicate with each other via text message or walkie talkie to "check-in."
  - Exit house upon completing activities. Notify office support staff via text.

- **Actions to Avoid**:
  - Do not enter private rooms or rooms not necessary to perform work.
  - Do not use resident's bathroom facility, phone service, or any tools, materials, related items.
  - Do not provide or receive of food, beverage, or any gift.

- **No Entry/Abort Conditions**:
  - Unleashed dogs/pets or owner unwilling to put pet in secure location.
  - Evidence of illegal drug use.
  - Human waste or excrement observed.
  - Resident desires to leave or is not present (interior activities only)
  - Any sense of danger or threat (verbal, physical gestures, etc.).
  - Resident does not desire you to enter premise.
  - Inappropriate comments.
  - Posted, no trespassing sign.

	Theft of Equipment/Vehicles	▪ Do not leave any equipment or personal items unattended. ▪ Ensure that vehicle is locked, and valuables removed to the extent practical. ▪ Be aware of surroundings and keep lookout. ▪ Have copies of emergency contacts readily available or stored in phone in the event of theft. ▪ Alert authorities of suspicious activities.	U	M	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent. Level D PPE - Long pants, safety glasses, high-visibility vest/clothing, steel-toed boots, gloves, safety glasses.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 009 Access to Residential Properties** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Sediment Sampling	Overall Risk Assessment Code (RAC) (Use highest code) **M**
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**
Project Number:	
Date Prepared: 4/15/2020	
Prepared by (Name): Sara Weishaupt, Ed Ashton	
Reviewed by (Name): Greg Ertel	
Employer / GBU: Parsons	
Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal		**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.

	RAC Chart
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	**Hazards**	**Controls**	**P**	**S**	**RAC**
Sediment Sampling	Marine Operation Hazards	▪ Check and monitor weather ▪ Use trained and authorized operator, refer to Boat Operation AHA	S	M	M
	Inhalation of contaminated dust Inhalation of volatile contaminants Ingestion of contaminants Skin/eye contact with contaminated materials	▪ If exposure to contaminated materials occurs, promptly wash contaminated skin using soap or mild detergent and water. ▪ Wash eyes with large amounts of water. ▪ If a person breathes in a large amount of organic vapor, move the exposed person to fresh air. Perform artificial respiration if breathing stops. ▪ Keep the affected person warm and at rest. Obtain medical treatment for all of these situations as required. ▪ Wear appropriate safety equipment (i.e., goggles, gloves, boots) as appropriate for reducing risk of	S	M	M

		contamination.			
	Pinch Points/Overhead equipment	▪ Maintain awareness of procedures underway and be attentive of vibracore operations. Keep hands out of pinch points. Mark or label key hazard areas to the extent possible ▪ Communicate plans with others and be aware of surroundings at all times ▪ Wear hard hats when around machinery and equipment. ▪ Keep observers back from active operations. Get operators attention before approaching.	S	M	M
	Noise Exposure	▪ Hearing protection will be worn in hazardous noise areas or working around heavy machinery or equipment. ▪ Wear earplugs when noise level from equipment exceeds 90 decibels (dBA) averaged over an eight-hour day.	S	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Modified Level D- Long pants, safety glasses, hard hat (when required), steel-toed boots, nitrile outer gloves, cut proof inner gloves, high visibility personal floatation device. Equipment: water quality meter, water sampling device (e.g., dipper sampler), sample bottleware, coolers, bags of ice. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system). Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate. Get Out and Look (GOAL) Equipment inspection as necessary, recorded in field book. Calibrate PID daily, and fire extinguisher monthly.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 010 Sediment Sampling** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Sample Processing	Overall Risk Assessment Code (RAC) (Use highest code): **M**
Project Location: New York (Various Locations)	
Project Number:	
Date Prepared: 4/15/2020	
Prepared by (Name): Sara Weishaupt, Ed Ashton	
Reviewed by (Name): Greg Ertel	
Employer / GBU: Parsons	
Notes: (Field Notes, Review Comments, etc.) **References:** PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card	

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal		M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.

	RAC Chart
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	**E = Extremely High Risk** **H = High Risk**
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk** **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
Packing sample for off-site shipment to lab	Accidental breakage of glass bottles	▪ Keep work area clean and clutter free. Use tables or other stable work surface at proper height to pack samples and cooler. ▪ Wear cut-resistant gloves during packaging of glass bottles. ▪ Immediate clean-up of spills.	S	M	M
	Back Injury, muscle strain/stress	▪ Personnel will utilize proper lifting techniques or ask for help with moving/lifting objects. ▪ Protect your knees with knee pads or other disposable padded material while kneeling on the ground. ▪ Use proper lifting techniques. Keep back straight, bend the knees, and lift with the legs. Use two people if load is heavier than 50 lbs. or awkward to handle.	S	M	M
	Hazardous Material Exposure	▪ Training and safety awareness of potential exposure to contaminates at the site and	S	M	M

		decontamination procedure. ▪ Appropriate PPE will be worn (e.g., safety glasses, gloves, etc.). ▪ Personnel will follow decontamination procedure. ▪ Screen for COCs with PID and mercury meter analyzer over samples and in workers breathing zone. Refer PSHEP for action levels. ▪ Ventilate work area with fans or vents			
	Slips, Trips, Falls	▪ Workers will be aware of potentially slippery surfaces and tripping hazards. Keep all areas dry, clean, and free of debris to deter any unnecessary trips and falls. ▪ Avoid, remove, communication, and mark (if possible) hazards. ▪ Do not talk or text on cellphone or look at documents while walking, focus on task. ▪ Don't walk with hands in pocket. They can be used to catch you in the event of a slip, trip or fall. ▪ Work slowly during transit. Jumping, running, and horseplay are prohibited. ▪ Wear ankle high safety shoes fully laced with good tread, keep hands out of pocket in case of fall. Do not carry more than 50 lbs. by yourself and plan your route. ▪ Clean up all spills immediately and dispose properly. ▪ Avoid working at dusk, dawn, or at night. Utilize adequate lighting when indoors. ▪ Personnel will notify the SSO of any unsafe conditions.	S	M	M
	Heat and Cold Stress	▪ The SSO will implement the cold/heat stress control program as appropriate to conditions. ▪ SSO will monitor workers for heat/cold stress symptoms. ▪ Provided heated or cool break areas ▪ Use buddy system and self-monitor ▪ Hydrate ▪ Wear PPE appropriate for the conditions	S	M	M
	Eye Injury	▪ Avoid splashing, pour slowly in a controlled manner, use funnel or proper equipment ▪ PPE (safety glasses, etc.) will be worn.	S	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Modified Level D- Long pants, safety glasses, hard hat (when required), steel-toed boots, nitrile outer gloves, cut proof inner gloves. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system). Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate. Get Out and Look (GOAL) Equipment inspection as necessary, recorded in field book. Calibrate PID daily, and fire extinguisher monthly.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA 011 Sampling-Processing** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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Activity/Work Task: Waste Characterization Sampling	**Overall Risk Assessment Code (RAC) (Use highest code)** — **M**
Project Location: New York (Various Locations)	**Risk Assessment Code (RAC) Matrix**
Project Number:	
Date Prepared: 4/15/20	
Prepared by (Name/Title): Ed Ashton	
Reviewed by (Name/Title): Greg Ertel	
Employer/GBU: INF	

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.

P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Notes: (Field Notes, Review Comments, etc.) References :
Level D PPE Required including:

- Steel toed boots
- Safety glasses
- High Visibility Safety Vest and FRC Clothing
- Work gloves when handling equipment
- Nitrile Gloves for Sampling activities
- Hard hat
- Hearing protection available as needed
- PSHEP, ESHARP MANAGEMENT PROCEDURE Manual, DASH Card

Job Steps	Hazards	Controls	P	S	RAC
1. Mobilization / Staging	1a. Trip & fall 1b. Musculoskeletal Disorders (MSD) 1c. Poor planning results in hazard, incident, or injury 1d Struck by Moving Equipment 1e. Positioning the equipment results in hazard, incident, or injury	1a. Position equipment and tools as to NOT create a trip hazard. 1a. Maintain good housekeeping throughout the project. 1a. Keep pathways clear of vegetation, tools/equipment, and debris. 1a. Mark, identify, or barricade potential hazards 1a&b. Never carry a load that blocks your vision of the pathway in front of you. 1b. Observe proper lifting techniques – lift with legs, elbows in, and keep back straight. 1b. Team lift large/awkward loads.	U	Ca	M

		1b. Use mechanical means to lift if the weight is awkward or the weight is greater than 50 pounds individually or 80 pounds for team lifting 1b. Avoid prolonged bending, awkward positions, and repetitive movements. 1c. Prior to beginning the day's activities, hold a H&S toolbox with the work crew detailing the potential hazards. 1c. Review in detail the activities to be conducted that day. 1c. Prior to beginning activities each day, ensure that the team has performed their daily inspection. 1c. Confirm the sampling locations and identity. 1d. Wear high visibility reflective safety vest or high visibility clothing. 1e. Blow the horn 3 times before backing if the Parsons field vehicle does not have back up alarms. 1e. Position the field vehicle out of the way of site traffic with cones surrounding vehicle and flashers active. 1e. Use spotters to position the field vehicle and complete a 360-degree vehicle walks to determine if any equipment or debris are located in the path of the vehicle.			
2. Waste Characterization Sampling Activities	2a. Site chemicals of concern 2b. Pinch points 2c. Stung by wasp / bee 2d. Pressurized Tank 2e. Changing conditions 2f. Cut by glass	2a. Ensure an eye wash station is located close by or have a portable eye wash station located with the support vehicle. 2a. Locate the rally location and alternate rally location in case of an emergency. Never cross down wind of an emergency condition 2b. Ensure that crew is wearing the appropriate PPE including: FRC clothing, hard hat, safety glasses, and steel-toed boots, work gloves, nitrile gloves for contact with groundwater, and hearing protection (As needed). 2c. Check the sampling location for possible wasps or wasps or bee nests in flush mount. If wasps or bees are present, then spray the affected area. Let the area rest for 30 minutes and come back. 2c. If a field team member is stung move to a safe location and circle the affected area with a marker and check your field team member's health. Call Work Care at 888-449-7787 for guidance. Notify the project team and facility of the incident.	**S**	**Cc**	**M**

		2c. If a field team member is allergic to bees or wasps check to make sure there epi pen is present, and it is in date before going into the field. 2d. To avoid being in a line-of-fire situation or getting well vapors in your face, stand to the side while removing any lids or caps in the sampling area (e.g., tank lids, well caps, hose caps, etc.) 2e. If conditions encountered in the field are not what is expected ANY TEAM MEMBER MAY STOP WORK to ensure the team and the sites safety.			
3. Packing sample coolers	3a. Pinch points 3b. Cut by glass and preservative burn (sample containers) 3c. Musculoskeletal Disorders (MSD) 3d. Changing conditions	3a. Ensure that crew is wearing the appropriate PPE including hard hat, high vis vest or clothing, safety glasses, and steel-toed boots, work gloves, nitrile gloves for contact with groundwater, and hearing protection (As needed). 3a & c. Use care and do not rush, coolers can be heavy and the lids, and bottles can be pinch points. 3a. Watch tailgate and doors as coolers are often placed in field vehicles to ship samples. Take your time to avoid pinching your fingers. 3b. When packing the coolers inspect the sample container for damaged samples using a combination of nitrile and cut resistant gloves to avoid the potential of being cut by possible broken sample containers and contact with contaminated water. 3b Visually inspect coolers before placing hand inside the coolers to try to identify and remove damaged sample containers for disposal. 3c. Never carry a load that blocks your vision of the pathway in front of you. 3c. Observe proper lifting techniques – lift with legs, elbows in, and keep back straight. 3c. Team lift coolers over 50 pounds. 3c. Avoid prolonged bending, awkward positions, and repetitive movements. 3d. If conditions encountered in the field are not what is expected ANY TEAM MEMBER MAY STOP WORK to ensure the team and the sites safety.	**O**	**S**	**M**
4. Site Exposure	4a. Dehydration	4a. Review Section 9.2 of the site-specific PSHEP	**U**	**Cr**	**L**

	4b. Environmental Hazards Including: insects, poison ivy, snakes, rodents, etc. 4c. Sunburn 4d. Trip and Fall 4e. Thunderstorms 4f. First Aid 4g. Communications 4h. Site Contaminants of Concern	4a. Provide sufficient amounts of cool water, at least one quart per employee per hour for the entire workday. 4b. Watch for signs of heat stress in field team members. If high humidity and or high temperature conditions arise than institute heat stress monitoring and prevention protocols. 4a. Use the "buddy system" to monitor fellow employees for signs of heat stress/stroke. 4a. Provide access to shaded area. 4a. Try to schedule work during the cooler hours of the day. 4b. Watch for spiders, flying insects, snakes, etc. 4b. Be mindful of poison ivy, oak, and sumac. Remember: Leaves of three; let it be. 4b. Wear poison ivy barrier cream if necessary. 4b. Wear mosquito repellant if necessary 4c. Wear sunscreen and hat as necessary 4d. Configure operations (equipment, coolers, etc.) as to minimize trip hazards. 4d. Mark-out or barricade pot-holes and other trip hazards. 4e. If lightning is observed or thunder is heard, suspend work until 30 minutes have passed without the occurrence of lightning/thunder. Allow time to secure equipment from potential heavy rain, heavy wind, and hail. Seek proper cover. 4f. Parsons truck is equipped with a first aid kit and eye wash. 4f. Contact Work Care at (888) 449-7787 for medical guidance and notify the project team of any incident 4g. All field personnel must be equipped with a cellular phone for communication purposes. 4h. Wear the appropriate PPE – review the Notes on page 1 of this AHA.			
5. Site Specific Hazards	5a. Site Control 5b. Site Traffic	5a. Sign in and sign out when accessing or departing the site. 5b. Wear appropriate PPE including high visibility vest or high visibility clothing 5b. Inform the crew of the site traffic. 5b. Inform crew to give site traffic the right-of-way. 5c. Establish an upwind meeting point and reevaluate the location throughout the day based on wind direction.	**S**	**Cr**	**M**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements
PPE (Level D) - Long pants, safety glasses, hard hat (in presence of heavy equipment), high-visibility vest/clothing, steel-toed boots, gloves, goggles. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate Equipment inspection as necessary, recorded in field book.

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Activity/Work Task: Site Visit or Site Walk with Ticks and Biohazards	Overall Risk Assessment Code (RAC) (Use highest code): **M**
Project Location: New York (Various Locations)	
Project Number:	
Date Prepared: 4-15-20	
Prepared by: Greg Ertel	
Reviewed by (Name/Title): Greg Ertel	
Employer / BU: Parsons / INF	

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal		M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all of the hazards and fully implementing all controls.

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

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RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Notes: (Field Notes, Review Comments, etc.)
References:
PSHEP, ESHARP MANAGEMENT PROCEDURE Manual. WorkCare and CDC guidance, DASH Card

WorkCare #: 1-888-449-7787

Place in your cell phone

Ticks **Biohazards**	Biological Hazards (ticks, bees, mosquitoes, snakes, etc.)	▪ Personnel will be aware of potential exposure to biological hazards ▪ If feasible have the area pre-cleared with mechanical means (brush hog, etc.) ▪ Wear appropriate clothing – long sleeves and pants with DEET based insect repellant applied to exposed skin. (Deet on the exposed skin, Permethrin on clothes) Use Tyvek taped at ankles and wrist if working in vegetation or high-risk areas. ▪ Wear Rynoskin under clothing in high-risk areas ▪ Do a thorough buddy and self ick check throughout the day and before getting into vehicle. ▪ If you discover an embedded tick remove with tweezers as soon as feasible and save tick if possible. ▪ If a tick embeds report to your Supervisor and call WorkCare # 1-888-449-7787 for guidance	S	Cr	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
PPE (Level D) - Long pants, safety glasses, hard hat (in presence of heavy equipment), high-visibility vest/clothing, steel-toed boots, gloves, goggles. Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. Medical qualification, training and fit testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. STOP WORK AUTHORITY Right, Obligation and Responsibility Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.	Ongoing environmental condition inspection (weather, wind, heat, cold). Ongoing personnel inspection (buddy system) Inspection of work area for general hazards as covered under this AHA prior to beginning any task. Take 5 Card when appropriate Equipment inspection as necessary, recorded in field book.

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Activity Hazard Analysis (AHA) -014

Activity/Work Task: Driving To/From Site	**Overall Risk Assessment Code (RAC) (Use highest code)**	**M**
Project Location: Corning Study Area	**Risk Assessment Code (RAC) Matrix**	
Contract Number: 451961		
Date Prepared: 7/19/2018, Modified 4-30-20		
Prepared by: Darrell Pruitt, SH&E Manager, Modified Ed Ashton		
Reviewed by: Tom Blaney/Jeff Muller, Ed Ashton		
Employer/GBU: Parsons Infrastructure		
Notes: (Field Notes, Review Comments, etc.) **References: PSHEP, ESHARP Manual, DASH Card**		

Severity	Probability				
	Frequent (F)	Likely (L)	Occasional (O)	Seldom (S)	Unlikely (U)
Catastrophic (C)	E	E	H	H	M
Critical (Cr)	E	H	H	M	L
Marginal (M)	H	M	M	L	L
Negligible (N)	M	L	L	L	L

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.

P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent (F), Likely (L), Occasional (O), Seldom (S) or Unlikely (U).

S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic (C), Critical (Cr), Marginal (M), or Negligible (N)

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- E = Extremely High Risk
- H = High Risk
- M = Moderate Risk
- L = Low Risk

Job Steps	Hazards	Controls	P	S	RAC
1. Inspection of the vehicle.	1.1 Unsafe walking surfaces during inspection.	1.1.1 Wear proper footwear. 1.1.2 Watch footing for obstructions and slippery surfaces Conduct in safe area away from traffic or moving vehicles,	U	M	L
	1.2 Unsafe hood lift support.	1.2.1 Ensure that hood lift support is not defective and properly secured. 1.2.2 Be aware of moving vehicles during inspection and light check.	U	M	L
2. Driving to site.	2.1 Defective Vehicle.	2.1.1 Ensure that vehicle is periodically maintained. 2.1.2 Inspection of the vehicle to be carried out prior to use.	U	M	L
	2.2 Traffic Collision.	2.2.1 Competency to drive the vehicle and valid driving license should be ensured. 2.2.2 Drive defensively, courteously, and safely. Obey all traffic regulations including speed limits and travel restrictions.	S	Cr	M

Job Steps	Hazards	Controls	P	S	RAC
2. Driving to site. (Contd…)	2.2 Traffic Collision. (Cont.)	2.2.3 Avoid taking unnecessary risks on the journey, taking care for own safety and health and that of other road users and others who might be affected by the actions. 2.2.4 Always use your seat belt, ensure passengers use their seat belts.			
	2.3 Lost on route / unfamiliar with road layout.	2.3.1 Ensure that site road layout has been oriented or familiarize prior to commencing journey. 2.3.2 Route map should be carried for reference. 2.3.3 Emergency card with mobile contact details should be carried to ensure further assistance regarding road direction.	U	N	L
	2.4 Hazardous road condition.	2.4.1 Avoid driving on poor road condition. Use alternate road, if possible. 2.4.2 Adjust driving according to road condition.	S	Cr	M
	2.5 Adverse weather condition.	2.5.1 Avoid driving during adverse weather conditions. 2.5.2 Adjust driving according to adverse weather condition. Never drive beyond the limits of visibility. 2.5.3 Slow down and be more alert. 2.5.4 Avoid off-road driving.	S	M	L
	2.6 Distraction while driving.	2.6.1 Do not use mobile phone and other devices while driving. 2.6.2 Concentrate on driving and avoid frequent adjustment of vehicle accessories. 2.6.3 Avoid eating/drinking while driving.	S	Cr	M
	2.7 Fatigue.	2.7.1 Avoid driving if feeling drowsy/sleepy/too tired. Take a break and rest. 2.7.2 Avoid heavy meals before driving.	S	M	L
	2.8 Pedestrians and School Children	2.8.1 Identify school bus/public transit times of operation and adjust schedule or driving operations as needed. 2.8.2 Be vigilant for children.	S	Cr	M

3. Arrival on site.	3.1 Parking in unauthorized area.	3.1.1 Park in designated parking areas only. 3.1.2 Avoid parking the vehicle which can obstruct others parking access/egress.	**S**	**M**	**L**

Job Steps	Hazards	Controls	P	S	RAC
		3.1.3 Use reverse parking where possible. 3.1.4 Safe distance from other vehicles to be maintained.			

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements
1. Vehicle • Training	1. Valid driving license. • WorkDay Driver Training	1. Daily Inspection of the vehicle. 2. Make sure to do a look around vehicle for any obstructions that might be surrounding vehicle.

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN-OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA #014 – Driving to/from site** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

NAME	SIGNATURE	COMPANY	DATE	CRAFT	TRAINER	TRAINER SIGNATURE
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PARSONS

Activity Hazard Analysis (AHA)-015

<table>
<tr><td>Activity/Work Task: Construction Oversight/Site Visits</td><td colspan="5">Overall Risk Assessment Code (RAC) (Use highest code)</td><td>H</td></tr>
<tr><td>Project Location: Corning Study Area</td><td colspan="6">Risk Assessment Code (RAC) Matrix</td></tr>
<tr><td>Contract Number: 451961</td><td rowspan="2">Severity</td><td colspan="5">Probability</td></tr>
<tr><td>Date Prepared: 7/19/2018, Modified 4-30-20</td><td>Frequent (F)</td><td>Likely (L)</td><td>Occasional (O)</td><td>Seldom (S)</td><td>Unlikely (U)</td></tr>
<tr><td rowspan="2">Prepared by: Darrell Pruitt, SH&E Manager, Modified Ed Ashton</td><td>Catastrophic (C)</td><td>E</td><td>E</td><td>H</td><td>H</td><td>M</td></tr>
<tr><td>Critical (Cr)</td><td>E</td><td>H</td><td>H</td><td>M</td><td>L</td></tr>
<tr><td rowspan="2">Reviewed by: Tom Blaney/Jeff Muller, Ed Ashton</td><td>Marginal (M)</td><td>H</td><td>M</td><td>M</td><td>L</td><td>L</td></tr>
<tr><td>Negligible (N)</td><td>M</td><td>L</td><td>L</td><td>L</td><td>L</td></tr>
<tr><td>Employer/GBU: Parsons Infrastructure</td><td colspan="6">Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.</td></tr>
<tr><td rowspan="4">Notes: (Field Notes, Review Comments, etc.)
References: PSHEP, ESHARP Manual, DASH Card</td><td colspan="5">P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent (F), Likely (L), Occasional (O), Seldom (S) or Unlikely (U).</td><td>RAC Chart</td></tr>
<tr><td colspan="5" rowspan="2">S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic (C), Critical (Cr), Marginal (M), or Negligible (N)</td><td>E = Extremely High Risk</td></tr>
<tr><td>H = High Risk</td></tr>
<tr><td colspan="5">Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.</td><td>M = Moderate Risk
L = Low Risk</td></tr>
</table>

Job Steps	Hazards	Controls	P	S	RAC
1. All Site Work	1.1 Slips/trips/falls from slick surfaces or objects in travel path resulting in bodily injury.	1.1.1 Remove debris, supplies, cords, and equipment from the walking path. If objects cannot be moved, mark with cones or high vis tape. 1.1.2 Do not run during any task. Do not talk on cell phone while walking, keep hands out of pockets while walking – no cell phone use on when walking. 1.1.3 Plan path of travel to limit walking on slick surfaces and remove objects from travel path when possible.	O	M	M
	1.2 Unfamiliarity with site operations and task resulting in injury	1.2.1 Site safety meetings will be held on site on daily basis prior to start of work. 1.2.2 All contractors shall attend coordinated and consolidated site safety meeting as well as task specific pre-job meetings if working in the field.	S	M	L

Job Steps	Hazards	Controls	P	S	RAC
	1.3 Struck by vehicle resulting in injury/death	1.3.1 Use location barriers to protect employees when working in the presence of vehicular traffic. 1.3.2 Use a spotter to function as a lookout when backing, or near obstacles, maintain eye contact with driver, pre-plan route. 1.3.3 Maintain 3 feet of space cushion around vehicle 1.3.4 At all times on site, outside of designated 'office' areas, wear high visibility vest, and hard hat to be more visible to drivers.	O	M	M
	1.4 Working Around Heavy Equipment	1.4.1 Discuss and understand the overall hazards and operation of the heavy equipment with the contractor supervisor and operator. Understand procedures and lines of communication during operation of equipment. 1.4.2 Discuss and review overhead hazards with contractor supervisor and operator. 1.4.3 Discuss and review areas of heavy equipment was stored energy poses a line-of-fire risk and hazard. Avoid personnel being present in those areas during operations that pose a line-of-fire risk or hazard. 1.4.4 Discuss and review blind spots of various equipment. Understand lines of communication (line-of-sight, hand signals, etc.) to the operator of such equipment. Avoid blind spots during operations. 1.4.5 Identify kill switches or procedure for de-energizing equipment in the event of an incident. 1.4.6 Understand site emergency signals and sirens from equipment.	L	Cr	H
	1.5 Injury from inclement weather (heat stress, lightning strikes, struck by object blowing from high winds, etc.)	1.5.1 Stop work if lightning is seen and immediately seek shelter, stay in shelter	S	M	L

Job Steps	Hazards	Controls	P	S	RAC
		until 30 minutes after last visible strike, if is wind greater than 30 mph, or rain more than 1 inch per hour, contact supervisor for direction on continuing work. 1.5.2 Personnel should remain hydrated throughout the workday. Drink plenty of water. 1.5.3 Wear clothing appropriate to weather (e.g., warm clothing on cold days and lighter clothes on warm days). 1.5.4 Use buddy system to monitor status of fellow worker if any symptoms of heat/cold stress are present Stop Work.			
	1.6 Biological Hazards (bit by animals/insect, etc.)	1.6.1 Where possible, landscape work areato reduce high grass. 1.6.2 Use a long-handled tool to disturb vegetation prior to stepping through the area. 1.6.3 Use insect repellant when in areas of high grass or in standing water. Reapply as directed by manufacturer. 1.6.4 Inspect work areas for indications of spiders, bees, or other harmful insects. 1.6.5 Stay at least 5 feet away from fire ant mounds.	S	M	L
	1.7 Site Hazards Material Exposure	1.7.1 Training and safety awareness of potential exposure to contaminates at the site – including Lead, Arsenic, Cadmium and Semi-Volatiles (SVOCs) 1.7.2 Practice contamination avoidance work upwind if feasible, limit contact to the extent possible, and do not eat in areas with potential exposure, keep drink containers covered. Provide hand-washing facilities and verify the contractors have adequate decontamination facilities in place and they are being used appropriately.	O	M	M

Job Steps	Hazards	Controls	P	S	RAC
		1.7.3 Appropriate PPE will be worn dependent on-site conditions and actions levels. 1.7.4 Must sign off on health and safety plan.			
2. Radio/General Communication	2.1 Unaware of emergency resulting in injury	2.1.1 Each crew will be equipped with a site 2-way radio that is charged, turned on and functional. 2.1.2 A radio check will be conducted at the start of each day. 2.1.3 Where radio transmissions are interrupted in any way, the operation will be stopped immediately.	S	M	L
3. Lifting / carrying materials or equipment	3.1 Sprains/strains to back, shoulders, legs from lifting supplies and equipment	3.1.1 Do not lift objects > 50 lbs. without assistance or use a mechanical means 3.1.2 Do not twist; maintain the load as close to the body as practical. 3.1.3 Bend at the knees, rather than the waist.	O	M	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements
1. Personal Protective Equipment. • Level D: Hard hats, safety glasses, gloves, steel-toed boots (orequivalent), high visibility vest. Gloves, ear plugs/muffs, if necessary. • Depending on environment at project site: blanket, sunscreen, cold/hot drink, extra clothing, traffic warning signage, cones, hi-vis markers, etc., fire extinguisher, insect repellent.	1. All personnel engaged in hazardous substance removal or other activities that expose or potentially expose them to hazardous substances or health hazards shall receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to, initial 40-hour, 8-hour Supervisor and annual 8-hour refresher. 2. Medical qualification, training and fit-testing must be received on an annual basis for individuals that wear a respirator. If an individual wears a respirator more than 30 days per year, or they are exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, then they must participate in a Medical Surveillance Program as required by 29 CFR 1910.120(f). 3. All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their	1. PPE should be inspected prior to use. 2. Ongoing environmental condition inspection (weather, wind, heat, cold). 3. Ongoing personnel inspection (buddy system) 4. Inspection of work area for general hazards as covered under this AHA prior to beginning any task. 5. Take 5 Card when appropriate 6. Equipment inspection as necessary, recorded in field book.

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Job Steps	Hazards	Controls	P	S	RAC
	Supervisor during their Daily Safety Huddle. All personnel performing work onsite must have received the site-specific orientation. Competent FA / CPR / AED responder will be onsite while all work is occurring at all times. 4. STOP WORK AUTHORITY Right, Obligation and Responsibility 1. Every single employee has the responsibility and the authority to STOP WORK at any time necessary to protect the safety or health of themselves, others, and the environment. Anyone can execute this responsibility without repercussions. We believe that the GOAL OF ZERO is possible with everyone's support and commitment.				

ACTIVITY HAZARDS ANALYSIS TRAINING ACKNOWLEDGEMENT AND SIGN-OFF

Read Carefully Before Signing Below

This is to acknowledge that I have had a chance to review a copy **AHA #015 – Construction Oversight/Site visit** and have been trained on its contents. I understand a copy will be provided to me upon request. I will read and abide by all requirements of the aforementioned AHA and any additional rules and regulations of my job. I understand that working safely, complying with, and obeying any and all Company safety rules, regulations or standards is a condition of my employment. Should I not comply with Company safety rules, regulations, or standards, I am subject to disciplinary action including removal from the site and possible termination of employment.

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APPENDIX H ORDER FOR TREATMENT

WC Injury Management Workflow

When an injury occurs, provide caring, nonjudgmental response to the injured employee. Determine the extent of the injury and arrange for the appropriate level of medical attention. Maintain regular ongoing contact with the injured employee during his/her recovery. The employee's supervisor must complete IndustrySafe Online Incident Report within (4) hours of his/her knowledge of the incident. Additionally, the employee's supervisor must promptly notify the BU SH&E Director.

For Serious/Life Threatening, Emergency Medical Care Required

#1 – Immediate Response

1. CALL 911 or Local Emergency Medical Services
2. Contact designated Project/Office Personnel *Tom Drachenburg (315.484.3217Matt vetter)*
3. Contact designated BU SH&E Contact *Darrell Pruitt* (812.605.2108)
4. As required, contact client, any others *George Momberger* (518-402-9814)
5. Call WorkCare. **Available 24/7**. Available for Parsons' employees and agency employees.
   From North America: 888.449.7787; from outside North America: 714.456.2104

#2 – Medical Care

1. Supervisor (preferred) or designated alternate shall accompany the injured employee or follow to medical provider (Also, see #3 below)
2. Provide the Order for Treatment Forms to the medical provider at the time of the initial evaluation
3. Inform medical provider that temporary light/alternate duty is available
4. Obtain work status note from injured employee after each and every re-evaluation
   a. Provide copy to WC Claims Manager
   b. During recovery, identify temporary light-duty or alternate assignments necessary to accommodate injured employee's return to work based on work restrictions outlined by the medical provider

#3 – Post Accident Drug/Alcohol Screen

Not Applicable

Parsons does not have a companywide mandated post-accident substance screen/policy. It is the responsibility of our projects to know whether or not their project requires such and if so, the project must set-up post-accident drug screen process/protocol thru TM with their designated occupational clinic; and at the time of an employee's initial evaluation for a work-related injury/illness, request that the medical provider perform this screen.

#4 – Reports/Investigation/Follow-up Activities

1. Complete IndustrySafe Online Incident Report within (4) hours
2. Complete WC Accident Reports and submit to WC Claims Manager
3. Complete any other required project or client specific injury/accident forms
4. Take active role in root cause accident investigation. Take corrective actions. Contact BU SH&E Director re: your role in the investigation
5. Consult with BU SH&E Director to make OSHA recordability determination
6. Maintain ongoing contact with the injured employee during his/her recovery
7. Complete final investigation report in IndustrySafe within (72) hours
8. Immediately notify WC Claims Manager & TM if employee misses time from work

For non-medical emergency that may require clinical consultation

#1 – Immediate Response

1. Tend to the injured employee, assess the extent of the injury, and arrange for appropriate level of medical attention
2. Promptly call WorkCare, *before* employee seeks medical care for Parsons' employees and agency employees. Available **24/7**
   From North America: 888- 449-7787; from outside N. America: 714.456.2104
3. Contact designated Project/Office Personnel *Matt Vetter (315.418.8930)*
4. Contact designated GBU SH&E Contact *Diana Ceaser (908.619.0220)*
5. As required, contact client, any others *Add name(s)/number(s)*

#2 – Medical Care

1. If after consulting with WorkCare, medical care is indicated, Supervisor (preferred) or designated alternate shall accompany the injured employee or follow to medical provider (Also, see #3 below)
2. Provide the Order for Treatment Forms to the medical provider at the time of the initial evaluation
3. Inform medical provider that temporary light/alternate duty is available
4. Obtain work status note from injured employee after each and every re-evaluation
   a. Provide copy to WC Claims Manager
   b. During recovery, identify temporary light-duty or alternate assignments necessary to accommodate injured employee's return to work based on work restrictions outlined by the medical provider

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#4 – Reports/Investigation/Follow-up Activities

1. Complete IndustrySafe Online Incident Report within (4) hours
2. Complete WC Accident reports and submit to WC Analyst
3. Complete any/other required project or client specific injury/accident forms
4. Take active role in root cause accident investigation. Take corrective actions. Contact BU SH&E Director re: your role in the investigation
5. Consult with BU SH&E Director to make OSHA recordability determination
6. Maintain ongoing contact with the injured employee during his/her recovery
7. Complete final investigation report in IndustrySafe within (72) hours
8. Immediately notify WC Claims Manager & TM if employee misses time from work

Project/Office Designated WC Medical Providers

Compile and post at jobsite your Project/Offices' Designated WC Medical Clinic and Hospital information as well as map from site to each and note that unless state rules specifically prohibit, Parsons directs our injured employees to our predesignated occupational medical facilities when a work-related injury occurs. Contact Parsons WC Claims Manager for information about the WC provisions.

PARSONS

__________________________ ________________________________ of Parsons Corporation
(Employee Name) (Occupation)

is authorized to go to ____ for the following service(s):
(Name of Medical Provider)

Treatment for a Work-Related Injury/Illness for Date of Injury:______________________.

In the event the above medical provider determines this injury or condition NOT TO BE WORK RELATED, the employee and Parsons understand that this employee may then be referred by the above medical provider to his/her personal medical doctor.

Employer Information:	Parsons Corporation 100 West Walnut Street Pasadena, CA 91124
Workers' compensation carrier:	**Insurance Information:** WC Carrier: AIU Insurance Company NAIC: 19399 Policy effective date: 1/1/2025-1/1/2026 WC policy: #WC013751746
Contact Information (Parsons)	**Contact information for Gallagher Bassett** General Claim Correspondence: PO Box 4210 Clinton, IA 52733-4211 Medical Bills: PO Box 2840 Clinton, IA 52733-2840 833-465-2499

Comments to Provider: Parsons attempts to provide any modified, alternate, light duty recommended.

____

____

Authorized Employer Signature Print Name Date

661-904-0978
Phone Number

866-293-0114
Fax Number

Disability slips and return-to-work notifications: Immediately fax to Parsons ***and*** provide copy to employee at conclusion of every evaluation/treatment.

Attention Emergency Department: After acute care, please refer patient back to a
____________________________________ for follow-up treatment.
(Medical provider—to be completed by Parsons—where permitted by law.)

- Parsons uses WorkCare as our Corporate Medical Director and Occupational Health Consultant. Parsons is committed to the health and well-being of its employees. Work Care's role is to ensure that Parsons employees receive timely, appropriate, high-quality medical care and that necessary work restrictions are accommodated.

- WorkCare must be contacted when a Parsons employee comes to the clinic, prior to treatment in all non-emergency cases. WorkCare will make every effort to also call the clinic prior to the employee's arrival. If you have not been contacted by WorkCare, please call 1-888-449-7787 and identify what clinic you are from, the nature of your concern, and ask to speak to a WorkCare clinician.

- Please note that Parsons expects WorkCare to assist in the process of developing a course of treatment.

- Please also note that you may receive calls from both Parsons and WorkCare.

- A "Doctor's Work Status Report" form is attached so that you can make recommendations regarding the injured employee's work capacity. The medical provider's role is to identify any activity restrictions that will allow the injured body part to heal. These activity restrictions should be adhered to 24/7. Parsons responsibility is to determine what work can be done safely with these activity restrictions. Parsons is committed to providing temporary modified duty (transitional work) for those employees who are unable to return to work on full duty. **WorkCare requests that Parsons employees return-to-work unless their injury is so severe that they are confined to bed rest with no activity permitted.**

- Parsons is also committed to reducing OSHA recordable injuries. We request that you keep these OSHA recordability guidelines in mind when treating Parsons employees. We are not in any way encouraging under treatment of employees but at the same time, over treatment should be avoided. For example, use of steri-strips instead of sutures is preferred if such treatment is proper for a given laceration. Use of over-the-counter (OTC) medications at OTC dosages is also preferred if deemed adequate for treatment. Provide prescription level medication to employees if it is required for proper medical treatment

- IMMEDIATELY upon conclusion of EVERY medical evaluation (initial and all follow-up evaluations), place phone call and/or email and/or fax to Donna Miller to provide diagnosis and return-to-work restrictions. Also, provide copy to injured worker.

- WorkCare is available 24/7, 365 days a year at: 1-888-449-7787

- Parsons Workers' Compensation Analyst
  Donna P. Miller
  Office Telephone No. and Cell No.: (661) 904-0978
  Fax No.: (866) 293-0114
  100 West Walnut Street
  Pasadena, CA 91124
  Email: donna.miller@parsons.com

Doctor's Work Status Report

◆ **Please Fax to Donna Miller (866) 293-0114 and Provide Copy to Employee** ◆

Note: Job duties assigned to this employee will match the capabilities you define.

Employee Name:		**Claim Number:**	
Diagnosis:		**Date of Injury:**	____/____/_____ **(mm /dd /yyyy)**

RETURN TO WORK STATUS

- ☐ May return to regular work (Date): / /
- ☐ Released to full duty with intention given not to aggravate injury (Date) / /
- ☐ May return to modified work (Date): / /
- ☐ May not return to work until (Estimated Date): / /

Estimated Duration of Modified Work:

PHYSICAL LIMITATIONS: I certify the employee can perform duties within the capabilities defined as follows:

☐ **Without any restrictions.**

NOTE: In terms of an 8-hour workday, Occas. (Occasionally) equals 1–33%; Freq. (Frequently) equals 34–66%; Contin. (Continuously) equals 67–100%

Capabilities	Never	Occas.	Freq.	Contin.	Lifting\Carrying	Never	Occas.	Freq.	Contin.
Bend	☐	☐	☐	☐	0–5 lbs.	☐	☐	☐	☐
Squat	☐	☐	☐	☐	6–10 lbs.	☐	☐	☐	☐
Crawl	☐	☐	☐	☐	11–20 lbs.	☐	☐	☐	☐
Reach above shoulders	☐	☐	☐	☐	21–25 lbs.	☐	☐	☐	☐
Kneel	☐	☐	☐	☐	26–50 lbs.	☐	☐	☐	☐
Stoop	☐	☐	☐	☐	51–100 lbs.	☐	☐	☐	☐
Climb stairs, steps and step stools	☐	☐	☐	☐	Repeated push/pull	☐	☐	☐	☐
Climb ladders	☐	☐	☐	☐	Repeated simple grasp	☐	☐	☐	☐
Walk on uneven ground	☐	☐	☐	☐	Repeated fine manipulation	☐	☐	☐	☐
Other (Specify):	☐	☐	☐	☐	Other (Specify):	☐	☐	☐	☐

Restrictions of Activities	None	Mild	Moderate	Total	Comments
Unprotected heights	☐	☐	☐	☐	
Be around moving machinery	☐	☐	☐	☐	
Exposure to changes in temperature and humidity	☐	☐	☐	☐	
Driving automotive equipment	☐	☐	☐	☐	
Exposure to dust, fumes, and gases	☐	☐	☐	☐	

In an 8-hour workday, Worker can: (CHECK full capacity for each activity)

Total at One Time (Hours)

Hours	0	1/2	1	2	3	4	5	6	7	8
Sit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Walk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Total During Entire 8-Hour Day (Hours)

Hours	0	1/2	1	2	3	4	5	6	7	8
Sit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Walk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Job duties were explained to me by (Name/Title): On (Date): / /

☐ I have received a written list of job tasks.

☐ I have NOT received a written list of job tasks, **BUT I AGREE THAT DUTIES MAY BE ASSIGNED AND/OR CHANGED, SO LONG AS THEY MATCH THE LIMITS DEFINED BY ME ABOVE.** ☐ No ☐ Yes

PROGNOSIS

Permanent Restrictions Likely? ☐ No ☐ Yes ☐ Unknown at this time

Medically Stationary? ☐ No ☐ Yes Date: / /

Physician Name (PRINT):	**Telephone No.:**
Signature:	**Date:** / /

APPENDIX C QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN (QAPP)

CORNING AREA SITES
Corning, Steuben County, New York

Prepared For:

New York State Department of Environmental Conservation

Division of Materials Management
625 Broadway, 12th floor
Albany, NY 12233-7012

Prepared By:

PARSONS

301 Plainfield Road, Suite 350
Syracuse, New York 13212

FEBRUARY 2023

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LIST OF ACRONYMS

ACRONYM	Definition
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
BFB	4-Bromofluorobenzene
°C	degrees Celsius
CAR	Corrective Action Request
CCB	continuing calibration blank
CCS	contract compliance screening
CCV	continuing calibration verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COC	chain-of-custody
D	difference, absolute
DER	New York State Department of Environmental Remediation
DFTPP	decafluorotriphenylphosphine
DOT	Department of Transportation
DQO	data quality objective
DUSR	data usability summary report
EDD	Electronic Data Deliverable
EDP	EQuIS Data Processor
EIMS	Environmental Information Management System
ELAP	Environmental Laboratory Accreditation Program
FAP	Field Activities Plan
FTL	field team leader
GC	gas chromatography
GC/MS	gas chromatography/mass spectroscopy
IC	initial calibration
ICB	initial calibration blank
ICP	inductively coupled plasma
ICV	initial calibration verification
IDL	instrument detection limit
ICP-AES	Inductively Coupled Plasma/Atomic Emission Spectroscopy
LCS	laboratory control sample
LIMS	laboratory information management system
MD	matrix duplicate
MDL	method detection limit
mg/kg	milligram per kilogram
mL	milliliter
MS	matrix spike
MSB	matrix spike blank
MS/MD	matrix spike/matrix duplicate
MS/MSD	matrix spike/matrix spike duplicate
MSD	matrix spike duplicate
NCM	Nonconformance Memo
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, completeness, comparability, and sensitivity
PE	performance evaluation
PFAS	per- and polyfluoroalkyl substances
PFOA	perflourooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PM	project manager
PQL	practical quantitation limit
PRRL	project required reporting limit
QA	quality assurance
QA/QC	quality assurance/quality control
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	quality control
QL	quantitation limit
R	recovery
RL	reporting limit
RPD	relative percent difference
SDG	Sample Delivery Group
SOP	standard operating procedure
SOW	scope of work
SVOC	semi-volatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical Operating Guidance Series
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
VSTR	validated time of sample receipt

SECTION 1 PROJECT DESCRIPTION

1.1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared to support soil investigation activities and specifies the quality assurance/quality control (QA/QC) procedures for field and laboratory sampling and measurements for the Corning Area Sites. The specific objectives of the QAPP are:

- Foster data quality that is sufficient to meet the investigation objectives and to support the decision-making process; and
- Provide a standard for control and review of measurement data to confirm that the data are scientifically sound, representative, comparable, defensible, and of known quality.

This QAPP has been prepared in accordance with United States Environmental Protection Agency (USEPA) guidance (USEPA, 2001, 2002). Project or site specific work plans will have additional scope and quality requirements that may not be addressed in this QAPP.

Project scope and descriptions of the Corning Area Sites are provided in the scoping documents and work plan.

SECTION 2 PROJECT ORGANIZATION

2.1 PROJECT AND TEAM ORGANIZATION

The project organization and the function and responsibility of each group affected by the QAPP are presented in the Corning Area Sites Scoping Documents and in **Figure 2.1**. The project organization is designed to promote the exchange of information and for efficient project operation. Key contact information is also summarized in the Corning Area Sites Scoping Documents.

2.1.1 Analytical Services

The analytical laboratory (or laboratories) will analyze environmental samples collected for the Corning Area Sites projects. Laboratory operations will be conducted under the supervision of a general manager or laboratory director and a quality assurance (QA) manager. A project manager (PM) and alternate will be assigned. The PM will be the primary point of contact and will be responsible for coordination and quality of all laboratory activities associated with the project. The laboratory's PM will manage project sample receipt, analysis scheduling, and data reporting. In case of temporary absence, the direct supervisor will assume the responsibilities of the absent employee or delegate the responsibility to qualified personnel. Sample Management Staff is responsible for receiving, logging, and maintaining internal custody of samples during the sample's residence in the laboratory. In addition, the laboratory will ensure that project analytical requirements are met; monitor project analytical compliance and immediately notify Parsons if conflict or discrepancies arise; initiate and implement appropriate corrective actions; ensure adequate quality review of deliverables prior to release; and participate in coordination meetings.

2.2 SPECIAL TRAINING/CERTIFICATION

Management and field personnel must review the requirements of this QAPP to make certain that persons assigned to specific tasks have appropriate credentials and experience. The field team leader (FTL) will check that all onsite personnel have read and understood the QAPP.

Field personnel will be required to adhere to the project Health and Safety Plan (HASP) and Field Activities Plan (FAP). They must also follow applicable task-specific health and safety plans that project subcontractors develop before they begin investigation activities.

Laboratories will have trained and experienced staff capable of performing the analyses specified in this QAPP. Laboratories will have New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) certification for all project analyses where applicable. Additionally, the laboratories must be able to demonstrate that they have analyzed performance-evaluation or proficiency-testing samples within 12 months of beginning the analyses.

All personnel independent of the laboratory generating the data who are performing data validation and verification must have experience in data validation, QA oversight, and auditing. The data validator must have a Bachelor's degree in chemistry or natural sciences with a minimum of 20 credit hours in chemistry; one year experience in the implementation and application of analytical laboratory methodologies; and one year experience evaluating data packages of all matrices (e.g., soil, water, air, tissue) for compliance and usability with respect to the analytical method and the USEPA National Functional Guidelines with regional modifications.

SECTION 3 DATA QUALITY OBJECTIVES AND DATA QUALITY CRITERIA

3.1 INTRODUCTION

A systematic planning process will develop site-specific data quality objective (DQOs). These DQOs will clarify study objectives, define the appropriate type of data, and specify tolerable levels of potential errors. These parameters, in turn, will be the basis for establishing the quality and quantity of data needed to support the utility of the data. This section was prepared in accordance with USEPA Guidance for the Data Quality Objectives Process (USEPA, August 2000). Project DQOs will be developed using the “seven-step” DQO process, consisting of the following steps:

Step 1: State the problem
Step 2: Identify the decision
Step 3: Identify inputs to the decision
Step 4: Define the study boundaries
Step 5: Define the decision rule
Step 6: Specify tolerable limits of decision error
Step 7: Optimize the design

Data quality objectives specify the underlying reason for collecting the data and the data type, quality, quantity, and uses needed to make decision, and they provide the basis for designing data collection activities. DQOs and QA objectives are related data quality planning and evaluation tools for all sampling and analysis tools.

The purpose of this QAPP is to provide a standard for control and review of measurement data to ensure they are scientifically sound, representative, comparable, defensible, and of known quality. The data will be used to evaluate the physical and chemical attributes of samples collected. The project objective for analytical testing is to characterize the physical characteristics and chemical constituents and to provide data to support the decision-making process.

The data produced during sampling activities will be compared with the defined QA objectives and criteria for precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) to see that the data reported are representative of actual conditions at the site.

This data assessment activity is an on-going coordinated process with data production and is intended to assure that data produced during the project are acceptable for use in subsequent evaluations. Both statistical and qualitative evaluations will be used to assess the quality of the data. The primary evaluation of the data will be based upon the field quality control (QC) samples described in Section 8.1.1 and the laboratory QC samples described in Section 8.1.2. The “blank” samples (laboratory QC blank samples and field QC blank samples) will be used to evaluate whether or not the laboratory and/or the field team’s procedures for handling of samples represent a possible source of sample contamination. Laboratory duplicate sample results will be used to evaluate analytical precision. Field duplicate sample results will be used to evaluate the overall precision of the sampling and analysis process, as well as sample representativeness and site heterogeneity. Laboratory control samples will be used to evaluate the accuracy of analytical results, as will other analysis-specific criteria, such as surrogate compound recoveries for organic analyses. Matrix spike/matrix spike duplicate (MS/MSD) analysis of project samples will be used to evaluate potential sample matrix effects on the analytical results (both of the samples utilized for MS/MSD and other samples collected from the site). For all sample results, the impact of sample-specific, analysis-specific, and site-specific factors will be evaluated, and an assessment will be made as to their impact, if any, on the data. Duplicate sample (field and laboratory QC samples) results will be used to evaluate data precision.

3.1.1 Data Use Objectives

Data use objectives define why analyses are being conducted and how ultimately the data will be used to meet the overall project objectives. For the Corning Area Sites activities, these project objectives are stated in the Corning Area Sites Scoping Documents.

3.2 DATA QUALITY OBJECTIVES (PARCCS PARAMETERS)

3.2.1 Introduction

DQOs are based on the premise that different data uses require different levels of data quality. The term *data quality* refers to a degree of uncertainty with respect to PARCCS data quality indicators. Specific objectives are established to develop sampling protocols and identify applicable documentation, sample handling procedures, and measurement system procedures. These DQOs are established by onsite conditions, objectives of the project, and knowledge of available measurement systems. Overall work assignment DQOs are presented and discussed in detail in this QAPP. A wide range of data quality is achieved through the use of various analytical methods. The following data quality levels are widely accepted as descriptions of the different kinds of data that can be generated for various purposes:

- **Level I, Field screening or analysis using portable instruments (e.g., photoionization detector [PID]):** Results are often not compound-specific but results are available in real time. Depending on the analysis being performed and the instrumentation used, the results may be considered qualitative, semi-quantitative, or quantitative.
- **Level II, Field analysis using more sophisticated portable analytical instruments (e.g., on-site mobile laboratory):** There is a wide range in the quality of data that can be generated depending on the use of suitable calibration standards, reference materials, and sample preparation equipment. Results are available in real-time or typically within hours of sample collection.
- **Level III, All analyses performed in an off-site analytical laboratory using methods other than USEPA-approved analytical methods**: These data generally do not include the level of formal documentation required under Level IV and are not subject to formal data validation. These data are typically used for engineering studies (e.g., treatability testing), site investigations and remedial design.
- **Level IV, Data generated using USEPA methods and enhanced by a rigorous QA program, supporting documentation, and data validation procedures:** These data are typically used for engineering studies (e.g., treatability testing), risk assessment, site investigations, and remedial design, and may be suitable for litigation/enforcement activities. Results are both qualitative and quantitative.

Project data quality level requirements for sample analyses have been determined to be as follows:

- Level I data quality will be obtained for field screening data collected with portable instruments such as pH meters, temperature probes, and PIDs which will be used for health and safety and field operational monitoring. In addition, these instruments or field test kits may be used to produce data for determining where to collect a sample to assess impacts and for field screening of samples to be designated for laboratory confirmation analyses.
- A Level II data QA program will be executed by the field team for obtaining data.
- A Level III data QA program will be executed by the laboratory for chemical analyses not required to be Level IV, such as pH.

- A Level IV data QA program will be executed, in general, by the laboratory for chemical analyses necessary to meet the Corning Area Sites work assignment objectives.

3.2.2 PARCCS Parameters (Data Quality Indicators)

3.2.2.1 Precision

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value (USEPA, 1987). Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), absolute difference (D), range (maximum value minus minimum value), relative range, and relative percent difference (RPD) are common.

The objectives for precision for each chemical are based on the capabilities of the approved USEPA analytical method with respect to laboratory performance. For this project, field-sampling precision will be determined by analyzing coded (blind) duplicate samples for the same parameters, and then, during data validation, calculating the %RPD for duplicate sample results. Field duplicate precision criteria for the water samples will be 30%RPD and 50%RPD for soil samples. The laboratory will determine analytical precision by calculating the %RPD or %D, as applicable to the analytical method being used, e.g., pH will be evaluated using %D.

The laboratory will determine analytical precision by calculating the RPD for the results of the analysis of the laboratory duplicates and matrix spike duplicates. The formula for calculating %RPD is as follows:

$$\%RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where:

RPD	=	Relative percent difference
V1, V2	=	Values to be compared
|V1 - V2|	=	Absolute value of the difference between the two values
(V1 + V2)/2	=	Average of the two values

For data evaluation purposes, in instances where both sample concentrations are less than five times (<5x) the reporting limit (RL), duplicate precision will be evaluated using the calculated %D result. In this instance, the applicable precision criterion will be two times the RL (2xRL). If a value is not detected, the %RPD criterion will be considered to be not applicable and the %RPD will not be calculated (i.e. precision will not be quantitatively determined). The data quality objectives for analytical precision, calculated as the RPD between duplicate analyses, are presented in **Table 3.1**.

3.2.2.2 Accuracy

Accuracy is a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern (Taylor, 1987) or the difference between a measured value and the true or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material and is expressed as the percent of the known quantity that is recovered or measured. The recovery of a given analyte depends on the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Concentrations of analytes that are less than the quantitation limits (QLs) are less accurate because they are more affected by such factors as instrument "noise." Higher concentrations will not be as affected by instrument noise or other variables and, thus, will be more accurate.

The objectives for accuracy for each chemical are based on the capabilities of the approved USEPA analytical method with respect to laboratory performance. Analytical accuracy is typically assessed by examining the percent recoveries of surrogate compounds that are added to each sample (organic analyses only), the percent recoveries of matrix spike compounds added to selected samples, and the percent recoveries of spike compounds added to laboratory control samples (LCS). An LCS will be analyzed to provide additional information on analytical accuracy. Additionally, initial and continuing calibrations must be performed and accomplished within the established method control limits to define the instrument accuracy before analytical accuracy can be determined for any sample set.

Accuracy is normally measured as the percent recovery (%R) of a known amount of analyte, called a *spike*, added to a sample (matrix spike or laboratory control). The accuracy on a per sample basis will be measured using surrogates for the organics analyses. The %R is calculated as follows:

Matrix Spike Recovery: % Recovery = $\frac{SSR - SR}{SA} \times 100$

where:

%R	=	Percent recovery
SSR	=	Spike sample result: concentration of analyte obtained by analyzing the sample with the spike added
SR	=	Sample result: the background value; *i.e.,* the concentration of the analyte obtained by analyzing the sample
SA	=	Spiked analyte: concentration of the analyte spike added to the sample

Surrogate Recovery: % Recovery = $\frac{\text{Concentration (or amount) found}}{\text{Concentration (or amount) spiked}} \times 100$

LCS Recovery: % Recovery = $\frac{\text{Concentration (or amount) found}}{\text{Concentration (or amount) spiked}} \times 100$

The acceptance limits for accuracy for each parameter are presented in **Table 3.1**.

3.2.2.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point or an environmental condition. Representativeness is a qualitative parameter and is most concerned with the proper design of the sampling program (USEPA, 1987). Samples must be representative of the environmental media being sampled. An important factor in the selection of sample locations and sampling procedures will be obtaining representative samples.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree technically possible, that the data derived represents the in-place quality of the material sampled. Care will be exercised to see that chemical compounds are not introduced to the sample from sample containers, handling, and analysis. Equipment blanks and laboratory method/prep blanks will be analyzed to monitor for potential sample contamination from field and laboratory procedures.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. Sampling heterogeneity will be evaluated during data validation through the analysis of coded (blind) field duplicate samples. The analytical laboratory will also follow acceptable procedures to assure the samples are adequately homogenized prior to taking aliquots for analysis such that the reported results are representative of the sample received. Chain-of-custody (COC) procedures will be followed to document the possession of sample containers from the time of container preparation through sample collection and receipt back at the laboratory. Field QC samples will be collected and analyzed to provide information to evaluate sample representativeness. Details of field QC sample collection (rinse blanks, temperature blanks, field duplicates) and COC procedures are presented in Section 4.2 and Section 8.1.1.

3.2.2.4 Completeness

Completeness is defined as the percentage of measurements that meet the project's data quality objectives (USEPA, 1987). Completeness is calculated for each method (or analyte) and sample matrix for an assigned group of samples. Completeness for a data set represents the results usable for data interpretation and decision making. The completeness objective for the analytical and field data is 90-100%. Completeness is defined as follows for all sample measurements:

$$\%C = \frac{V}{T} \times 100$$

where:

%C = Percent completeness

V = Number of measurements judged valid (not rejected during data validation)

T = Total number of measurements

Completeness, which is expressed as a percentage, is calculated by subtracting the number of rejected and unreported results from the total planned results and dividing by the total number of results. Results rejected because of out-of-control analytical conditions, severe matrix effects, broken or spilled samples, or samples that could not be analyzed for any other reason, negatively affect influence completeness and are subtracted from the total number of results to calculate completeness.

3.2.2.5 Comparability

Comparability expresses the degree of confidence with which one data set can be compared to another (USEPA, 1987). The comparability of all data collected for this project will be managed by:

- Using identified standard methods (including laboratory standard operating procedures) for both sampling and analysis phases of this project
- Requiring traceability of all analytical standards and/or source materials to the USEPA or National Institute of Standards and Technology (NIST)
- Requiring that calibrations be verified with an independently prepared standard from a source other than that used for calibration (if applicable)
- Using standard reporting units and reporting formats including the reporting of QC data
- Performing data validation on the analytical results, including the use of data qualifiers in all cases where appropriate
- Evaluating the sample collection information and analytical QC sample results
- Requiring that the significance of all validation qualifiers be assessed any time an analytical result is used for any purpose.

By taking these steps during the investigation, future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

3.2.2.6 Sensitivity and Quantitation Limits

When selecting an analytical method during the DQO process, the achievable method detection limit (MDL) and method RL must be evaluated to verify that the method will meet the project QLs necessary to support project decision making requirements. This process ensures that the analytical method sensitivity has been considered and that the methods used can produce data that satisfy users' needs while making the most effective use of resources. The concentration of any one target compound that can be detected and/or quantified is a measure of sensitivity for that compound. Sensitivity is instrument-, compound-, method-, and matrix-specific and achieving the required project RL and/or MDL objectives depends on instrument sensitivity and potential matrix effects. With regard to instrument sensitivity, it is important to monitor the instrument performance to ensure consistent instrument performance at the low end of the calibration range. Instrument sensitivity will be monitored through the analysis of method/prep blanks, calibration check samples, and low standard evaluations.

Laboratories generally establish limits that are reported with the analytical results; these results may be called reporting limits, detection limits, QLs, or other terms. These laboratory-specific limits, apply undiluted analyses and must be less than or equal to the project RLs. The RL, also known as the practical quantitation limit (PQL), represents the concentration of an analyte that can be routinely measured in the sampled matrix within stated limits and with confidence in both identification and quantitation. Throughout various documents RL and PQL may be interchanged, but they effectively have the same meaning. The RLs are established based on specific knowledge about the analyte, sample matrix, project specific requirements, and regulatory requirements. The RL is typically established by the laboratory at the level of the lowest calibration standard and is generally in the range of two to ten times the MDL.

The MDL is defined as "the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results" (40 Code of Federal Regulations [CFR] Part 136, Appendix B). MDLs are experimentally determined and verified for each target analyte of the methods in the sampling program. The laboratory will determine MDLs for each analyte and matrix type prior to analysis of project samples. In addition, when multiple instruments are employed for the analysis of the same method, each individual instrument will maintain a current MDL study. MDLs are statistically calculated in accordance with the 40 CFR 136 as promulgated in September 2017. If risk-based project objectives are developed, then where practicable, MDLs must be lower than the risk-based criteria determined for the project.

Laboratory RLs and MDLs for all analyses will meet at a minimum the standards criteria specified in the NYSDEC 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestricted Use and/or the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations."

All analytical results for the project will be reported to the MDL. Analytical results below the MDL will be flagged with a *U* at the RL to indicate the data are non-detect. However, the laboratory will flag analytes detected at a level less than the RL but greater than the MDL (or the laboratory's determined minimum reportable concentration) with a *J* to denote an estimated concentration for the project samples.

When results are corrected for dry weight, the reporting limits are then elevated accordingly. To compensate for the low solids, modifications are made either to increase the initial volume extracted/digested or to reduce the final volume of extract/digestate.

For samples that do not meet the project-specified RLs or MDLs, (taking into consideration elevated detection limits due to percent solids or percent moisture and aliquots used for the designated analysis), the laboratory must make available compelling documentation (e.g., screening data) and a justifiable explanation for its inability to meet the specified limits using the project protocols. It must also provide an appropriate, justifiable explanation of the issues and resolution in the analytical report/data package (dilution factor, interference, etc.). Excessive, unnecessary dilutions on any sample for a project are unacceptable. The laboratory will analyze all samples initially undiluted, unless for gas chromatography/mass spectroscopy (GC/MS) analyses (i.e., SW8260 and SW8270), a preliminary GC-screen is performed and indicates that GC/MS instrument damage or compromise may occur if the sample is not analyzed initially at dilution. In this instance, the sample will be analyzed at the lowest possible dilution factor. If multiple extractions/ analyses are performed (such as undiluted and diluted analyses), resulting in several data sets for the same sample, the laboratory will report all data and results from each of the multiple analyses in the data package.

QLs for all definitive data quality level laboratory analytical methods, compounds, and matrices are presented in **Table 3.2**.

SECTION 4 DATA ACQUISITION

4.1 SAMPLING METHODS

Any non-disposable sampling equipment used for chemical sampling will be cleaned and decontaminated prior to use to prevent potential cross-contamination between each use. The project FAP documents standard operating procedures, best practices, and field decontamination methods to mitigate cross contamination. Additionally, this QAPP describes management, handling, and tracking procedures for investigation-derived waste, including solid and liquid materials, and personal protective equipment.

The special precautions described here will be taken to confirm that each sample collected is representative of the conditions at that location and that the sampling and handling procedures neither alter nor contaminate the sample. If failure in the sampling or measurement system occurs, the procedures specified in Section 10.3 of this QAPP will be followed to identify who is responsible for implementing the appropriate corrective action. This section presents sample container preparation procedures, sample preservation procedures, and sample holding times.

For this program, the laboratory will purchase and distribute certified clean sample containers with chemical preservatives. The sample containers used for chemical analysis must be virgin bottle ware, I-Chem™ Series 300 (or equivalent). Vendors are required to provide documentation of analysis for each lot of containers, and the documentation will be kept on file at the laboratory. Alternatively, the laboratory may perform testing to certify that the sample containers are not contaminated. Since the containers supplied by the laboratory will be certified clean, the bottles will not be rinsed in the field prior to use.

Laboratory-supplied sample kits (coolers containing field COC forms, custody seals, sample containers, preservatives, and packing material) will be prepared by the laboratory's Sample Management Staff and shipped to the FTL. The type of containers, required sample volumes, preservation techniques, and holding times for specific analyses are presented in **Table 4.1.**

Samples requiring chemical preservation will be collected in sample containers provided by the analytical laboratory that already contain sufficient quantities of the appropriate preservative(s) to ensure that the sample is kept in accordance with the method requirements. The laboratory must provide an adequate amount of pre-preserved bottles with traceable high-purity preservatives, and additional preservative for use if the added amount is not sufficient, based on request by the FTL and on an as-needed basis if additional bottle ware is needed during the field activities. The field team must verify that the preservative has been added appropriately.

4.2 SAMPLE HANDLING AND CUSTODY

This section presents sample handling and custody procedures for both the field and laboratory. Implementation of proper handling and custody procedures for samples generated in the field is the responsibility of field personnel. Both laboratory and field personnel involved in the chain of custody and transfer of samples will be trained as to the purpose and procedures prior to implementation. For transfer of samples within the laboratory, an internal chain of custody will be required.

4.2.1 Sample Handling

Samples to be collected for the Corning Area Sites are specified in the work plan and FAP.

Each container will be provided with a sample label that will be filled out at the time of collection. The sampler will print label information, specified below, on each label either before or immediately after collecting the sample with an indelible writing instrument. The label will be protected from water and solvents with clear label packing tape.

The following information, at a minimum, is required on each sample label (note: the location ID and the sample ID as described in the Data Management section below inherently identify some of this information, see below):

- Client
- Project name
- Sampling location
- Sample number
- Date and time of sample collection
- Parameters to be analyzed
- Preservative(s) added, if any
- Initials of the sampler.

Following sample collection, excess soil, water, etc., will be wiped from the outside of the sample containers with a paper towel and the lids will be checked to verify they are tightly closed. Each glass container will be wrapped with bubble wrap to minimize breakage during transport. Bottles containing soil, sediment, and water samples will be placed in separate Ziploc® bags (one bag) and set on ice (ice bath not necessary). Documentation of equipment and methods used in the field for treating the samples will be maintained in the field logs, and a chain of custody will be initiated to document transfer of the samples from the field team to the laboratory. In preparation for shipment to the analytical laboratory, the shipment cooler will be packaged as follows:

- Fill a dry shipment cooler with inert cushioning to a depth of 1 inch to prevent bottle breakage. A separate shipment cooler will be used for per- and polyfluoroalkyl substance (PFAS) samples.
- Place the bagged samples and the laboratory-provided temperature blank upright in the sample cooler. The temperature blank should be placed in the center (horizontally and vertically) with the samples surrounding.
- Place additional cushioning material around the sample bottles as necessary.
- Place bags of ice in the remaining void space to keep the samples cooled to 4°C.
- Complete the COC form (see Section 4.2.2). Place the COC form in a polyethylene, sealable bag (such as a 1-gal Ziploc® bag or equivalent) and tape the bag to the interior of the cooler lid. Field personnel retain a copy of the COC form; another copy is transmitted to the Quality Assurance Officer (QAO) and the PM specified.
- Prior to sealing for shipment, the list of samples will be checked against the container contents to verify the presence of each sample listed on the COC record including the temperature blank.
- Affix a custody seal to the cooler.
- Seal the cooler securely with packing tape, taking care not to cover labels if already present.
- Label the cooler appropriately in accordance with the Department of Transportation (DOT) regulations (49 CFR 171 through 179).
- Ship the samples in accordance with the DOT requirements outlined in 49 CFR 171 through 179. Complete the carrier bill of lading, and retain a copy on file.
- Samples will be delivered to the laboratory by the most expedient means to meet holding times. Whenever practicable, samples will be shipped on the day of collection for delivery to the laboratory the morning of the day after collection. The laboratory will be required to adhere to the holding times as stated in the NYSDEC Analytical Services Protocol (ASP) for sample analyses. Laboratory performance requirements for analysis turnaround time will be established using the validated time of sample receipt (VTSR) in accordance to NYSDEC requirements. The field team will carefully coordinate sampling activities with the laboratory to see that holding times are met.

The required holding times must be adhered to for the initial sample preparation/analysis. If subsequent reanalysis or re-extraction becomes necessary because of method requirements or additional requirements stated here, the laboratory will make every effort to perform those re-extractions and/or reanalysis within the primary holding times. Any holding time that is exceeded will be reported immediately to the PM and the QAO by the laboratory QA manager.

4.2.2 Field Sample Custody

The primary objective of sample custody procedures is to create an accurate written record that can be used to trace the possession and handling of samples from the moment of their collection through analysis until their final disposition. A sample (or sample container) will be considered under custody if:

- In a person's possession
- Maintained in view after possession is accepted and documented
- Locked and tagged with custody seals placed on the sample cooler so that no one can tamper with it after having been in physical custody
- In a secured area that is restricted to authorized personnel.

The sample custody flowchart is shown in **Figure 4.1**.

DATA REQUIRED ON CHAIN-OF-CUSTODY*
Project name and client
Signatures of samplers
Sample number, date and time of collection, and grab or composite sample designation
Signatures of individuals involved in sample transfer
If applicable, the air bill or other shipping number
ADDITIONAL ITEMS THAT SHOULD BE INCLUDED:
Sample matrix
Number of sample containers
Analyses to be performed,
Preservative(s)
Name of the analytical laboratory to which the samples are sent
Method of sample shipment
Project number.

A COC record will accompany the samples from the time the samples leave the original sampler's possession through the sample shipments' receipt at the laboratory. Triplicate copies of the COC record must be completed for each sample set collected. See chart for data requirements. An example COC form is shown in **Figure 4.2**.

If samples are split and sent to different laboratories, a copy of the COC record is sent with each sample.

The REMARKS space on the COC form is used to indicate if the sample is a MS/MSD or matrix spike/matrix duplicate (MS/MD), or any other sample information for the laboratory. Since they are not specific to any one-sample point, blanks are indicated on separate rows. Immediately prior to sealing the sample cooler, the sampler will sign the COC form and write the date and time on the first RELINQUISHED BY space. The sampler will also write the method of shipment, the shipping cooler identification number, and the shipper air bill number on the top of the COC form. Mistakes will be crossed out with a single line in ink and initialed by the author.

Sampling personnel will retain one copy of the COC form, and the other two copies are put into a sealable plastic bag and taped inside the lid of the shipping cooler. The cooler lid is closed, custody seals provided by the laboratory are affixed to the latch and across the back and front lids of the cooler, and the person relinquishing the samples signs his or her name across the seal. The seal is taped, and the cooler is wrapped tightly with clear packing tape. Field personnel then relinquish the cooler to personnel responsible for shipment, typically an overnight carrier.

The COC seal must be broken to open the sample cooler. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the FTL for direction on whether to proceed with the analyses.

Sampling personnel record the information placed on the COC record in the field logs. They also include in the log a detailed description of the exact locations from which the samples were collected, any pertinent conditions under which the samples were obtained, and the lot number of the containers used.

4.2.3 Laboratory Sample Management

The laboratory has a designated Sample Management Staff responsible for receiving samples in the laboratory, opening the coolers, checking the sample integrity and custody seals, logging samples into the laboratory information management system (LIMS), and controlling the handling and storage of samples while in the laboratory. The laboratory is a secure facility and only authorized laboratory personnel are allowed to handle active samples. The laboratory maintains a standard operating procedure (SOP) for sample management.

4.2.4 Sample Receipt and Logging

Upon receipt at the laboratory, sample-receiving personnel inspect the samples for integrity of the custody seal, check the shipment against the COC form, and note any discrepancies. Specifically, the sample-receiving personnel note any damaged or missing sample containers. At this time, the field COC record is completed and signed by the Sample Management Staff.

Using the temperature blank in each cooler, the temperature of each incoming sample cooler is measured and recorded during the sample receipt and log-in procedures before samples are placed in laboratory cold storage. Similarly, the laboratory documents that its cold storage facilities are being maintained through daily (at a minimum) documented temperature measurements using a thermometer.

Upon receipt, Sample Management Staff measure and record on the preservation documentation sheet the pH of acid- or base-preserved aqueous samples. Any problems observed during sample receipt must be communicated to the FTL and/or the QAO verbally and either by fax transmission or email within 24 hr. (preferably 3 hr. beginning with the normal business day or immediately following for problems noted during second shifts or weekends) after discovery and before samples are released to the laboratory for analysis. Problems may include but are not limited to broken bottles, errors or ambiguities in paper work, insufficient sample volume or weight, inappropriate pH, and elevated temperature.

When the shipment is inspected and the COC record agree, the sample receiving personnel enter the sample and analysis information into the LIMS and assign each sample a unique laboratory number. This number is affixed to each sample bottle.

4.2.5 Sample Storage Security

While in the laboratory, the samples and aliquots that require cold storage will be stored and will be maintained in a secured refrigerator unless they are being used for preparation and/or analysis. All of the refrigerators in the laboratory used for storage of samples have restricted access and are numbered. In addition, dedicated refrigerators are designated for extracts and analytical standards. The sample storage areas are in the laboratory, and access is limited to laboratory personnel. Specific requirements for sample storage are described below:

- Samples will be removed from the shipping container and stored in their original containers unless damaged.
- Damaged samples will be disposed in an appropriate manner, and the disposal will be documented or repacked as necessary and appropriate.
- Samples and extracts will be stored in a secure area designed to comply with the storage method(s) defined in the contract.
- The storage area will be kept secure at all times. The sample custodian or designated personnel will monitor access to the storage area.
- Standards or reagents will not be stored with samples or sample extracts.

The following standard operating procedures for laboratory sample security will be implemented to confirm that the laboratory satisfies sample COC requirements:

- Samples will be stored in a secure area.
- Access to the laboratory will be through a monitored area. Other outside access doors to the laboratory will be kept locked.
- Visitors must sign a visitor's log and will be escorted while in the laboratory.
- Refrigerators, freezers, and other sample storage areas will be securely maintained.

Storage blanks will be initiated and analyzed on a weekly basis for each cold storage unit used to hold samples submitted for the analysis of volatile organic compounds (VOCs). Field QC samples must be stored in the same cold storage units as the samples that they are associated with (even if the matrices are different). All soil samples must undergo thorough sample homogenization (stirred within the original sample container) using inert utensils and mixing platforms that will not interfere with the target analytes being requested for analysis with the exception of soil samples submitted for the analysis of VOCs. Samples for VOC determinations will be stored in a secure refrigerator separate from other samples, sample extracts, reagents, and standards.

4.2.6 Retention and Disposal of Samples

The laboratory must retain all excess samples within their original sample bottles for a minimum of 30 days in cold storage (below 4 degrees Celsius [°C]) following submission of the validated data to NYSDEC. At that time, the laboratory must contact the FTL for authorization for responsible disposal or further storage instructions. At the point at which the laboratory is provided authorization to dispose of the samples, the laboratory will be responsible, and will assume all liability for proper characterization and disposal of samples and bottle ware in accordance with all local, state, and federal regulations.

SECTION 5 DATA MANAGEMENT

5.1 INTRODUCTION

The electronic data management systems for each work assignment will be implemented to process the information effectively without loss or alteration. As of April 1, 2011, the New York State Division of Environmental Remediation (DER) has implemented an Environmental Information Management System (EIMS). The EIMS uses the database software application EQuIS$_{TM}$ from EarthSoft® Inc. In an effort to improve the management of environmental data and reduce paper quantities, all laboratory analytical data minus instrument raw data must be submitted in the DEC-approved Electronic Data Deliverable (EDD).

Data providers must download and install the EQuIS Data Processor (EDP) to check their properly formatted EDD as well as the NYSDEC DER Format file. The EDP performs a series of formatting checks on the EDD and identifies any errors in the data file prior to submission. All EDDs are to be error free when submitted. It is important that the most recent version of the EDP and NYSDEC format file are employed since the valid values used by EIMS are periodically updated for the EDP.

5.2 FIELD DATA MANAGEMENT

The FTL will manage data generated in the field. He or his designee will be responsible for recording and documenting sampling activities in the field logs, on sampling records (as appropriate), and on COC forms (when samples are collected) as described in Section 4.2.2. The records may be photocopied and stored in the project file along with the original.

A sample nomenclature system will be coordinated with the Data Management Team. Each sample name will be unique to include location ID and field sample ID. The Database Manager will add data to EIMS through the input module of the system.

DATA INPUT TO EIMS MAY INCLUDE:
– Sample planning information (e.g., sample depth) – Chain-of-custody data – Sediment coring logs – Geotechnical data – Location and geographic data – Field measurements – Meteorological data – Waste characterization data – Groundwater levels – Radiodating data – Laboratory analytical data

5.3 LABORATORY DATA MANAGEMENT

Laboratory data management involves several important stages that include data transformation, review, verification, and validation, as well as data storage, retrieval, and security. The laboratory will implement a data management system to manage the data from its generation in the laboratory to its final reporting and storage.

The data management system will include, but not be limited to, the use of standard record-keeping practices, standard document control systems, and the electronic data management system.

The laboratory data reduction, verification, validation, and reporting procedures and project data management activities, data/information exchange procedures ensure that complete documentation is maintained, transcription and reporting errors are minimized, and data are properly review.

Specific laboratory data management requirements and procedures are discussed in Sections 6 and 9 of this QAPP.

SECTION 6 DOCUMENTS AND RECORDS

6.1 INTRODUCTION

Records will be maintained to document accurately the data generation process during investigation in the field, sample analysis in the lab, and during data validation. Project documentation will be maintained in general accordance with guidelines in the National Enforcement Investigation Center Policies and Procedures (USEPA, 1986). A project file will be maintained that will contain appropriate project documentation; see components in chart. Some of this documentation may be retained electronically in lieu of paper copies. **Table 6.1** summarizes the types of project documents and records.

MINIMUM COMPONENTS OF PROJECT FILE
- Project plans and specifications - Field logs and data records - Photographs, maps, and drawings - Sample identification documents - Chain-of-custody records - Data review notes - Report notes and calculations - Progress and technical reports and   - Correspondence and other pertinent information - Full analytical data deliverables package provided by the lab, including QC documentation and electronic data deliverable

6.2 FIELD RECORDS

Field personnel are responsible for documenting sample handling activities, observations, and data in field sampling records including field logs, COC records, photographs, and pre-design investigation records. The FTL is responsible for maintaining these documents. Each record is described below.

6.2.1 Field Log

A Field Log will be used to document pre-design investigation activities. The field log will have consecutively numbered pages, and documentation will be recorded using waterproof ink. Incomplete lines, pages, and changes in the log will be lined out with a single line, dated, and initialed. More detailed procedures for documenting investigation activities (such as field sampling records and boring log forms) and type of information to include in the field log may be developed.

MINIMUM REQUIREMENT FOR INFORMATION IN FIELD LOG
- Responsible person’s name - Date and time of activity - Equipment and methods used for field preparation of samples - Field measurements of samples (*e.g.,* pH, temperature) - Information coordinating sample handling activities with appropriate field activities and COC documentation

Daily calibration activities: Calibrator's name Instrument name and model Date and time of calibration Standards used and their source Temperature (if appropriate) Results of calibration Corrective actions taken (if any)

6.2.2 Electronic Field Data Management

The field sampling program will have an electronic data management component. The system will be designed to specify the necessary samples taken at any given location and to provide the ability to be updated and amended in the field. This will provide a management system that efficiently tracks the needs of the sampling scope. As the samples are taken, log entries are put in the database, and sample labels are printed. At any given time a COC record can be printed as well.

6.2.3 Chain-of-Custody Record

The COC record establishes the documentation necessary to trace sample possession from the date and time of sample collection, through sample shipment, to the date and time of arrival at the laboratory designated to perform analysis. The ability to trace the history of a sample is essential to show that the sample collected was, indeed, the sample analyzed and that the sample was not subjected to biasing influences. Evidence of sample traceability and integrity is provided by COC procedures. These procedures are necessary to support the validity of the data and will accompany each shipping container.

A copy of the COC record will be detached and kept with the field log or placed in the project file; the original record will accompany the shipment.

6.3 LABORATORY RECORDS

Laboratories providing analytical support for this project must maintain records to ensure that all aspects of the analytical processes are adequately documented to ensure legal defensibility of the data.

When a mistake is made, the wrong entry is crossed out with a single line, initialed, and dated by the person making the entry, and the correct information recorded. Obliteration of an incorrect entry or writing over it is not allowed, nor is the use of correction tape or fluid on any laboratory records.

Overwriting or disposal of any electronic media prior to a 5-year expiration period is strictly prohibited. All electronic and hardcopy data must be stored in an easily accessible climate-controlled environment. The laboratory will exercise "best practices" in terms of frequent, redundant electronic backup procedures on proper long-term storage media to assure that all electronic data representing sample analyses will be maintained for the 5-year storage period. Electronic data must be stored in a secure, limited-access area with redundant copies stored in fireproof vaults and/ or stored off-site of the laboratory facilities.

Sample preparation in the laboratory must be fully documented and include sample preparation conditions (such as digestion temperatures). In addition, documentation must allow complete traceability to all prepared or purchased reagents, acids and solvents, and reference solutions. All spike solutions and calibration standards must be used prior to labeled expiration dates and stored in accordance with manufacturers recommended conditions. Complete and unequivocal documentation must exist to enable traceability of all prepared spike solutions, calibration standards, and prepared reagents back to the reference materials utilized. Organic extracts must be stored in the same type of vials (amber or clear) as the associated standards at the appropriate storage temperatures.

The unit conventions set forth in the figures for reported data will be consistent with standard laboratory procedures. Reporting units used are those commonly used for the analyses performed. Concentrations in soil and sediment samples will be expressed in terms of weight per unit dry weight, with moisture content reported for each sample.

Laboratory records used to document analytical activities in the laboratory will include reagent and titrant preparation records, standard preparation logs, sample preparation logs, bench data sheets, instrument run logs, and strip chart recordings/chromatograms/computer output. Additional records will include calibration records, maintenance records, nonconformance memos, and Corrective Action Request (CAR) forms.

LAB RECORDS SHOULD CONVEY:
- What was done - When it was done - Who did it and - What was found

REQUIREMENTS FOR LAB RECORDKEEPING
- Data entries must be made in indelible water-resistant ink - Date of each entry and observer must be clear - Observer uses his or her full name or initials - Initial and signature log is maintained so the recorder of every entry can be identified - Information must be recorded in notebook or on other records when the observations are made - Recording information on loose pieces of paper not allowed

6.3.1 Operational Calibration Records

Operational calibration records will document the calibration of instruments and equipment that are corrected on an operational basis. Such calibration generally consists of determining instrumental response against compounds of known composition and concentration or the preparation of a standard response curve of the same compound at different concentrations. Records of these calibrations are maintained in the following documents:

- Standard preparation information, to trace the standards to the original source solution of neat compound, is maintained in LIMS or laboratory standard preparation logs.
- Instrument logbook provides an ongoing record of the calibration for a specific instrument. The logbook should be indexed in the laboratory operations records and should be maintained at the instrument by the chemist. The chemist must sign and date all entries, and the quality manager or his designee must review them.
- For Level IV data packages that are required for soil samples, copies of the raw calibration data will be kept with the analytical sample data, so the results can readily be processed and verified as one complete data package. If samples from several projects are processed together, the calibration data is copied and included with each group of data. The laboratory will maintain all calibration, analysis, and corrective action documentation (both hard copy and electronic data) for a minimum of 7 years. The documentation maintained must be sufficient to show all factors used to derive the final (reported) value for each sample. Documentation must include all calculation factors such as dilution factor, sample aliquot size, and

dry-weight conversion for solid samples. The individual who performs hand calculations must sign and date them. This documentation must be stored with the raw data. Calculations performed by the data system will be documented and stored as electronic and hard copy data. The instrument printouts will be kept on file, and the electronic data will be stored by the laboratory for a minimum of 7 years.

6.3.2 Maintenance Records

Maintenance records will be used to document maintenance activities, service procedures, and schedules. They must be traceable to each analytical instrument, tool, or gauge. The individual responsible for the instrument must review, maintain, and file these records. These records may be audited by the QAO to verify compliance. Logs must be established to record and control maintenance and service procedures and schedules.

6.3.3 Nonconformance Memos

Nonconformance Memos (NCM) may be either a hard copy record or an electronic database record. In either case, review and release of the record must be documented by the initiator, the analytical group leader where appropriate, the laboratory PM, and the laboratory QA manager. All internal laboratory nonconformance documentation will be communicated to the FTL by the laboratory PM verbally and summarized in the report narrative. The NCM will be used to document equipment that fails calibration and will identify any corrective actions taken.

6.3.4 Corrective Action Request (CAR) Forms

The laboratory must use CAR forms to document any incidents requiring corrective action. The CAR form will be issued to the personnel responsible for the affected item or activity. A copy will also be submitted to the laboratory PM. The individual to whom the CAR is addressed will return the requested response promptly to the QA personnel and will affix his or her signature and date to the corrective action block after stating the cause of the conditions and corrective action to be taken. QA personnel will maintain a log for status of CAR forms to confirm the adequacy of the intended corrective action and to verify its implementation. CARs will be retained in the project record file.

6.3.5 Analytical Data Reports

Analytical data will be reported as an Electronic Data Deliverable (EDD) and as an analytical data package. The analytical laboratories are required to submit all data, preliminary and final, in formatted EDDs in accordance with NYSDEC's requirements. The laboratory must meet 100% compliance with these requirements. The Parsons Database Manager will submit written requests dictating the requirements and appropriate files to be supplied by the laboratory. The specifications of the EDD are presented in Section 5.

Analytical data reports will be provided by the laboratory within 28 calendar days following receipt of a complete Sample Delivery Group (SDG) and will include the specifications identified in Attachment 1. An SDG is considered to include all samples received for the same project or site, to a maximum of twenty investigative samples not to exceed 5 consecutive days of sampling. The data package provided by the laboratory for soil will be Level IV data in the NYSDEC Category B format, unless an alternative requirement is specified in a laboratory statement of work (SOW) and will contain all information to support the data validation in accordance with the USEPA Region II SOPs as described in Section 9. Additionally, the completed copies of the COC records, accompanying each sample from the time of initial bottle preparation to completion of analysis, must be attached to the analytical reports for soil samples.

6.4 DATA VALIDATION AND AUDIT RECORDS

Data validation personnel are responsible for documenting validation procedures and results in the form of a data usability summary report (DUSR) for soil samples. The QAO will be responsible for maintaining this report and the QAO will be responsible for its distribution. Additionally, audit reports will be prepared and distributed by the QAO. A brief description of each record is described below.

6.4.1 Data Usability Summary Reports

The DUSR will be prepared as required by NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B, May 2010 for soil samples. The DUSR will summarize the impacts of using data that do not achieve overall data quality objectives or that do not meet PARCCS criteria identified in Section 3.3. Additionally, the report will be used to identify, assess and present issues associated with the overall data.

6.4.2 Audit Reports

Among other QA audit reports, which may be generated during the conduct of activities, a final audit report for this project may be prepared by the QAO. The report will include:

- Periodic assessment of measurement data accuracy, precision, and completeness
- Results of performance audits and/or system audits
- Significant QA problems and recommended solutions for future projects

Status of solutions to any problems previously identified.

SECTION 7 ANALYTICAL PROCEDURES

7.1 INTRODUCTION

To meet program specific regulatory requirements for chemicals of concern, all methods will be followed as stated, with some specific requirements noted below. Chemical analyses for inorganics, organics, and wet chemistry parameters will be conducted in accordance with the QAPP, the Work Assignment Scoping Documents, laboratory's SOPs (maintained "on-file" at the laboratory), and with referenced analytical methods including USEPA SW846 Test Methods for Evaluating Solid Waste, Physical, and Chemical (USEPA, 1997), and Methods for Chemical Analysis of Water and Wastes (USEPA, 1983). Where requirements conflict, the technical and QA/QC requirements in this QAPP, or the Work Assignment Scoping Documents take precedence.

7.2 STANDARD OPERATING PROCEDURES

SOPs are a written step-by-step description of laboratory operating procedures exclusive of analytical methods. Laboratories providing analytical support for this project will be required to document all procedures in SOPs. The SOPs must address the following areas:

- Storage containers and sample preservatives
- Sample receipt and logging
- Sample custody
- Sample handling procedures
- Sample transportation
- Glassware cleaning
- Laboratory security
- QC procedures and criteria
- Equipment calibration and maintenance
- Documentation
- Safety
- Data handling procedures
- Document control
- Personnel training and documentation
- Sample and extract storage
- Preventing sample contamination
- Traceability of standards
- Data reduction and validation
- Maintaining instrument records and logbooks
- Nonconformance
- Corrective actions
- Records management

SECTION 8 QUALITY CONTROL

8.1 INTRODUCTION

A QC program is a systematic process that controls the validity of analytical results by measuring the accuracy and precision of method and matrix, developing expected control limits, using these to detect anomalous events, and requiring corrective action techniques to prevent or minimize the recurrence of these events. QC measurements for analytical protocols are designed to evaluate laboratory performance, and measurement biases resulting from the sample matrix and field performance.

- **Field performance:** QC samples are used to evaluate the effectiveness of the sampling program to obtain representative samples, eliminating any cross contamination. These samples will include field duplicates and rinse blanks.
- **Sample performance:** Factors associated with sample preparation and analysis influence accuracy and precision. Such factors are monitored by the use of internal QC samples. QC field samples are analyzed to evaluate measurement bias due to the sample matrix based on evaluation of matrix spike (MS) and matrix spike duplicate (MSD) samples. If acceptance criteria are not met, matrix interferences are confirmed either by reanalysis or by inspection of the LCS results to verify that laboratory method performance is in control. Data are reported with appropriate qualifiers or discussion.
- **Laboratory method performance:** All QC criteria for method performance should be met for all target analytes for data to be reported. These criteria generally apply to instrument detector assessment (such as, tunes, inductively coupled plasma (ICP) interference check sample), calibration, method blanks, and LCS. Variances will be documented and noted in the case narrative of the report.

8.1.1 Field Quality Control Samples

QC samples will be collected in the field as part of the sampling program to allow evaluation of data quality. Field QA/QC samples will consist of the collection and analysis of rinse blanks, field duplicates, and MS/MSD samples, at a frequency of 1:20 for each sample media. Temperature blanks will accompany each sample shipment container (cooler) shipped to the laboratory for sample analysis. Standard sample identifiers will identify field QA/QC samples and they may provide no indication of their nature as QA/QC samples.

A summary of the type and collection frequency of field QC sample to be collected respective to the sampling programs specified in this QAPP, is included in **Table 8.1**. A description of each QC sample is included below.

8.1.1.1 Equipment Rinse Blanks

To assess field sampling and decontamination performance, rinse blanks will be used to evaluate the effectiveness of the decontamination procedures for chemical sampling equipment. Rinse blanks will be collected as part of all chemical sampling programs, except for waste characterization. An equipment rinse blank (rinse blank) is a sample of deionized water provided by the laboratory that is poured over or through the sampling equipment (such as split spoon, wipe template), into the sample container. A rinse blank will be collected at a frequency of 1:20 samples per type of sample collection activity using non-disposable sampling equipment.

8.1.1.2 Field Duplicates

Coded (blind) field duplicates will be used to assess the precision of field sampling procedures. Precision of a sample is calculated by quantifying the RPD between two sample measurements (Section 3.2.2.1). If the RPD of field duplicate results is greater than the precision criterion, environmental results for the field duplicate pair will be qualified as estimated. The FTL responsible for sample collection and processing should be notified to identify the source of variability (if possible), and corrective action should be taken (Section 10.3).

Coded (blind) field duplicates will be collected to evaluate the representativeness and effectiveness of homogenization and proper mixing for soil and aqueous samples. The field duplicate will be analyzed for all of the parameters for which the associated samples are being analyzed. The samples will be labeled in such a manner that the laboratory will not be able to identify the sample as a duplicate sample. This will eliminate bias that could arise by laboratory personnel.

8.1.1.3 Temperature Blank

The temperature blank is used to indicate the temperature of the sample cooler upon receipt at the laboratory. A temperature blank consists of laboratory reagent in a 40-milliliter (mL) glass vial sealed with a Teflon® septum. Any cooler temperature exceeding the allowable $4 \pm 2°C$ must be noted and the QAO notified prior to sample analyses.

8.1.2 Laboratory Quality Control Samples

QC data from the laboratory are necessary to determine precision and accuracy of the analyses and to demonstrate the absence of interferences and contamination of glassware and reagents. The laboratory will analyze QC samples routinely as part of the laboratory QC procedures. Laboratory QC results will consist of analysis of MS/MSD, LCS, method/preparation blanks, and surrogate spikes. The frequency of the analysis of laboratory QC is summarized in **Table 8.2**. QC samples will be prepared and analyzed utilizing the same preparation and analysis procedures as the field samples. These laboratory QC sample analyses will be run independently of the field QC samples. Results of these analyses will be reported with the sample data and kept in the project QC data file. The QC checks, their frequency, acceptance criteria, and corrective actions for noncompliance are summarized for each analytical method in the laboratory's SOP.

QC samples will be prepared and analyzed utilizing the same preparation and analysis procedures as the field samples. Re-preparation and/or reanalysis of the laboratory QC samples due to a failing recovery and/or precision failure without the re-preparation and reanalysis of the associated samples is prohibited. In all events, QC failures, holding time exceedances, or any other non-standard occurrence must be communicated immediately to the QAO and prior to reporting and then, with approval to report the data, summarized in the case narrative. If the criteria are not met, appropriate corrective action must be taken as specified in Section 9.1 and Section 10.

8.1.2.1 Matrix Spike/Matrix Spike Duplicate/ Matrix Duplicates

MS/MSD samples for organics, metals, and wet chemistry parameters will be taken at a frequency of 1 per 20 field samples (per SDG) per matrix per method. A "batch" is considered up to twenty samples from the same matrix, of the same extraction/digestion type, prepared and/or analyzed by a given analyst, within 12-hr, within an extraction/digestion event, whichever is more frequent. These samples are used to assess the effect of the sample matrix on the recovery of target compounds or target analytes by spiking a normal field sample with a known concentration of the analyte of interest. Samples identified as rinse blanks will not be used for the MS/MSD preparation or analysis.

Spiked samples will be analyzed, and the percent recovery will be calculated. Results of the analysis will be used to evaluate accuracy and precision of the actual sample matrix. For MS/MSD, the result will be compared and used to evaluate the precision of the actual sample matrix. The percent recovery for each analyte in the MS and MSD should fall within the limits established by laboratory QC protocol. The percent recovery and RPD control limits between the MS and MSD and the sample and the duplicate concentrations are provided in Table 3.1.

The original sample, MS/MSD, and laboratory duplicate sample aliquots will be treated exactly the same throughout the sample preparation and analysis and will not be homogenized more than any other project sample (either in the field or at the laboratory). The spike samples will be analyzed for the same parameters as the sample. Field personnel must indicate on the COC form which sample(s) are designated as MS/MSD. If samples are not designated for these QC purposes and/or insufficient sample is available the PM and/or QAO will be notified for resolution.

8.1.2.2 Laboratory Control Samples

LCSs are designed to check the accuracy of the analytical procedure by measuring a known concentration of an analyte of interest. An LCS will be analyzed for each analytical batch requested for sample preparation and analysis. LCSs must be prepared at a frequency of one per batch for all analytical methods. If high LCS recoveries are observed and the associated samples are reported as “not detected” for the requested target analytes, no action is necessary other than to note the issue in the case narrative of the final analytical report. LCS recoveries must meet the criteria specified in the analytical method.

8.1.2.3 Method and Preparation Blanks

Laboratory blank samples (also referred to as method or preparation blanks) are designed to detect contamination resulting from the laboratory environment or sample preparation procedure. Method blanks verify that method interferences caused by contaminants in solvents, reagents, glassware, or in other sample processing hardware, are known. Method blanks will be analyzed for each analytical batch using similar preparation techniques (separatory funnel and liquid/liquid extraction) to assess possible contamination and evaluate which corrective measures may be taken, if necessary.

Method blanks associated with field samples must undergo all of the processes performed on investigative samples, including but not limited to pre-filtration and sample cleanups. The blank will be deionized water for water samples or a purified solid matrix such as sodium sulfate for extractable soil samples. Where all the field samples in a batch do not require an additional cleanup procedure, an additional blank may be prepared to check the performance of the additional cleanup and will be associated with the field samples getting the specific additional cleanup. Where this is done, both blanks will be reported, and the procedure described in the case narrative. Method blanks must be prepared at a frequency of one per analytical batch.

8.1.2.4 Surrogate Spike Analyses

Surrogate spikes (applicable to organic analysis only) are used to determine the efficiency of analyte recovery in sample preparation and analysis. Calculated percent recovery of the spikes is used to measure the accuracy of the analytical method. A surrogate spike is prepared by adding a known amount of a compound similar in type to the analytes of interest. Surrogate compounds will be added to all samples analyzed by USEPA Methods, including method blanks, MS/MSDs, project environmental samples, and duplicate samples in accordance with the method. Surrogate spike recoveries should fall within the limits established by laboratory QC protocol and the NYSDEC ASP.

8.2 INSTRUMENT/EQUIPMENT Testing, INSPECTION, AND MAINTENANCE

8.2.1 Field Equipment

Equipment failure will be minimized by routinely inspecting all field equipment to ensure that it is operational and by performing preventative maintenance procedures. Field sampling equipment will be inspected prior to sample collection activities, and repairs will be made prior to decontamination and reuse of the sampling equipment. PFAS-specific requirements for field sampling equipment are described in the FAP. Equipment, instruments, tools, gauges, and other items requiring preventive maintenance will be serviced in accordance with the manufacturer's specified recommendations and written procedure, based on the manufacturer’s instructions or recommendations. Maintenance will be performed in accordance with the schedule specified by the manufacturer to minimize the downtime of the measurement system. Qualified personnel must perform maintenance work.

MINIMUM ROUTINE PREVENTIVE MAINTENANCE
Removal of foreign debris from exposed surfaces
Storage in a cool dry place protected from the elements
Daily inspections
Verification of instrument calibrations (Section 8.3.1)

A list of critical spare parts will be developed prior to the initiation of fieldwork. Field personnel will have ready access to critical spare parts to minimize downtime while fieldwork is in progress. A service contract for rapid instrument repair or backup instruments may be substituted for the spare part inventory.

Non-routine maintenance procedures require field equipment to be inspected prior to initiation of fieldwork to determine whether or not it is operational. If it is not operational, it will be serviced or replaced. Batteries will be fully charged or fresh, as applicable.

8.2.2 Laboratory Instrumentation

Periodic preventive maintenance is required for all sensitive equipment. Instrument manuals will be kept on file for reference if equipment needs repair. The troubleshooting section of factory manuals may be used in assisting personnel in performing maintenance tasks.

Major instruments in the laboratory are covered by annual service contracts with manufacturers or other qualified personnel (internal or external). Under these agreements, trained service personnel make regular preventive maintenance visits. Maintenance is documented and maintained in permanent records by the individual responsible for each instrument.

The laboratory manager is responsible for preparation, documentation, and implementation of the program. The laboratory QA manger reviews implementation to verify compliance during scheduled internal audits.

Written procedures will establish the schedule for servicing critical items to minimize the downtime of the measurement system. The laboratory will adhere to the maintenance schedule and arrange any necessary and prompt service. Qualified personnel will perform required service.

8.3 INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY

Instruments (field and laboratory) used to perform chemical measurements will be properly calibrated prior to use to obtain valid and usable results. The requirement to properly calibrate instruments prior to use applies equally to field instruments as it does to fixed laboratory instruments to generate appropriate data to meet DQOs.

8.3.1 Field Instruments

All field analytical equipment will be calibrated immediately prior to each day's use. The calibration procedures of field instruments (such as PID, pH, temperature), will conform to manufacturer's standard instructions to ensure that the equipment functions within the allowable tolerances established by the manufacturer and required by the project. Personnel performing instrument calibrations must be trained in its proper operation and calibration. Records of all instrument calibration will be maintained by the FTL in the field log (Section 6.2) and will be subject to audit by the QAO or authorized personnel. The FTL will maintain copies of all the instrument manuals on the site.

8.3.2 Laboratory Instruments

A formal calibration program will control instruments and equipment used in the laboratory. The program will verify 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 will be subject to calibration. Laboratory personnel or external calibration agencies or equipment manufacturers will calibrate the instruments using reference standards. Upon request, the laboratory will provide all data and information to demonstrate that the analytical system was properly calibrated at the time of analysis including calibration method, frequency, source of standards, concentration of standards, response factors, linear range, check standards, and all control limits. This data will be documented in a calibration record (Section 6.3.1). Calibration records will be prepared and maintained for each piece of equipment subject to calibration.

This section provides an overview of the practices used by the laboratory to implement a calibration program. Detailed calibration procedures, calibration frequencies, and acceptance criteria are specified in the laboratory's analytical method SOPs. The requirements for the calibration of instruments and equipment depend on the type and expected performance of individual instruments and equipment. Therefore, the laboratory will use the guidelines provided here to develop a calibration program.

Two types of calibration are described in this section: periodic calibration and operational calibration. The results of the calibration activities will be documented in the analytical data package and the calibration records (Section 6.3.1).

- **Periodic calibration:** Performed at prescribed intervals for equipment, such as balances and thermometers. In general, equipment which can be calibrated periodically is a distinct, singular purpose unit and is relatively stable in performance.
- **Operational calibration:** routinely performed as part of an analytical procedure or test method, such as the development of a standard curve for use with an atomic absorption spectrophotometer. Operational calibration is generally performed for instrument systems.

Equipment that cannot be calibrated or becomes inoperable will be removed from service. Such equipment must be repaired and satisfactorily recalibrated before reuse. For equipment that fails calibration, analysis cannot proceed until appropriate corrective action is taken, and the analyst achieves an acceptable calibration. This type of failure will be documented in an NCM (Section 10).

8.3.3 Calibration System

The calibration system includes calibration procedures, equipment identification, calibration frequency, calibration reference standards, calibration failure, and calibration records. These elements are described next.

8.3.3.1 Calibration Procedures

Written procedures will be used by the laboratory for all instruments and equipment subject to calibration. Whenever possible, recognized procedures, such as those published by the American Society for Testing and Materials (ASTM) or USEPA, will be adopted. If established procedures are not available, a procedure will be developed considering the type of equipment, stability characteristics of the equipment, required accuracy, and the effect of operational error on the quantities measured. Calibration procedure established by the laboratory must, at a minimum, meet the calibration requirements of the method on which the SOP is based.

MINIMUM CALIBRATION PROCEDURES
Equipment to be calibrated Reference standards used for calibration Calibration technique and sequential actions Acceptable performance tolerances Frequency of calibration Calibration documentation format

8.3.3.2 Equipment Identification

Equipment that is subject to calibration is identified by a unique number assigned by the laboratory. Calibration records reference the specific instrument identification.

8.3.3.3 Calibration Frequency

Instruments and equipment will be calibrated at prescribed intervals and/or as part of the operational use of the equipment. Calibration frequency will be 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.

8.3.3.4 Calibration Reference Standards

Two types of reference standards will be used by the laboratory 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. Physical reference standards that have known relationships to nationally recognized standards (such as NIST) or accepted values of natural physical constants will be used whenever possible. If national standards do not exist, the basis for the reference will be documented. Physical reference standards will be used only for calibration and will be stored separately from equipment used in analyses. In general, physical standards will be recalibrated annually by a certified external agency, and documentation will be maintained. Balances will be calibrated against class "S" weights by an outside source annually. Physical standards such as the laboratory's class "S" weights will be recertified annually.
- **Chemical standards,** such as vendor certified stock solutions and neat compounds, will generally be used for operational calibration. The laboratory, to provide traceability for all standards used for calibration and QC samples, will document standard preparation activities.

8.3.4 Operational Calibration

Operational calibration will generally be performed as part of the analytical procedure and will refer to those operations in which instrument response (in its broadest interpretation) is related to analyte concentration. Formulas used for calibration are listed in Table 8.3.

8.3.4.1 Preparation of a Calibration Curve

Preparation of a standard calibration curve will be accomplished by analyzing calibration standards that are prepared by adding the analyte(s) of interest to the solvent that is introduced into the instrument. The concentrations of the calibration standards will be chosen to cover the working range of the instrument or method. All sample measurements will be made within this working range. Average response factors will be used or a calibration curve will be prepared by plotting or regressing the instrument responses versus the analyte concentrations. Where appropriate a best-fit curve may be used for nonlinear curves and the concentrations of the analyzed samples will be back-calculated from the calibration curve.

8.3.4.2 Periodic Calibration

Periodic calibrations are performed for equipment (such as balances and thermometers), that is required in the analytical method, but that is not routinely calibrated as part of the analytical procedure. Table 8.4 lists the periodic calibration requirements used by the laboratories.

8.4 INSPECTION/ACCEPTANCE OF SUPPLIES AND CONSUMABLES

In the laboratory, personnel qualifying reagents and standards must be trained to perform the associated instrumental analysis, including instrument calibration, calculations, and data interpretation. Laboratory personnel must document the purchase, receipt, handling, storage, and tracking of supplies and consumables used during analysis. For example, analytical standards, source materials, and reference materials used for instrumental calibration/tunes/checks must be certified and traceable to the USEPA or NIST through reference numbers documented directly in each analytical sequence. Calibration for all requested analyses must be verified by an independent second source reference. Adhering to these procedures precludes the use of expired supplies and consumables or supplies and consumables that do not meet standard acceptance criteria.

Records must be maintained on reagent and standard preparation in the LIMS reagent system or laboratory standard preparation logs. The records should indicate traceability of the standards to their original source solution or neat compound, the name of the material, concentration, the method and date of preparation, the expiration date, storage conditions, and the preparer's initials. Each prepared reagent or standard should be labeled with a unique identifier that links the solution to the preparation documentation that specifies an expiration and/or re-evaluation date for the solution.

SECTION 9 DATA VALIDATION AND USABILITY ELEMENTS

9.1 DATA REVIEW, VERIFICATION, AND VALIDATION

The data collected during this project will undergo a systematic review for compliance with the DQOs and performance objectives as stated in Section 3. In particular, field, laboratory, and data management activities will be reviewed to confirm compliance with the method QC criteria for performance and accuracy and to show that data were collected in a manner that is appropriate for accomplishing the project objectives. These data will be evaluated as to their usability during data verification. In particular, data outside QC criteria, but not rejected, will be reviewed for possible high and low bias. All data will be validated following verification and reduction.

Qualified data validation personnel will assess and verify soil data and will review the data against QC criteria, DQOs (Sections 3 and 9.2.2), analytical method, and USEPA Region 2 SOPs for data review to identify outliers or errors and to flag suspect values. Field and laboratory activities that should be reviewed include, at a minimum, sample collection, handling, and processing techniques; field documentation records; verification of proper analytical methods; analytical results of QC samples; and calibration records for laboratory instruments and field equipment. A review of such elements is necessary to demonstrate whether the DQOs were met. Samples that deviate from the experimental design and affect the project objectives must be reported to the QAO and data validation personnel.

Departures from standard procedures in the FAP, this QAPP, or the laboratory SOPs, may lead to exclusion of that data from the project database or validation process based on discussions with and approval of the NYSDEC. However, routine field audits involving thorough reviews of sample collection procedures and sample documentation should preclude such deviations from occurring. Additionally, routine laboratory audits will be used to document proper sample receipt, storage, and analysis; instrument calibration; use of the proper analytical methods; and use of QC samples specified in Section 8 to assist in appropriately qualifying the data.

The laboratory's analytical report for each SDG containing soil data will be assembled by collecting and incorporating all the data for each analysis associated with the reported samples; the analytical narratives; and other report-related information such as copies of COC forms, communication records, and nonconformance forms. The information included in the analytical data report is summarized in Attachment 1.

Before the laboratory submits data, the laboratory's data review process will include a full first level "technical" review by the laboratory's analyst during sample analysis and data generation. The review must include a check of all QC data for errors in transcription, calculations, and dilution factors and for compliance with QC requirements. Failure to meet method performance QC criteria may result in the reanalysis of the sample or analytical batch. After the initial review is completed, the data will be collected from summary sheets, workbooks, or computer files and assembled into a data package.

The laboratory's first review will be followed by a second-level technical review of the data package. The second level review may be performed by a peer trained in the procedures being reviewed or by the appropriate analytical group supervisor. The reviewer will check the data packages for completeness and compliancy with the project requirements and will certify that the report meets the DQOs for PARCCS specifications. The report narrative will be generated at this stage of the data review. Any problems discovered during the review and the corrective actions necessary to resolve them will be communicated to the responsible individual, who will discuss the findings with the laboratory QA manager for resolution.

The first and second review will be conducted throughout sample analysis and data generation to validate data integrity during collection and reporting of analytical data. Data review checklists will be used to document the performance and review of the QC and analytical data.

Before the laboratory's final release to the client, the data will undergo a final review by the laboratory's QA officer or his/her designee. This third level review is to confirm that the report is complete and meets project requirements for performance and documentation. The laboratory's QA officer must review reports involving non-conforming data issues. A summary of all non-conformances will be included in the case narrative. The report will then be released to the client for data validation, and a copy will be archived by the laboratory for a period of 7 years.

The laboratory analytical soil data will be validated using project-specific data validation procedures to confirm that data meet the applicable data quality objectives. Depending on the type of data and the intended data uses, the data validation process for a given SDG (or a specific percentage of sample analyses) or analytical method may be performed following a Level IV protocol (full validation or USEPA Stage 3 data validation), or a Level III protocol (sample plus QC summary data only, no raw data review, or USEPA Stage 2B data validation). The project-specific Level III data validation protocol will provide a level of review resulting in the generation of a data usability summary report (DUSR), as defined by NYSDEC. Level III validation will be performed on all DQO Level III and all DQO Level IV data. Ten percent (10%) of the DQO Level IV Data for each analytical method will undergo a Level IV validation. Certain geotechnical and field screening data may be evaluated in a manner suitable for the intended data uses.

A data validation report will be issued and reviewed by the QAO before finalization. The data validation report will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and COC procedures, and a summary assessment of PARCCS criteria for each analytical method. The validation criteria are objective and are not sample dependent, except for consideration of sample matrix effects. The criteria specify performance requirements that should be under the control of the field-sampling contractor or analytical laboratory. This QAPP will be the primary reference for evaluating the data.

After data validation, the data will be evaluated for consistency with site conditions and developed conceptual models. Data validation personnel will prepare a project DUSR that summarizes the implications of the use of any soil data out of criteria. In addition, the data usability report will include the percentage of sample completeness for critical and non-critical samples and a discussion of any issues in representativeness of the data that may develop as a result of validation. The data usability report will address overall data quality and achievement of PARCCS criteria and assess issues associated with the overall data and data quality for all validated Level III and Level IV data.

9.2 VERIFICATION AND VALIDATION METHODS

9.2.1 Laboratory

The laboratory will verify and assess analytical data against the stated requirements on the COC record, the sample handling procedures (Section 4), and the QC parameters. The laboratory data reviewers will also check that transcriptions of raw or final data and calculations were performed correctly and are verified.

Following data verification, analytical data generated by the laboratory will be reduced and managed based on the procedures specified in this QAPP and analytical methodologies. Data reduction includes all processes that change either the values or numbers of data items. The data reduction processes used in the laboratory includes establishment of calibration curves, calculation of sample concentrations from instrument responses, and computation of QC parameters. Table 8.5 lists the formulas used to calculate sample concentrations.

The reduction of instrument responses to sample concentrations takes different forms for different types of methods. For most analyses, the sample concentrations are calculated from the measured instrument responses using a calibration curve. The sample concentrations can be back-calculated from a regression equation fitted to calibration data. For gravimetric and titrimetric analyses, the calculations are performed according to equations given in the method. For chromatographic analyses, the unknown concentrations are determined using either calibration factors (external standard procedure) or relative response factors (internal standard procedure). GC analyses are generally quantitated using the external standard technique; GC/MS analyses are quantitated using the internal standard technique. These calculations are generally performed by the associated computerized data systems.

Validated analytical data will be loaded into a database and reported in tabular format. Database fields will include the field sample identification, laboratory sample identification, blinded sample number, analytical results, detection limits, and validation qualifiers. The usability of the data will be evaluated by the QAO or designee.

9.2.2 Analytical Data Validation

The data review process is performed in two phases:

1. **Initial phase, contract compliance screening (CCS)**: Review of sample data deliverables for completeness. Completeness is evaluated by ensuring that all required data deliverables are received in a legible format with all required information. The CCS process also includes a review of the COC forms, case narratives, and RLs. Sample resubmission requests, documentation of nonconformances with respect to data deliverable completeness, and corrective actions often are initiated during the CCS review. The results of the CCS process are incorporated into the data validation process.
2. **Second phase, data validation:** A project-specific data validation procedure based on a "Level III" or the "Level IV" validation protocol will be performed on the analytical results from the fixed-base laboratory or laboratories. The Level III validation protocol (i.e., USEPA Stage 2B data validation), which applies to data packages not receiving "full" Level IV validation includes a review of summary information to determine adherence to analytical holding times; results from analysis of field duplicates, method blanks, equipment blanks, surrogate spikes, MS/MSDs, LCSs, and sample temperatures during shipping and storage. Data qualifiers are applied to analytical results during the data validation process based on adherence to method protocols and laboratory-specific QA/QC limits. The Level IV validation protocol (i.e., USEPA Stage 3 data validation) incorporates the Level III validation protocol and adds calculation checks from the raw data of reported and summarized sample data and QC results.

The laboratory will send the required analytical data package deliverables and the EDD following completion of the laboratory's validation process (Section 9.2.2). Data validation will be performed in accordance with the USEPA **Region 2 Data Validation SOPs** for organic and inorganic data review (USEPA, 2016a, 2016b, 2016c, 2016d) and the NYSDEC PFAS guidance (NYSDEC, 2021). In addition, Parsons will refer to this QAPP and the Work Assignment Scoping Documents to verify that DQOs were met. If problems are identified during data validation, the QAO and the laboratory QA manager will be alerted, and corrective actions will be requested. The laboratory PM and data validation chemists will maintain close contact with the QAO to ensure all nonconformance issues are acted upon prior to data manipulation and assessment routines.

Data validation will be conducted using the USEPA guidelines (USEPA, 2020a, 2020b) as supplementary guidelines. Where USEPA guidelines and SW-846 disagree, this QAPP and data validation professional judgment will prevail.

FULL VALIDATION (LEVEL IV)	
Organic Analytical Methods	Inorganic Constituents, Wet Chemistry Parameters
Percentage of solids Sample preservation and holding times Instrument tuning Instrument calibrations Blank results System monitoring compounds or surrogate recovery compounds (as applicable) Internal standard recovery results MS and MSD results LCS results Target compound identification Chromatogram quality Duplicate results Compound quantitation and reported RLs System performance and Results verification	Percentage of solids Sample preservation and holding times Calibrations Blank results Interference check samples (inorganics only) LCSs Project Required Reporting Limit (PRRL) standard check samples Duplicates MSs (pre-digestions and post-digestions for inorganics only) ICP serial dilutions and Results verification and reported detection limits

Trained and experienced data validation chemists will perform the data validation work. The QAO will review the data validation report before it is finalized. The data validation report will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and COC procedures, and a summary assessment of PARCCS criteria for each analytical method. A detailed assessment of each SDG will follow. Based on the results of data validation, the validated analytical results reported will be assigned a usability flag (see chart below).

USABILITY FLAGS FOR VALIDATED RESULTS	
U	Not detected at given value
UJ	Analyte not detected; associated quantitation limit is an approximate (estimated) values.
J	Estimated value
J+	Estimated biased high
J-	Estimated biased low
N	Presumptive evidence at the value given
NJ	Analysis indicates presence of analyte tentatively identified; the associated numerical value is its approximate concentration
R	Result not useable
No flag	Result accepted without qualification

9.3 RECONCILIATION WITH USER REQUIREMENTS

Following data validation by qualified personnel, the data will be evaluated by the QAO and the PM as to consistency with site conditions and developed conceptual models to determine whether field and analytical data meet the requirements for decision making. Specifically, the results of the measurements will be compared to the DQOs (Section 3).

The DQOs will be considered complete and satisfied if the data are identified as usable and if no major data gaps are identified. For example, the objective for data collected under the characterization program is to further refine the limits of dredging and/or capping. If the collected data sufficiently characterizes these limits in a manner that is acceptable for remedial action, then the DQO is satisfied. In cases where data may be considered not usable (for example, rejected during data validation), resampling may be required at a specific location. If resampling is not possible, the data will be identified and noted in the project database to make data users aware of its limitations.

SECTION 10 ASSESSMENT AND OVERSIGHT

10.1 ASSESSMENTS AND RESPONSE ACTIONS

Performance and system audits of both field and laboratory activities may be performed. Any such audits will be performed at a frequency to be determined to ensure that sampling and analysis activities are completed in accordance with the procedures specified in the FAP and this QAPP.

QA audits will be carried out under the direction of the QAO on field activities, including sampling and field measurements. They will be implemented to verify that established procedures are being followed and to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s).

The QAO will plan, schedule, and approve system and performance audits based on procedures customized to the project requirements. If required, the QAO may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits. Quality auditing personnel will not have responsibility for field or laboratory project work.

10.2 PROJECT-SPECIFIC AUDITS

Project-specific audits include system and performance audits of sampling and analysis procedures, and of associated recordkeeping and data management procedures. Project-specific audits will be performed on a discretionary basis at a frequency determined by the PM.

10.2.1 System Audits

The QAO may perform system audits. Such audits will encompass a qualitative evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory QC procedures and associated documentation may be system-audited including the field log, field sampling records, laboratory analytical records, sample handling, processing, and packaging in compliance with the established procedures, maintenance of QA procedures, and COC procedures. These audits may be carried out during execution of the project to confirm that sampling crews employ consistent procedures. However, if conditions adverse to quality are detected additional audits may occur.

Findings from the audit will be summarized and provided to the PM and/or designated personnel so that necessary corrective action can be monitored from initiation to closure.

10.2.2 Performance Audits

The laboratory may be required to conduct an analysis of PE samples or provide proof that PE samples were submitted by an approved USEPA or NYSDEC performance testing provider within the past 12 months. If necessary, proof that applicable PE samples have been analyzed at the laboratory within the past 12 months will be included in the laboratory procurement package.

10.2.3 Formal Audits

Formal audits are any system or performance audit that the QAO documents and implements. These audits encompass documented activities performed by qualified lead auditors to a written procedure or checklist to verify objectively that QA requirements have been developed, documented, and instituted in accordance with contractual and project criteria. At the discretion of the PM, the QAO or designated personnel may conduct formal audits on project and subcontractor work during the course of the project.

Auditors who have performed the site audit after gathering and evaluating all data will write audit reports. Items, activities, and documents determined by lead auditors to be in noncompliance must be identified at exit interviews conducted with the involved management. Noncompliance will be logged and documented through audit findings. These findings will be attached to and become part of the integral audit report. These audit-finding forms are directed to management to resolve satisfactorily the noncompliance in a specified and timely manner.

The QAO has overall responsibility to see that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports will be submitted to the PM after completion of the audit. Serious deficiencies will be reported to the PM on an expedited basis. Audit checklists, audit reports, audit findings, and acceptable resolutions will be approved by the QAO prior to issue. Verification of acceptable resolutions may be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the QAO will close out the audit report and findings.

10.2.4 Laboratory Audits

Internal laboratory audits will be performed routinely to review and evaluate the adequacy and effectiveness of the laboratory’s performance and QA program, to ascertain if the QAPP is being completely and uniformly implemented, to identify nonconformances, and to verify that identified deficiencies are corrected. The laboratory QA manager is responsible for such audits and will perform them according to a schedule planned to coincide with appropriate activities on the project schedule and sampling plans. Such scheduled audits may be supplemented by additional audits for one or more of the following reasons:

- When significant changes are made in the QAPP
- When necessary to verify that corrective action has been taken on a nonconformance reported in a previous audit
- When requested by the laboratory’s PM or QA manager.

10.2.4.1 Laboratory Performance Audits

Performance audits are independent 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. Performance audits are conducted by introducing control samples, in addition to those used routinely, into the data production process. These control samples include PE samples of known concentrations. The results of performance audits will be evaluated against acceptance criteria. The results will be summarized and maintained by the laboratory QA manager and distributed to the supervisors who must investigate and respond to any results that are outside control limits.

10.2.4.2 Laboratory Internal Audits

The laboratory QA manager conducts routine internal audits of each laboratory section for completeness, accuracy, and adherence to SOPs. The laboratory audit team will verify that the laboratory's measurement systems are operated within specified acceptable control criteria and that a system is in place to confirm that out-of-control conditions are efficiently identified and corrected.

10.2.4.3 Laboratory Data Audits

The laboratory will maintain raw instrument data for sample analyses on magnetic tape media or optical media in a secured fireproof safe. During routine audits, the audit team will verify the processing of the raw data file by reviewing randomly selected electronic data files and comparing the results with the hardcopy report. Tapes will be archived for a period of 7 years. Tapes will be also available for audit by the QAO upon request.

10.2.4.4 Laboratory Audit Procedures

Prior to an audit, the designated lead auditor will prepare an audit checklist. During an audit and upon its completion, the auditor will discuss the findings with the individuals audited and discuss and agree on corrective actions to be initiated. The auditor will prepare and submit an audit report to the designated responsible individual of the audited group, the PM, and the QAO. Minor administrative findings that can be resolved to the satisfaction of the auditor during an audit need not be cited as items requiring corrective action. Findings that are not resolved during the course of the audit and findings affecting the overall quality of the project will be included in the audit report.

The designated responsible individual of the audited group will prepare and submit to the QAO a reply to the audit. This reply will include, at a minimum, a plan for implementing the corrective action to be taken on nonconformances 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. Audit files will include, as a minimum, the audit report, the reply to the audit, and any supporting documents. It is the responsibility of the designated responsible individual of the audited group to conform to the established procedures, particularly as to development and implementation of such corrective action.

10.2.4.5 Laboratory Documentation

To confirm that the previously defined scope of the individual audits is accomplished and that the audits follow established procedures, a checklist will be completed during each audit. The checklist will detail the activities to be executed and ensure that the auditing plan is accurate. Audit checklists will be prepared in advance and will be available for review.

AUDIT CHECKLIST (AT MINIMUM)
Date and type of audit
Name and title of auditor
Description of group, task, or facility being audited
Names of lead technical personnel present at audit
Checklist of audit items according to scope of audit
Deficiencies or non-conformances

Following each system, performance, and data audit, the QAO or his designee will prepare a report to document the findings of the specific audit. The report will be submitted to the designated individual of the audited group to ensure that objectives of the QA program are met.

MINIMUM CONTENT OF AUDIT REPORT
Description and date of audit
Name of auditor
Copies of completed, signed, and dated audit form and/or checklist

Summary of findings including any nonconformance or deficiencies
Date of report and appropriate signatures
Description of corrective actions

The QAO will maintain a copy of the signed and dated report for each audit. If necessary, a second copy will be placed in project files.

10.3 CORRECTIVE ACTIONS

Corrective action procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected. Corrective action enables significant conditions adverse to quality to be noted promptly at the site, laboratory, or subcontractor location. Additionally, it allows for the cause of the condition to be identified and corrective action to be taken to rectify the problem and to minimize the effect on the data set. Further, corrective action is intended to minimize the possibility of repetition.

Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAO, PM, FTL, and involved subcontractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action. Any project personnel may identify noncompliance issues; however, the designated QA personnel are responsible for documenting, numbering, logging, and verifying the close out action. The designated responsible individual of the audited group will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

Events that trigger corrective actions
When predetermined acceptance standards are not attained
When a deviation from SOP is required or observed
When procedure or data compiled are determined to be deficient
When equipment or instrumentation is found to be faulty
When samples and analytical test results are not clearly traceable
When QA requirements have been violated
When designated approvals have been circumvented
As a result of system and performance audits
As a result of a management assessment
As a result of laboratory/field comparison studies
As required by analytical method

All project personnel have the responsibility, as part of normal work duties, to promptly identify, solicit approved correction, and report conditions adverse to quality. Specifically, the laboratory must designate the assigned individual to act as the primary laboratory contact responsible for timely identification and resolution of any and all issues including contract and administrative issues. Any phone calls initiated by personnel or designated representatives to the laboratory with respect to corrective actions must be returned in a timely manner on a normal business day if the designate individual (or alternate) is not available at the initiation of the phone call.

Project management and related staff, including field investigation teams, remedial design planning personnel, and laboratory groups will monitor on-going work performance as part of daily responsibilities. Work may be audited at the site, the laboratories, or subcontractor locations. Activities or documents ascertained to be noncompliant with QA requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the QAO, PM, or designated personnel.

Personnel assigned to QA functions will have the responsibility to issue and control CAR forms (**Figure 10.1**). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered.

Similar to the CAR, the laboratory will record and report nonconformances internally using the laboratory's non-conformance documentation tracking system in the form of an NCM. Each NCM is traceable so that it can be cross-referenced with its resolution to the associated project records. The laboratory QA manager summarizes critical nonconformances, such as reissued reports and client complaints, in a monthly report to the laboratory management staff. Management of the NCM is described in Section 6.3. Corrective action procedures applicable to QC requirements that do not meet the criteria of this QAPP are described in the following sections. Consistent, frequent contacts between laboratory personnel, the QAO, or designated personnel are required.

TYPICAL CONTENT OF NCM FORMS
Problem description and root cause
Corrective action
Client notification summary
QA verification
Approval history action

SECTION 11 REPORTS TO MANAGEMENT

11.1 QA REPORTS

Management personnel receive QA reports appropriate to their level of responsibility. The PM receives copies of all QA documentation. QC documentation is retained within the department that generated the product or service except where this documentation is a deliverable for a specific contract. QC documentation is also submitted to the project QAO for review and approval. Previous sections detailed the QA activities and the reports, which they generate. Among other QA audit reports that may be generated during the conduct of activities, a final audit report for this project will be prepared by the QAO. The report will include:

- Periodic assessment of measurement data accuracy, precision, and completeness
- Results of performance audits and/or system audits
- Significant QA problems and recommended solutions for future projects
- Status of solutions to any problems previously identified.

Additionally, any incidents requiring corrective action will be fully documented.

SECTION 12 REFERENCES

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TABLES

TABLE 3.1 QUALITY CONTROL LIMITS FOR PROJECT SAMPLES

			Laboratory Accuracy and Precision				
Analytical Parameters	Analytical Method	Spike Compound	MS/MSD % Recovery	MS/MSD RPD or Lab Dup RPD	LCS % Recovery	Surrogate Compounds	Surrogate % Recovery
TCLP VOCs	SW8260D	All Target Analytes	Lab QC limit	0-20 or lab QC limit	70-130 or lab QC limit	Toluene-d8 4-Bromofluorobenzene 1,2-Dichloroethane-d4 Dibromofluoromethane	Lab QC Limit
SVOCs + TCLP SVOCs + 1,4-dioxane	SW8270E	All Target Analytes	lab QC limit	0-20 or lab QC limit	70-130 or lab QC limit	Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14 Phenol-d5 2-Fluorophenol 2,4,6-Tribromophenol	Lab QC Limit
PFAS	1633	All Target Analytes	70-130 or lab QC limit	0-20 or lab QC limit	70-130 or lab QC limit	Isotope Dilution PFAS	Lab QC Limit
Metals + TCLP Metals	SW6010D SW7470A SW7471B	All Target Analytes	75-125 80-120 (mercury)	0-20	85-115	NA	NA
TCLP Pesticides	SW8081B	All Target Analytes	Lab QC limit	0-20 or lab QC limit	70-130 or lab QC limit	Decachlorobiphenyl Tetrachloro-m-xylene	Lab QC Limit
TCLP Herbicides	SW8151A	All Target Analytes	Lab QC limit	0-20 or lab QC limit	70-130 or lab QC limit	2,4-Dichlorophenylacetic acid	Lab QC Limit

NOTES: MS/MSD – Matrix spike/matrix spike duplicate

RPD – Relative Percent Difference

LCS – Laboratory Control Sample

NA – Not applicable

TABLE 4.1 SAMPLE CONTAINERIZATION, PRESERVATION, AND HOLDING TIMES

Analysis	Bottle Type	Preservation	Holding Time [a]
TCLP VOCs	4 oz soil jar	Cool to 4°C	14 days extraction 14 days analysis
SVOCs +1,4-dioxane TCLP SVOCs TCLP Pesticides TCLP Herbicides	4 oz soil jar	Cool to 4°C	14 days extraction 40 days for analysis
PFAS	4 oz soil jar	Cool to 4°C	14 days for extraction, 40 days for analysis
Metals TCLP Metals	4 oz soil jar	Cool to 4°C	6 months 28 days (mercury)

(a) Days from sample collection.

TABLE 6.1 SUMMARY OF FIELD, LABORATORY, AND DATA MANAGEMENT RECORDS

- REPORT	PERSON RESPONSIBLE FOR		STORAGE
	MAINTENANCE	DISTRIBUTION	
PROJECT FILES AND FIELD SAMPLING RECORDS			
Field Log	Field Team Leader	Project Manager	Job File at Primary Contractor's Location
Photographs	Field Team Leader	Project Manager	Job File at Primary Contractor's Location
Chain-of-Custody	Field Team Leader	Project Manager	Job File at Primary Contractor's Location
Field Sampling Records	Field Team Leader	Project Manager	Job File at Primary Contractor's Location
LABORATORY RECORDS			
Reagent and Titrant Preparation Records	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Standards Preparation Logs	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Sample Preparation Logs	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Bench Data Sheets	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Instrument Run Logs	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory

TABLE 6.1 SUMMARY OF FIELD, LABORATORY, AND DATA MANAGEMENT RECORDS (CONT.)

- REPORT	PERSON RESPONSIBLE FOR MAINTENANCE	DISTRIBUTION	STORAGE
Strip Chart Recordings/ Chromatograms/Computer Output	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Analytical Data Reports	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Log-in Sheets	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Maintenance Records	Quality Assurance Manager	Laboratory Project Manager	Instrument Maintenance Logbook at Laboratory
Periodic Calibration Records	Quality Assurance Manager	Laboratory Project Manager	QA Files at Laboratory
Operational Calibration Records	Quality Assurance Manager	Laboratory Project Manager	Job File at Laboratory
Nonconformance Memos	Quality Assurance Manager	Laboratory Project Manager	Maintained in Database File at Laboratory
Corrective Action Request Forms	Quality Assurance Manager	Laboratory Project Manager	Client Correspondence Records at Laboratory
DATA VALIDATION AND AUDIT RECORDS			
Data Validation Reports	Quality Assurance Officer	Quality Assurance Officer	Job File at Primary Contractor's Location
Audit Reports	Quality Assurance Officer	Quality Assurance Officer	Job File at Primary Contractor's Location

TABLE 8.1 SUMMARY OF FIELD QC SAMPLE TYPES AND COLLECTION FREQUENCY

Field QC Sample Type	Sample Type	Collection Frequency
Rinse Blank	Soil	1:20 Samples
Field Duplicates	Soil	1:20 Samples
Extra Volume Sample (collected for MS/MSD)	Soil	1:20 Samples

TABLE 8.2 LABORATORY QUALITY CONTROL SAMPLE FREQUENCY

QC Sample	Frequency
Method/Prep Blank	1 per analytical batch of 1-20 samples, per preparation event
Laboratory Control Sample	1 per analytical batch of 1-20 samples, per preparation event
Surrogate	Spiked into all field and QC samples (Organic Analyses)
Matrix Spike/Matrix Spike Duplicate or Matrix (Laboratory) Duplicate	1 per batch of 1-20 samples

TABLE 8.3 OPERATIONAL CALIBRATION FORMULAS

Application	Formula	Symbols
Linear calibration curves	$C = (R - a_0)/a_1$	C = analytical concentration R = instrument response a_0 = intercept of regression curve (instrument response when concentration is zero) a_1 = slope of regression curve (change in response per change in concentration)
Calibration factors [1]	$CF = A_x / C$	C = concentration (µg/L) CF = calibration factor A_x = peak size of target compound in sample extract
Response factors [2]	$RRF = C_{is} A_x / C_x A_{is}$	C = concentration (µg/L) RF = internal standard response factor C_{is} = concentration of the internal standard (µg/L) A_x = area of the characteristic ion for the target compound A_{is} = area of the characteristic ion for the internal standard

1. Used for quantitation by the external standard technique
2. Used for quantitation by the internal standard technique

Note: For organic analysis, the laboratory will make efforts to use the best curve technique for each analyte. This practice is described in detail in the laboratory calibration criteria documents for GC analysis. This may require the use of a quadratic curve for some compounds.

TABLE 8.4 PERIODIC CALIBRATION REQUIREMENTS

Instrument	Calibration Frequency		Corrective Actions
Analytical Balances	Daily: Annually:	Sensitivity (with a Class S-verified weight) Calibrated by outside vendor against certified Class S weights	Adjust sensitivity Service balance
Thermometers	Annually:	Calibrated against certified NIST thermometers	Tag and remove from service
Automatic Pipettors	Quarterly:	Gravimetric check	Service or replacement

TABLE 8.5 SAMPLE CONCENTRATION CALCULATION FORMULAS

Application	Formula	Symbols
Linear regression calibration curves	$C = (R - a_0)/a_1$	C = analytical concentration R = instrument response a_0 = intercept of regression curve (instrument response when concentration is zero) a_1 = slope of regression curve (change in response per change in concentration)
Calibration factors [1]	$C = A_x V_f / CF\ V_i$	C = concentration (µg/L) CF = calibration factor A_x = peak size of target compound in sample extract V_f = final volume of extracted sample (mL) V_i = initial volume of sample extracted (mL)
Response factors [2]	$C = C_{is}\ A_x V_f / RF\ A_{is}\ V_I$	C = concentration (µg/L) RF = internal standard response factor C_{is} = concentration of the internal standard (µg/L) A_x = area of the characteristic ion for the target compound V_f = final volume of extracted sample (mL) A_{is} = area of the characteristic ion for the internal standard V_i = initial volume of sample extracted (mL)
Residues [3]	$R = (W - T)/V \times 1{,}000{,}000$	R[6] = residue concentration (mg/L) W = weight of dried residue + container (g) T = tare weight of container (g) V = volume of sample used (mL)
Solid samples [4]	$K = C\ V\ D / W\ (\%S/100)$	K = dry-weight concentration (mg/kg) C = analytical concentration (mg/L) V = final volume (mL) of processed sample solution D = dilution factor W = wet weight (g) of as-received sample taken for analysis %S = percent solids of as-received sample

1. Used for quantitation by the external standard technique
2. Used for quantitation by the internal standard technique
3. Used for total, filterable, nonfilterable, and volatile residues as well as gravimetric oil and grease
4. Used to calculate the dry-weight concentration of a solid sample from the analytical concentration of the processed sample.
5. Conversion factor to convert g/mL to mg/L:
   $$\frac{mg}{L} = \frac{g}{mL} \times \frac{10^3 mL}{L} \times \frac{10^3 mg}{g}$$

FIGURES

FIGURE 2.1 ORGANIZATION CHART

FIGURE 4.1 SAMPLE CUSTODY FLOW CHART

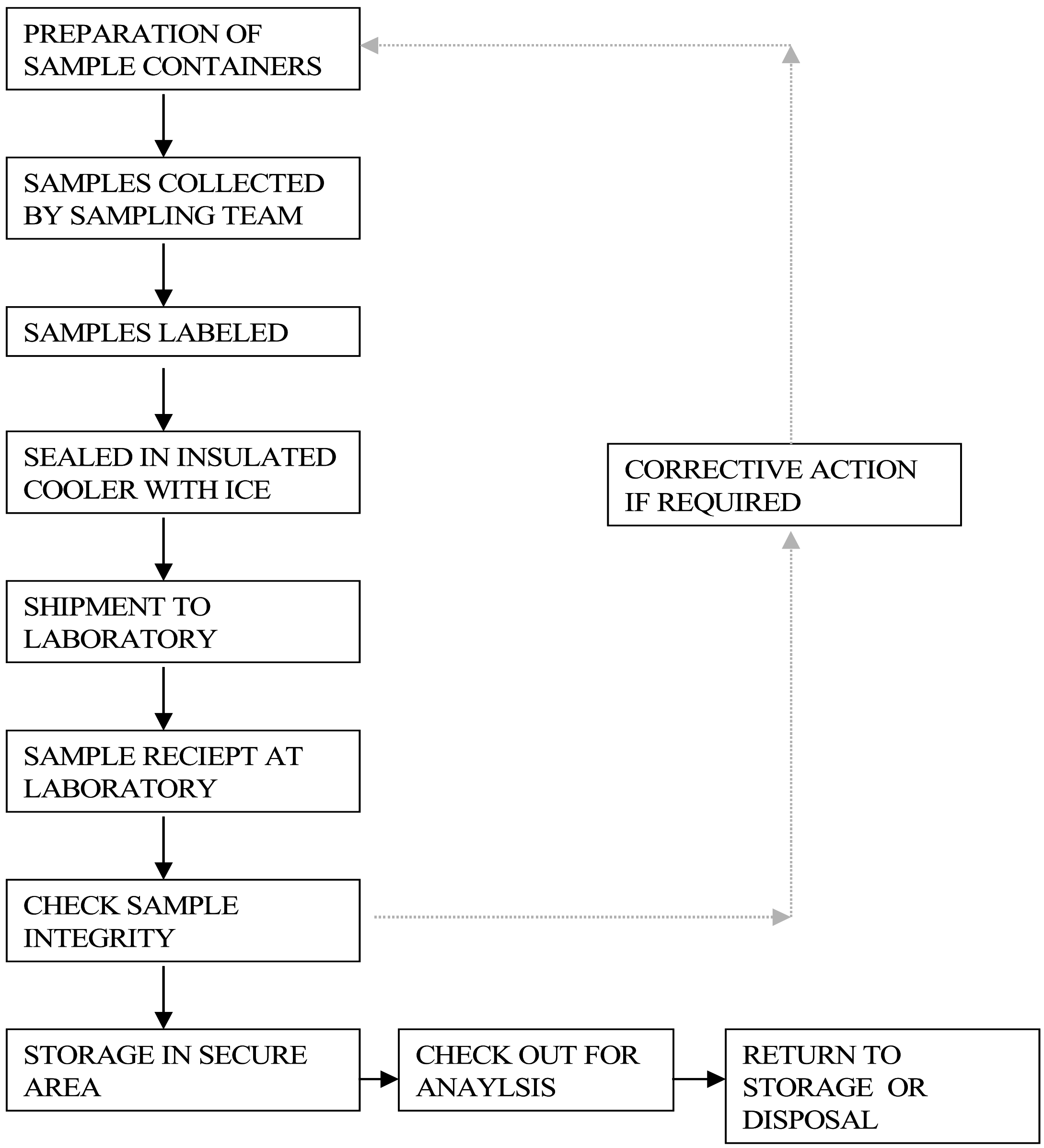

FIGURE 4.2 EXAMPLE CHAIN-OF-CUSTODY RECORD

Submitted to:

Chain Of Custody / Analysis Request

AESI Ref:
COC #:
Lab Use Only
Lab Proj #
Lab ID

Privileged & Confidential
EDD To:
Site Name:
Location of Site:

Client Contact: (name, co., address)
Sampler:
P O #
Analysis Turnaround Time:
Standard - Y
2 weeks -
1 week -
Next Day -

Hardcopy Report To:
Invoice To:

Grab/Composite
Field Filtered Sample ?
Preservative
0 0 2
Job No.
Column Study Sediment

Sample Identification

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Units
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Special Instructions:

Notes:

Relinquished by	Company		Received by	Company	Condition		Custody Seals Intact
	Date/Time			Date/Time	Cooler Temp.		
Relinquished by	Company		Received by	Company	Condition		Custody Seals Intact
	Date/Time			Date/Time	Cooler Temp.		

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):

FIGURE 10.1 CORRECTIVE ACTION REQUEST

CORRECTIVE ACTION REQUEST

Number ______________________ **Date:**____________________

TO: ______________________

You are hereby requested to take corrective actions indicated below and as otherwise determined by you (a) to resolve the noted conditions and (b) to prevent it from recurring. Your written response is to be returned to the Project quality assurance manager by ________________.

Condition:

Reference Documents:

________________ ___________ _____________ ____ ____ ____________

Originator Date Approval Date Approval Date

Response

Cause of Condition:

Corrective Action

(A) Resolution:

(B) Prevention

(B2) Affected Documents

Signature_____________________ Date_________

CA Follow-up

Corrective Action verified by:______________________ Date ________

ATTACHMENT A SUMMARY OF ANALYTICAL DATA PACKAGE (DQO LEVEL IV)

1.0 INTRODUCTION

In order for data to be used for decision-making purposes it is essential that it be of known and documented quality. Verification and validation of data requires that appropriate quality assurance and quality control (QA/QC) procedures be followed, and that adequate documentation be included for all data generated both in the laboratory and in the field.

The QA/QC documentation provided by any laboratory, in conjunction with sample results, allows for evaluation of the following indicators of data quality:

- Integrity and stability of samples;
- Instrument performance during sample analysis;
- Possibility of sample contamination;
- Identification and quantitation of analytes;
- Analytical precision; and
- Analytical accuracy.

General laboratory documentation requirements discussed in this document are formatted into two sections, organic and inorganic analyses. These specifications are intended to establish general, analytical documentation requirements that laboratories should meet when generating data for this project.

2.0 GENERAL DOCUMENTATION REQUIREMENTS

2.1 Data Package Format

Each data package for Level IV data submitted will consist of five sections:

- Case narrative;
- Chain-of-custody (COC) documentation
- Summary of results for environmental samples;
- Summary of QA/QC results; and
- Raw data.

Level II data packages will not contain the raw data.

Data packages will be consistent with, and will supply the data and documentation required for NYSDEC ASP-defined deliverables (i.e. Category B and Category A). Summaries of data and results may be presented in a Contract Laboratory Program (CLP) type format or an equivalent format that supplies the required information as stated below. All laboratory data qualifiers shall be defined in the deliverable.

In cases where the laboratory has varied from established methodologies, they will be required to provide the Standard Operating Procedures (SOPs) for those methods and added as an attachment to the Work Assignment Scoping Documents or as variances to this QAPP. Inclusion of these SOPs will aid in final review of the data by data reviewers and users.

2.2 Case Narrative

The case narrative will be written on laboratory letterhead and the release of data will be authorized by the laboratory manager or their designee. The Case Narrative will consist of the following information:

- Client's sample identification and the corresponding laboratory identification;
- Parameters analyzed for each sample and the methodology used. USEPA method numbers should be cited when applicable;
- Whether the holding times were met or exceeded;
- Detailed description of all analytical and/or sample receipt problems encountered;
- Discussion of reasons for any QA/QC sample result exceedances; and
- Observations regarding any occurrences which may adversely impact sample integrity or data quality.

2.3 Chain-of-Custody

Legible copies of all COC forms for each sample shall be submitted in the data package. Copies of any internal laboratory tracking documents should also be included. It is anticipated that COC forms and/or internal laboratory tracking documents will include the following information:

- Date and time of sampling and shipping;
- Sampler and shipper names and signatures;
- Type of sample (grab or composite);
- Analyses requested;
- Project, site, and sampling station names;
- Date and time of sample receipt;
- Laboratory sample receiver name and signature;
- Observed sample condition at time of receipt;
- Sample and/or cooler temperatures at time of receipt;
- Air bill numbers;
- Custody seal; and
- Sample numbers.

3.0 ORGANIC ANALYSES DOCUMENTATION REQUIREMENTS

These requirements are applicable to organic methods (e.g., VOCs, SVOCs, pesticides).

3.1 Summary of Environmental Sample Results

The following information is to be included in the summary of sample results for each environmental sample.

- Client's sample identifications and corresponding laboratory identifications;
- Sample collection dates;
- Dates and times of sample extraction and/or analysis;
- Weights or volumes of sample used for extraction and/or analysis;
- Identification of instruments used for analysis;
- Gas Chromatography (GC) column and detector specifications;

- Dilution or concentration factor for the sample;
- Percent Difference between columns, if applicable;
- Percent Moisture or Percent Solids for soil samples;
- Method Detection Limits (MDLs) or sample Reporting Limits (RLs);
- Analytical results and associated units;
- Discussion of any manual integrations; and
- Definitions for any laboratory data qualifiers used.

3.2 Summary of QA/QC Sample Results (as applicable)

The following QA/QC sample results shall be presented on QC summary forms. They shall also include the date and time of analysis. Additional summary forms may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

All summary forms should, at a minimum, include in the header:

- Form Title;
- Project Identifier (e.g., Batch QC ID, Site Name, Case Number, Sample Delivery Group);
- Laboratory Name; and
- Sample Matrix.

3.2.1 Instrument Calibration (for each instrument used)

- **GC/MS Tuning**. Report mass listings, ion abundance criteria, and percent relative abundances. List the instrument identification (ID) and the date and time of analysis. Ensure that all ion abundances have been appropriately normalized.
- **Initial Calibration**. Report analyte concentrations of initial calibration standards and the date and time of analysis. List the instrument identification (ID), response factors (RF), relative response factors (RRF), or calibration factors (CF), percent relative standard deviation (%RSD), and retention time (RT) for each analyte. The initial calibration (IC) report must also include a sample identifier (ID), associated injection volume or quantity of sample analyzed, the acceptance criteria, such as minimum RF values, and associated maximum %RSD values.
- **Continuing Calibration**. Report the concentration of the calibration standard used for the continuing calibration and for the mid-level standard, and the date and time of analysis. List the ID, RF, RRF, CF, percent difference (%D), and RT for each analyte.
- **Quantitation Limit** or Project Required Reporting Limit (PRRL) Verification (if applicable). Report results for standards that are used to verify instrument sensitivity. Report the source for the verification standards. Report the concentration for the true value, the concentration found, the percent recovery, and control limits for each analyte analyzed. The date and time of analysis must also be reported.

3.2.2 Method Blank Analysis

List environmental samples and QC analyses associated with each method blank. Report concentrations of any analytes found in method blanks above the instrument detection limit (IDL).

3.2.3 Surrogate Standard Recovery

Report the name and concentration of each surrogate compound added. List percent recoveries of all surrogates in the samples, method blanks, matrix spike/matrix spike duplicates and other QC analyses. Also include acceptance ranges that the laboratory used for the analysis.

3.2.4 Internal Standard Summary

Report internal standard area counts of the associated calibration standard and retention times, include upper and lower acceptance limits. List internal standard area counts and retention times for all samples, method blanks, matrix spike/matrix spike duplicates and other QC analyses. Include the ID and the date and time of analysis.

3.2.5 Compound Confirmation

Report retention times of each compound on both columns as well as retention time windows of the associated standard. In addition, report determined concentrations from each column and percent differences between results. List the ID and the date and time of analysis. A summary should be generated for each sample, including dilutions and reanalyses, blanks, MSs, and MSDs.

3.2.6 Peak Resolution Summary

For primary and secondary columns report retention times of any target compounds and/or surrogates that coelute in the standards (i.e. the Performance Evaluation Mixture for Contract Laboratory Program pesticides). Calculate and report the percent resolution between each pair of compounds which coelute. Include the ID, column ID, and the date and time of analysis.

3.2.7 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

Report the name and concentration of each spiking compound. Samples are to be spiked with specified compounds of potential concern. List sample results, spiked sample results, duplicate spiked sample results, percent recovery (%R) and the relative percent difference (RPD) between the MS and MSD (if applicable). Acceptance criteria that the laboratory used for the analysis must also be presented.

3.2.8 Laboratory Duplicate Analysis

When performed, report the RPD between duplicate analyses, along with the associated acceptance criteria.

3.2.9 Laboratory QC Check Sample Analysis

Also known as the Laboratory Control Sample (LCS) or Matrix Spike Blank (MSB). Report the name and concentration of each spiking compound. List the QC check sample and duplicate (if applicable) results, %R, and RPD, if performed in duplicate. The acceptance criteria that the laboratory used for the analysis must also be presented.

3.2.10 Other QC Criteria

- **Retention time windows determination.** Report the retention time window for each analyte, for both primary and confirmation analyses.
- **Compound identification.** Report retention times and concentrations of each analyte detected in samples.
- **MDL determination.** List most recent MDLs, with dates determined maintained in laboratory file. MDL summary forms may be submitted at start of project and not included in individual data packages.
- **Additional method suggested QC parameters, if required.**
- **Any Performance Evaluation (PE) samples** (if identified) associated with the environmental samples.

3.3 Raw Data

Legible copies of the raw data shall be organized systematically, each page shall be numbered, and a table of contents must be included with each package. Raw data for compound identification and quantitation must be sufficient to verify each result.

3.3.1 Gas Chromatographic (GC) Analyses

This section shall include legible copies of raw data for the following:

- Environmental samples arranged in sequential order by laboratory sample number, include dilutions and reanalyses;
- Instrument calibrations; and
- QC analyses (i.e., method blanks, LCS, etc.).

Raw data for both primary and confirmation analyses are to be included. Raw data for each analysis shall include the following:

- Appropriately scaled chromatograms (label all analyte peaks, internal standards and surrogate standards with chemical names). All chromatograms shall be scaled such that individual peaks can be readily resolved from any neighboring peaks;
- Appropriately scaled before and after manual integrations;
- Area print-outs or quantitation reports;
- Instrument analysis logs for each instrument used;
- Sample extraction and cleanup logs;
- Standards preparation logs and manufacturer certificates of analyses for standards, if applicable, sufficient to document traceability of all standards (including surrogates, internal standards, and spike solutions) maintained in "job file" in laboratory, unless otherwise requested;
- Percent Moisture or Percent Solids for soil samples; and
- GC/MS confirmation, as applicable.

Note: Additional raw data may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

3.3.2 Gas Chromatographic / Mass Spectrometric (GC/MS) Analyses

This section shall include legible copies of raw data for the following:

- Environmental samples arranged in sequential order by laboratory sample number, include dilutions and reanalyses;
- Mass spectrometer tuning and mass calibration (BFB, DFTPP);
- Initial and continuing instrument calibrations; and
- QC analyses (i.e., method blanks, LCS, etc.).

Raw data for each analysis shall include the following:

- Appropriately scaled chromatograms (label all analyte peaks, internal standards and surrogate standards with chemical names). All chromatograms shall be scaled such that individual peaks can be readily resolved from any neighboring peaks;
- Appropriately scaled before and after manual integrations;
- Ion scans and enhanced spectra of target analytes and tentatively identified compounds (TICs), with the associated best-match spectra;
- Area print-outs and quantitation reports;

- Instrument analysis logs for each instrument used;
- Sample extraction and cleanup logs;
- Standards preparation logs and manufacturer certificates of analyses for standards, if applicable, sufficient to document traceability of all standards (including surrogates, internal standards, and spike solutions) maintained in "job file" in laboratory, unless otherwise requested; and
- Moisture Content (Percent Moisture) for sediment samples.

Note: Additional raw data may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

4.0 INORGANIC ANALYSES DOCUMENTATION REQUIREMENTS

4.1 Summary of Environmental Sample Results

The following information is to be included in the summary of sample results for each environmental sample:

- Client's sample identifications and corresponding laboratory identifications;
- Sample collection dates;
- Dates and times of sample digestion and/or analysis;
- Weights or volumes of sample used for digestion and/or analysis;
- Identification of instruments and analytical techniques used for analysis;
- Instrument specifications;
- Dilution or concentration factor for the sample;
- Percent Moisture or Percent Solids for soil samples;
- Detection Limits: MDLs, RLs;
- Analytical results and associated units; and
- Definitions for any laboratory data qualifiers used.

4.2 Summary of QA/QC Results

The following QA/QC sample results shall be presented on QC summary forms. They shall also include the date and time of analysis. Additional summary forms may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

All summary forms shall, at a minimum, include in the header:

- Form Title;
- Project Identifier (e.g., Batch QC ID, Site Name, Case Number, Sample Delivery Group);
- Laboratory Name; and
- Sample Matrix.

4.2.1 Instrument Calibration Verification (if applicable)

The order for reporting of calibration verifications for each analyte must follow the chronological order in which the standards were analyzed.

- **Initial Calibration Verification (ICV).** Report the source for the calibration verification standards. Report the concentration for the true value, the concentration found, the percent recovery, and control limits for each element analyzed. The date and time of analysis must also be reported.
- **Continuing Calibration Verification (CCV).** Report the source for calibration verification standards. Report the concentration for the true value, the concentration found, the percent recovery, and control limits for each element analyzed. The date and time of analysis must also be reported.
- **Quantitation Limit** or PRRL Verification (if applicable). Report results for standards that are used to verify instrument sensitivity. Report the source for the verification standards. Report the concentration for the true value, the concentration found, the percent recovery, and control limits for each element analyzed. The date and time of analysis must also be reported.

4.2.2 Blank Analysis

Report analyte concentrations above the IDLs found in the initial calibration blanks (ICBs), continuing calibration blanks (CCBs), and in method/ preparation blanks. The date and time of analysis must also be reported. The order for reporting ICB and CCB results for each analyte must follow the chronological order in which the blanks were analyzed.

4.2.3 Matrix Spike (MS) Analysis

Report concentrations of the unspiked sample result, the spiked sample result and the concentration of the spiking solution added to the pre-digestion spike for each analyte. Calculate and report the %R and list control limits. If performed in duplicate, provide the %R for the MSD and the RPD.

4.2.4 Post Digestion Spike Analysis (if applicable)

In addition to matrix spikes, post-digestion spikes are often required by the method. Report concentrations of the unspiked sample results, spiked sample results, and the concentration of the spiking solution added. Calculate and report the %R and list control limits.

4.2.5 Laboratory Duplicate Analysis

Report concentrations of original and duplicate sample results. Calculate and report the RPD and list control limits.

4.2.6 Laboratory Control Sample

Identify the source for the LCS. Report the found concentration of the laboratory control sample and the true concentration for all analytes. Calculate and report the %R and list control limits.

4.2.7 Other QC Criteria (if applicable)

- **Method of Standard Additions (MSA).** This summary must be included if MSA analyses are performed. Report absorbance values with corresponding concentration values. Report the final analyte concentration and list the associated correlation coefficient and control limits.
- **ICP-AES Serial Dilution.** Report initial and serial dilution results, associated %D, and control limits.
- **ICP-AES Linear Dynamic Ranges.** For each instrument and wavelength used, report the date on which linear ranges were established, the integration time, and the upper limit concentration.

- **MDL Determination**. List most recent MDLs as determined using the September 2017 promulgation of the 40CFR136, with dates determined maintained in laboratory file. MDL summary forms may be submitted at start of project and not included in individual data packages.
- **Any Performance Evaluation (PE) Samples** (if identified) associated with the environmental samples.

4.3 Raw Data

Legible copies of the raw data shall be organized systematically, each page shall be numbered, and a table of contents must be included with each package. Data should be organized sequentially by method and analysis date. Raw data for compound identification and quantitation must be sufficient to verify each result.

4.3.1 Atomic Absorption (AA) and Atomic Emission (AE) Spectrometric Analyses

This section shall include legible copies of raw data for the following:

- Environmental sample results, include dilutions and reanalyses;
- Instrument calibrations; and
- QC analyses (i.e., method blanks, LCS, etc.).
- Measurement print-outs for all instruments used or copies of logbook pages for analyses that do not provide instrument print-outs;
- Absorbance units, emission intensities, or other measurements for all analyses;
- Sample preparation and digestion logs that include reagents used, standards referenced to standards preparation logs, volumes of reagents, digestion times, etc.;
- Instrument analysis logs for each instrument used or summary of sample analyses;
- Standards preparation logs and manufacturer certificates of analyses for standards, if applicable, sufficient to document traceability of all standards (including spike solutions) maintained in "job file" in laboratory, unless otherwise requested;
- Wavelengths used for the analyses; and
- Percent Moisture or Percent Solids for soil samples.

Note: Additional raw data may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

4.3.2 Titrimetric and Colorimetric Analyses

This section shall include legible copies of raw data for the following:

- Environmental sample results, include dilutions and reanalyses;
- Calibrations; and
- QC analyses (i.e., method blanks, LCS, etc.).

Raw data for each analysis shall include the following:

- Copies of logbook pages for analyses that do not provide instrument print-outs and calculations used to derive reported sample concentrations;
- Titrant volumes, titration end-points, absorbance units, or other measurements for all analyses;
- Sample preparation and digestion logs that include reagents used, standards referenced to standards preparation logs, volumes of reagents, digestion times, sample volumes, solution normalities, etc.;
- Standards preparation logs and manufacturer certificates of analyses for standards, if applicable, sufficient to document traceability of all standards (including spike solutions) maintained in "job file" in laboratory, unless otherwise requested; and
- Wavelengths used for the analyses.

Note: Additional raw data may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

4.3.3 Gravimetric Analyses

This section shall include legible copies of raw data for the following:

- Environmental sample results, include dilutions and reanalyses;
- Calibrations; and
- QC analyses (i.e., method blanks, LCS, etc.).

Raw data for each analysis shall include the following:

- Copies of logbook pages for analyses that do not provide instrument print-outs and calculations used to derive reported sample concentrations;
- Weights, sample volumes, or other measurements for all analyses;
- Sample preparation and digestion logs that include reagents used, standards referenced to standards preparation logs, volumes of reagents, drying times, drying temperatures, etc.; and
- Standards preparation logs and manufacturer certificates of analyses for standards, if applicable, sufficient to document traceability of all standards maintained in "job file" in laboratory, unless otherwise requested.

Note: Additional raw data may be required for some methods. Therefore, when reporting data, laboratories should defer to specific method requirements.

SUMMARY OF REQUIRED LABORATORY DELIVERABLES FOR
LEVEL IV DQO DATA PACKAGE (REQUIREMENTS WILL VARY BY METHOD)

Method Requirements	Laboratory Deliverables
Requirements for all methods:	
Parsons project identification number	Case narrative
Discussion of unusual circumstances or problems	Case narrative
Analytical method description and reference citation	Case narrative
Field sample identification	Signed COC forms and sample results form
Laboratory assigned sample number	Signed COC forms and sample results form
Sample matrix description	Signed COC forms and sample results form
Date of sample collection	Signed COC forms and sample results form
Date of sample receipt at laboratory	Signed COC forms
Analytical method description and reference citation	Signed COC forms and case narrative
Sample analysis results	USEPA CLP form or equivalent sample analysis results summary form (e.g., ASP Form I-VOA)
Dates of sample preparation and analysis (including first run and any subsequent runs)	Specific deliverable depends on type of analysis
Laboratory analytical QC batch info and sample analysis associations	Specific deliverable depends on type of analysis
Instrument analysis sequence log	Specific deliverable depends on type of analysis
Analytical holding times compliance	USEPA CLP form or equivalent holding time summary form
Method detection limit (MDL) determination	USEPA CLP form or equivalent MDL summary form
Method reporting limits (RLs) achieved	Specific deliverable depends on type of analysis (see below)
Dilution or concentration factors	Specific deliverable depends on type of analysis
Discussion of unusual circumstances or problems	Case narrative
Laboratory Control Sample (LCS) results	USEPA CLP form or equivalent LCS results summary form
“Raw” analytical data sufficient to recreate and check analysis results for all calibrations, QC sample results, and sample results	Sequentially numbered pages with tabulated index

REQUIRED LABORATORY DELIVERABLES (Continued)

Method Requirements	Laboratory Deliverables
Matrix spike / matrix spike duplicate	USEPA CLP form or equivalent MS/MSD summary form (e.g., NYSDEC ASP Form III-SV
Method blank analysis	USEPA CLP form or equivalent method blank summary form (e.g., NYSDEC ASP Form IV-SV)
GC/MS instrument performance check. Tuning and mass calibration (abundance) using 4-bromofluorobenzene (BFB) for method SW8260B and decafluoro-triphenyphosphine (DFTPP) for method SW8270C	USEPA CLP form or equivalent instrument tuning/performance check summary form
Internal Standard Area Counts and Retention Time, as applicable	USEPA CLP form or equivalent internal standard summary form (e.g., NYSDEC ASP Form VIII-SV)
GC/MS initial calibration data	USEPA CLP form or equivalent initial calibration summary form (e.g., NYSDEC ASP Form VI-SV)
GC/MS continuing calibration data.	USEPA CLP form or equivalent continuing calibration summary form (e.g., NYSDEC ASP Form VII-SV)
GC/MS calibration verification (initial and continuing)/2nd source calibration verification (ICV/CCV)	USEPA CLP form or equivalent calibration verification summary form
GC continuing calibration data for volatile and semivolatile analyses. If calibration factors are used, calibration factors and their percent differences from the initial calibration must be reported. Retention time windows and analyte retention times must be included in this form	USEPA CLP form or equivalent calibration verification summary form
GC/MS internal standard area and retention time summary data	USEPA CLP form or equivalent internal standard summary form
GC second column confirmation, as applicable. To be done for all compounds that are detected above method detection limits	Chromatograms of all confirmations of all samples and the standard laboratory form for all positive results
Surrogate Compound percent recovery summary	USEPA form or equipment percent recovery summary form (e.g., NYSDEC ASP Form II-SV)
“Raw” analytical data sufficient to recreate and check analysis results for all calibrations, QC sample results, and sample results	Sequentially numbered pages with tabulated index
Requirements for inorganic analytical methods:	
Initial and Continuing Calibration Verification	USEPA CLP form or equivalent calibration verification summary form(s) (e.g., NYSDEC ASP Form II-IN)

REQUIRED LABORATORY DELIVERABLES (Continued)

Method Requirements	Laboratory Deliverables
ICP Interference Check Sample (ICS), as applicable	USEPA CLP form or equivalent ICS standard summary form (e.g., NYSDEC ASP Form IV-IN)
ICP Interelement Correction Factors, as applicable	USEPA CLP form or equivalent internal standard summary form (e.g., NYSDEC ASP Form XII-IN
IDL or MDL determination	USEPA CLP form or equivalent IDL or MDL summary form(s)
Post-digestion spike, as applicable	USEPA CLP form or equivalent post-digestion spike summary form(s) (e.g., NYSDEC ASP Form V-IN)
ICP linear range	USEPA CLP form or equivalent linear range summary form(s) (e.g., NYSDEC ASP Form XII-IN)
ICP serial dilution, as applicable	USEPA CLP form or equivalent serial dilution summary form(s) (e.g., NYSDEC ASP Form IX-IN)
Method of standard addition (MSA), as applicable	USEPA CLP form or equivalent MSA summary form(s)
Laboratory duplicate results, as applicable	USEPA CLP form or equivalent duplicate analysis summary form(s) (e.g., NYSDEC ASP Form VI-IN)
Requirements for other methods:	
Preparation and analysis logs	No format
Sample results	No format
MS/MSD results	No format
Lab duplicate sample results	No format
Laboratory control sample	Control limits
Method blank results	No format
Initial calibration results	No format
Continuing calibration check (calibration verification)	No format. Report percent relative standard deviation or percent difference from initial calibration

APPENDIX D PARSONS SUBSURFACE SOIL DISTURBANCE PROTOCOL

PARSONS ENVIRONMENT & INFRASTRUCTURE GROUP
MANDATORY SUBSURFACE SOIL DISTURBANCE PROTOCOL

1. INTRODUCTION

Intrusive investigation or excavation of the subsurface in areas developed for commercial, industrial or residential use exposes Parsons to the risk of causing damage to underground utilities and structures on a daily basis.

The potential consequences of causing damage to an underground utility or structure include, but are not limited to the following:

- Injury or loss of life
- Financial responsibility for repair, lost time, and/or loss of service
- Loss of client
- Federal investigation of job site work practices
- Litigation (third party lawsuits)

The mandatory protocol and checklists provided herein are intended as tools to aid in the management of risk, and ensure that a responsible standard is consistently applied at project sites where intrusion of the subsurface will occur.

2. PURPOSE

The purpose of this mandatory protocol is the prevention of potential injury and/or loss of life; and damage to subsurface utilities and structures. Parsons' staff will identify and evaluate the hazards associated with underground utilities and other structures prior to conducting any intrusive subsurface operation including but not limited to drilling/boring, test pitting, excavation and other subsurface intrusive activities.

3. SCOPE

Parsons' staff will employ sound investigative and work practices, and will use appropriate measures to avoid damage to subsurface utilities and structures. Furthermore, Parsons requires that these procedures be implemented by all of Parsons' employees and subcontractors, as appropriate. Subcontractors will have a copy of the procedures set forth in Section 6 of this document as an appendix to their contracts.

4. POLICY

Parsons' policy requires that the project manager follow all local, state, and federal laws applying to intrusive subsurface work (i.e. obtain permits, inform agencies, obtain utility clearances, etc). The project manager shall review, as available, all current and historical site drawings and plans from the client, facility owner or tenant, utility providers, municipal government offices (i.e. city engineer or building department) and third parties as appropriate.

The Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork **(Attachment A)** shall be completed prior to initiating fieldwork. Note: *The checklist includes a site visit as a requisite to meet with knowledgeable staff as appropriate (current or former site/owner personnel, utility representatives, municipal representatives, etc.), and review site conditions and features relative to the proposed locations for intrusive work. The checklist should be turned in to the Parsons Project Manager and a copy placed in the project file.*

The procedure described under Section 6 of this document is mandatory at all sites where any intrusive subsurface activities will take place, including but not limited to drilling, augering, boring, excavating, test pitting, trenching or direct push (Geoprobe) technology.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval from the appropriate Parsons' Program Manager or Sector Leader and the completion of the Utility Clearance Variance Request Form (Attachment B). GBU, Division or Project Safety personnel should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action. Copies of all variances will be maintained in the project files.

The Project Manager is encouraged to find locations that are acceptable to the project team to perform intrusive subsurface work that are not within right-of-ways, streets, highways, or near municipal or third party-owned utility corridors. When it is necessary to conduct work within these areas, the Project Manager should obtain approval from either the Program Manager or Sector Leader and submit the existing work plan to the GBU or Division Safety Manager for review.

5. RESPONSIBILITY

It is the responsibility of the Project Manager to ensure that the Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork and Utility Clearance Variance Request form are followed. If a variance is sought, it is the responsibility of the Project manager to gain written approval of the appropriate Parsons' Program Manager or Sector Leader.

6. PROCEDURE: SUBSURFACE SOIL DISTURBANCE PROTOCOL

The Parsons' Project Manager will be responsible for fulfilling the objectives of this protocol by ensuring that the procedures are carried out by Parsons' employees, subcontractors, and any other person acting on behalf of Parsons. The Parsons' Project Manager will ensure that all individuals working on drilling and other subsurface exploration projects are adequately trained and supervised. Parsons will practice sound investigation and work practices and employ all necessary measures to avoid damage to subsurface systems and structures. The Parsons' Program Manager or Sector Leader will be contacted and advised in advance of beginning field work in the event that a variance to this protocol is requested by the Parsons' Project Manager or designee. The following tasks/subtasks will be completed at every site and documented on the checklist.

6.1 PRE-INVESTIGATION TASKS

The objective of these tasks is to gather all relevant information about the site to assist in identifying exploration locations and obtaining necessary permits. Please note that in some instances the following information will be obtained or gathered by a subcontractor, which meets this objective.

6.1.1 Obtain Site Plans

Obtain as-built drawings and/or existing site plans as available. NOTE: As-built drawings may not accurately depict the locations of improvements and subsurface features and should therefore not be solely relied upon to determine acceptable locations for intrusive subsurface activities.

6.1.2 Obtain Permits

The project staff will observe all local, state, and federal laws, obtain all necessary permits and utility clearances, and secure site access permission. NOTE: Some permits/clearances require this step to be completed after the exploration locations have been identified and marked in the field. If this is required, proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.1.3 Utility Mark-outs

Parsons' project staff will request a utility mark-out through the local utility locating one-call system for the work site, and document a reasonable degree of effort to locate all main electrical, gas, telephone and all other subsurface utilities. The Parsons' Project Manager must be notified of the status of locating underground utilities before field work progresses. If locating utilities becomes problematic, the Parsons' Project Manager should update the client and discuss potential alternative methods for locating or reducing risk of damage to underground utilities/structures for consideration (i.e. subcontract a private locating service, re-evaluate risk/reward of specific locations or utilize intrusive non-destructive methods as described in Section 6.5.6). Site plans will be updated as appropriate to include utility mark-out information. On third party sites, close coordination with the site owner's representatives for mark-outs, review of as-builts, and other information reviews should be conducted prior to work. NOTE: Some utilities require the exploration locations to be identified and marked in the field prior to performing mark-outs. If this is required proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.2 SITE VISIT

A site visit is required to compare the site plan to actual conditions, document all findings, and update the site plan. Parsons will obtain information needed to prepare a vicinity map of the area that may include significant neighboring addresses, land use, surface water bodies, and other natural as well as manmade features of note, as appropriate. The site visit should be scheduled concurrent with, or soon after the utility mark-out. The inspection should include the following activities at a minimum.

6.2.1 Utilities

Note the location of all utility mark-outs and aboveground utilities:

- Area lights
- Phones
- Drain lines
- Overhead lines
- Fire hydrants
- Fiber optic cable signage
- Catch basins
- Manholes
- Junction boxes
- Natural gas
- Other utilities
- Observe paving scars such as areas of new pavement or saw cuts

6.2.2 Plant/Property Systems

If possible, speak with someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.). For UST systems:

- Inspect for the presence of a dispenser pan and, if possible, determine whether product piping is rigid or flexible.
- Visually inspect the location of the tank field, observation wells (if present), dispensers and vent stack(s).

- Note the orientation, arrangement, location, sizes, etc. of the tanks and manholes. Estimate the burial depth of the tank field.
- Observe paving scars (i.e. fresh asphalt/concrete patches, scored asphalt/concrete). Note that this may not indicate location of product piping.

6.2.3 Existing Remediation Systems

Visually inspect the location of aboveground components. Note the locations of well manholes, sparge points, etc.

6.2.4 Safety

For UST systems, note the location of the emergency shut off switch and become familiar with its use.

6.3 SELECTION OF DRILLING/TEST PIT LOCATIONS

6.3.1 Critical Zones

Establish pre-drilling critical zones appropriate to the project site. These are zones where no drilling (if possible and if client concurs) will be conducted. As an example, the following critical zones could be applied at a UST site:

- 10ft (3m) distance from the furthest edge of any operating tank
- 10ft (3m) distance surrounding operating dispenser islands
- At active service station sites, the entire area between the tank field and the dispenser islands.
- The zone between 0 and 5-feet of utility markings

6.3.2 Select Drilling Locations

The information collected to this point will be utilized in combination with regulatory requirements and investigation objectives to select drilling locations. It is recommended that alternate drilling locations be selected in case additional explorations are required or obstructions are encountered. The effort to investigate a specific proposed drilling location should be to clear a minimum five-foot radius circle around the location.

6.3.3 Review Selected Locations with the Client

At a minimum, offer to review the selected and alternate drilling locations with the client's project manager or designated representative. When completing Geoprobe^{tm} (or similar) investigations in which some boring locations are not selected in advance, but partially determined in the field based on field screening results, the client should approve the areas in which work will be performed. Do not proceed with the investigation until the plan has been discussed with the client, and approval to proceed has been granted. If relocation of a boring outside approved limits is necessary at any time and for any reason, contact the client prior to proceeding. CLIENT APPROVAL MUST BE DOCUMENTED. Verbal approval is acceptable if followed with written approval. Documentation may include a notation in the field book, email or written correspondence.

6.4. REQUIRED NOTIFICATIONS

Affected parties must be notified at least 48-hours (longer if possible) in advance of planned intrusive fieldwork. An exception would be in the event of an emergency response situation. Parsons' staff will avoid scheduling conflicts with facility activities at the site. The Parsons' Project Manager or designee will notify the following persons as applicable:

- The oversight regulatory agency (includes local fire, police and municipal contacts as appropriate).
- Property owner for private properties. This should include neighboring third party property owners if a potential exists for causing inconvenience as a result of the scheduled fieldwork.
- Client specific notifications as appropriate (i.e. facility maintenance, retail and/or real estate managers as appropriate)

6.5. ON-SITE SUBSURFACE ACTIVITIES

6.5.1 Safety

A Project Safety, Health and Environmental Plan (PSHEP) must be available on site at all times and all Parsons' staff, contractors and subcontractors must be familiar with it. Parsons' employees are to acknowledge their review of the PSHEP by signing the signature form contained within the PSHEP. The Parsons' field team leader is tasked with conducting a tailgate meeting at the start of each day to review project specific health and safety items with staff and subcontractors. Subcontractors, however, are responsible for their own health and safety. All work areas shall be secured with safety cones, safety tape, construction fence, barricades, or signs as appropriate.

A copy of this entire subsurface activity protocol and completed checklist must be appended to the health and safety plan.

6.5.2 Supervision

A Parsons' on-site representative will be responsible for overseeing subsurface activities. This representative will ensure that the work is performed with due caution and will be alert for warning signs that could indicate the presence of underground tanks, lines, or other subsurface structures.

6.5.3 Warning Signs

The following warning signs may indicate the presence of a subsurface structure such as tanks or lines:

- Pea Gravel/Sand/Non-indigenous Material.
- The absence of soil recovery in the hand auger. This could indicate pea gravel that has spilled out of the auger.
- Any unexpected departure from the native soil or groundwater conditions as established in other on-site digging.
- Obstructions encountered

If any of the above warning signs or a suspicious condition is encountered, intrusive subsurface activities in this area should immediately cease and the Parsons' Project Manager shall be contacted.

6.5.4 Drill Boring Sequence

If possible, the boring sequence should be planned such that the boring furthest from any suspected underground improvements is carried out first. This is done to determine the natural subsurface conditions and to allow the field geologist/scientist to recognize native versus fill conditions. Also, least impacted locations should be done first if possible to prevent possible cross contamination.

6.5.5 Surface Removal for Paved Areas

Sufficient paving or surface improvement should be removed to allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools. Drilling in an area of high risk may warrant a larger pavement opening.

- Monitoring Well Installations: 2-ft x 2-ft (60cm x 60cm) minimum removal is suggested (assumes for example: 6.25-inch hollow stem auger (HSA) or smaller).
- Soil Borings: 8-inch (20cm) diameter minimum removal is suggested (assumes for example: 3.25-inch HAS or smaller).
- Direct Push Samplers: 4 to 6 inch (10 to 15 cm) diameter minimum removal is suggested (assumes for example: 2-inch diameter sample tube).

The technique used should not pose a threat to subsurface structures. Final completion for holes in pavement shall be neatly saw-cut or cored unless otherwise directed by the client.

6.5.6 Clearing the Subsurface for Utilities and Other Structures

Parsons' staff must ensure that no subsurface utilities, structures, or improvements exist where intrusive subsurface activities will occur. Locations will be cleared using results of historical data research and with geophysical methods (see below for details) at a zone 5 feet in radius around the proposed location. Staff (or personnel supervised by Parsons) will also utilize intrusive, non-destructive procedures such as hand digging to a depth of 5 feet and a diameter or width equivalent to the outside dimensions of the auger to investigate the boring location.

The method used to delineate the subsurface should be compatible with the inherent risk associated with the type of facility/property and the location of the drilling. Proactive investigative methods to clear specific drilling locations will include the following non-invasive and invasive non-destructive methods:

Non-Invasive Geophysical Remote Sensing: Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work. Survey an area around the location to a distance of 5 feet using geophysical methods to identify potential subsurface utilities or facilities. Move the borehole location, if necessary, within the cleared circle to avoid an object identified by the geophysical instrument. Examples of geophysical methods are provided below:

- Electromagnetic and radio frequency;
- Ferrous metal or magnetic locators;
- Ground probing radar (GPR).

Important note: A combination of two or more non-invasive instruments may be required to properly clear a subsurface area. For example, a ferrous metal detector may not detect metals pipes embedded in concrete duct banks, PVC pipes, FRP pipes, or other non-ferrous materials.

Intrusive Non-Destructive Procedures: Delineate the subsurface at the borehole location by probing or digging. Several acceptable methods are discussed below. In some cases, these intrusive procedures may not be practical due to the subsurface conditions or requirements of the explorations.

- Vacuum/Air Knife Digging: Vacuum digging has proven to be a very effective and safe means of digging and is recommended instead of probing and digging with hand tools.
- Probing: The probe should have a blunt or rounded tip and should be advanced by hand in a triangular pattern around the bore location without excessive force.
- Hand Digging: Should be performed with a small hand garden spade.

- Hand Augering: The auger is to be turned slowly and not forced through the soil. It is recommended that an auger without sharp points (some augers have rounded edges) be used.

- Post Hole Digging: Can be used for soil removal only in soil that has been probed and cannot be used to advance the hole beyond the depth or width of probing.

The area to be cleared for underground utilities or structures for augering shall exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and sufficiently large to allow for visual inspection of any obstructions encountered. The first 1 - 2ft (0.3 - 0.6m) can be cleared by hand digging to remove the soil. Slowly and carefully probe (i.e. triangular pattern), vacuum, or hand auger throughout the area to be cleared to ensure that no obstructions exist anywhere near the potential path of the drill auger or push type sampler. The soil in the area to be cleared shall be fully removed during this step. If probing is utilized, then alternate probing with soil removal as necessary, until the first 5-ft (1.5m) has been delineated.

6.5.7 Refusal

Where natural subsurface conditions (e.g. cobbles/rocks, fill material, and/or bedrock) may prevent adequate probing and augering, a practical and sensible evaluation by the Parsons' Project Manager will be the basis for determining if continuation of probing and augering is feasible. In all cases Parsons must employ all means necessary to prevent damaging subsurface utilities, product lines, tanks, or other structures. **When conventional means of probing and augering cannot be utilized, the Parsons' field representative believes that additional probing/augering is not feasible, or if the probing/augering poses additional hazard to personnel because of the physical demands of performing the task, work in that specific area will cease**. The Parsons' Project Manager will contact the client's project manager or designee to discuss alternatives. If Parsons' staff suspects, based on past information or boring logs, that hand augering is infeasible, then alternatives such as vacuum clearing or non-invasive procedures should be evaluated in advance.

6.5.8 Event Notification

If any portion of a tank, pipe, utility or other subsurface structure is encountered, or if there is any doubt it has been encountered, the work is to cease in that area and the Parsons' Project Manager notified immediately. If there is reason to believe that the structure has been damaged, if applicable, the emergency shut-off switch should be activated (if applicable) and the appropriate municipality and client notified immediately. The Parsons' Project Manager and/or client will decide if additional uncovering by hand is required. If it is confirmed that a UST system has been encountered, a tightness test(s) should be considered. Under no circumstances is the area to be backfilled without notifying the Parsons' Project Manager, unless risk of personal injury or damage warrants a temporary backfilling.

In case of refusal or if an unknown subsurface object is encountered during intrusive subsurface activities, then the following specified resolution process must take place.

- Additional and deliberately careful excavation by hand will be conducted in an attempt to define the cause of refusal or identify the subsurface object.

    a. If the cause CAN be readily and correctly defined as not destructive or hazardous, the field task manager should call the PM to discuss the situation.

    b. If the cause CAN be readily and correctly defined as potentially destructive or hazardous, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

    c. If the cause CANNOT be readily and correctly defined, the field task manager should call the PM to discuss the situation. The specific location must be re-evaluated.

- In case “a,” drilling may proceed ONLY after consultation with the PM.

- In cases “b” and “c,” drilling MUST STOP so that location re-evaluation can take place. The client, the utility owner (if applicable) and if required, the appropriate regulatory agency, must be advised of the situation and consulted to determine if (1) the location is necessary, which may require additional effort to clear a new location, or (2) the location is not necessary, and can be deleted from the program.

6.5.9 Scheduling

Since clearing locations for augering, drilling, excavation and similar intrusive field work can be time consuming, it may be appropriate to perform the surface removal subsurface delineation prior to the arrival of subcontractors and their equipment on site. If these activities are conducted prior to the actual day of intrusive field work, then the cleared locations must be adequately covered with plates and/or backfilled, or barricaded to protect pedestrians and other surface traffic. Care must be taken to prevent settlement of the material used to cover the holes.

ATTACHMENT A

PRE-DRILLING/SUBSURFACE CHECKLIST
FOR INTRUSIVE FIELD WORK

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

Site Name: ______________________________ **Job Number:** ______________
Site Phone Number: ______________________________
Site Address: ______________________________ **County:** ______________
Client Proj. Mgr.: ______________________________ **Phone:** ______________
Site Manager Contacted Date: ______________________ **By:** ______________
Site Drawings (yes / no / NA) ________ (please attach) **Historical Drawings (yes / no / NA)** ________
Third Party Construction/Redevelopment Plans (Yes/No/NA)

***ATTACH SITE FIGURE WITH PROPOSED BORING LOCATIONS

Subcontractor's (drillers, concrete, etc…) Company ______________________________
Subcontractor's Contact Person ______________________________ Phone ______________
Meeting / Start Date ______________________________ Time ______________

1) **Health and Safety Signoff Form Completed? (Yes/No)** Date ______________

2) **Utility Protection Services (Minimum 48 Hrs. Advance Notice, State Specific Notification Period Supercedes)**
Called: Date __________ Time ______________________ Initials ____________
Reference # ______________________________
Proposed Drilling Locations Premarked for Locating Service. Y / N

3) **Private or In-House Utility Locating Service Performed?** Y / N ________
Called: Date __________ Time ______________________ Initials ____________
Name of Locating Service: ______________________________
Telephone #/ contact: ______________________________
Name of Supplier Locating Technician: ______________________________
Type of sensing equipment used: ______________________________
Proposed Drilling Locations Premarked Y / N

4) **Other Potential Underground Structures**
Name of City Engineer/Utility Representative: ______________________________
Telephone #: ______________________________
Date Notified ______________________________ Maps: Y / N
Cleared: Y / N

5) **COMPLETED SITE WALKOVER W/ SITE MANAGER/DESIGNEE OR OWNER/TENANT REP.** Y / N
Name of Site Manager: ______________________________
Name of Property Owner/Tenant Representative:______________________
Cleared: Yes / No
Building Utility Service Line Connections Identified: Y / N
(Hand sketch on site map w/proposed boring locations and most likely utility trench locations)

6) **Utility Inventory:** Y / N

Utility	Name	Depth (ft) (If Available)	Phone	Notified - Date		Marked
Above Ground Services						
Electric		NA		Y / N		Y / N
Telephone		NA		Y / N		Y / N
Cable		NA		Y / N		Y / N
Overhead Supports		NA		Y / N		Y / N
Traffic light cables		NA		Y / N		Y / N

PREDRILLING/SUBSURFACE CHECKLIST FOR INTRUSIVE FIELDWORK

6) **Utility Inventory Continued:**

Below Ground Services:

Electric				Y / N		Y / N
Telephone				Y / N		Y / N
Cable				Y / N		Y / N
Gas				Y / N		Y / N
Water				Y / N		Y / N
UST System				Y / N		Y / N
Storm				Y / N		Y / N
Sanitary				Y / N		Y / N
Steam				Y / N		Y / N
Pipeline Companies				Y / N		Y / N

Other:

				Y / N		Y / N
				Y / N		Y / N
				Y / N		Y / N

7) **Site-Specific Emergency Contingency Plan Incorporated in Health & Safety Plan** Y / N

8) **Drilling Locations Approved by Client Project Manager Named Above?** Y / N

9) **Signature of Parsons' Project Mgr. (required to begin fieldwork):**

Name of Project Manager	**Signature of Project Manager**
Name of Parsons Field Personnel	**Signature of Field Personnel**

(This document to be included with the site H&S Plan and should be available upon request.)

ADDITIONAL COMMENTS / NOTES:

ATTACHMENT B
UTILITY CLEARANCE VARIANCE REQUEST FORM

PARSONS

UTILITY CLEARANCE VARIANCE REQUEST

To: Enter Parsons Manager (Program, Sector or Operations)

From:

Client Company Name:

Site/Project Name:

Date of Request:

Work Start Date:

The purpose of this document is to request a variance from one or more of the PE&I Mandatory Subsurface Soil Disturbance Protocol requirements. The purpose of the mandatory protocol is to prevent potential injury and/or loss of life; and damage to subsurface utilities and structures during any soil disturbance. Any waiver of these requirements should be carefully evaluated.

Variance from the Subsurface Soil Disturbance Protocol is allowed only with the written approval of the appropriate Parsons' Program/Sector/Operations Manager. GBU/Divisional/Program safety resources should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action.

Brief Project Description

Insert a brief background and description of the intrusive activities, which are the reason(s) for requesting a variance.

Utility Clearance Requirements

Step No.	Requirement	Step Completed[1]
Prep-1	Obtain as-built drawings and/or existing site plans if available and review for on-site utilities.	☐ Yes ☐ No

[1]Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

Step No.	Requirement	Step Completed[1]
Prep-2	Utility mark-out requested through the nationwide utility locating one-call system (www.call811.com) for the work site.	☐ Yes ☐ No
Prep-3	Review the Subsurface Soil Disturbance protocol with all PE&I technical staff that will potentially be involved in projects that include subsurface investigation.	☐ Yes ☐ No
Pre Mob-1	Notify affected parties at least 48-hours (longer if possible) in advance of planned intrusive fieldwork.	☐ Yes ☐ No
Pre Mob-2	Prepare a Project Safety, Health and Environmental Plan (PSHEP) that includes a copy of the Subsurface Soil Disturbance protocol.	☐ Yes ☐ No
Pre Mob-3	Select a competent Parsons' on-site representative to oversee all surface removal, hand augering/digging, drilling, and test pitting.	☐ Yes ☐ No
Site [2] Visit-1	Perform a site visit and identify indications of underground utilities. Indications could include [3]: ➢ Area lights ➢ Phones ➢ Drain lines ➢ Overhead lines ➢ Fire hydrants ➢ Fiber optic cable signage ➢ Catch basins ➢ Manholes ➢ Junction boxes ➢ Natural gas	☐ Yes ☐ No

[1] Any "No" response must include the rationale for not completing the step at the end of the Variance Request form.

[2] Site visit activities must be included with mobilization activities if a Site visit is not performed prior to mobilization for the field work.

[3] Note that list is not all inclusive.

Step No.	Requirement	Step Completed[1]
	➢ Observe paving scars such as areas of new pavement or saw cuts	
Site Visit-2	Prepare a vicinity map of the proposed work area to include significant features and utilities. The site visit should be scheduled concurrent with, or soon after the utility mark-out.	☐ Yes ☐ No
Site Visit-3	Interview someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.).	☐ Yes ☐ No
Site Visit-4	Establish pre-drilling critical zones appropriate to the project site	☐ Yes ☐ No
Site Visit-4	Review Selected Locations with the Client	☐ Yes ☐ No
Field Work-1	Review site utility maps against each proposed work activity. Check for legibility, accuracy, and scale while walking areas of concern. Evaluate the work area for any items in Site Visit-1 that may have been missed.	☐ Yes ☐ No
Field Work-2	Obtain all necessary permits and utility from the facility.	☐ Yes ☐ No
Field Work-3	Remove any surface paving or surface cover allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools.	☐ Yes ☐ No
Field Work-4	Non-Invasive Clearing: Clear a minimum of a five foot radius for each proposed intrusive activity. Locations will be cleared using results of historical data research and with geophysical methods. Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work.	☐ Yes ☐ No
Field Work-5	Invasive Clearing: Delineate the subsurface at the borehole location by probing or digging. Dimensions of the intrusive method must exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and	☐ Yes ☐ No

Step No.	Requirement	Step Completed[1]
	sufficiently large to allow for visual inspection of any obstructions encountered. Approved methods could include the following: ➢ Vacuum Extraction (Air Knifing, SoftDig®) ➢ Probing ➢ Hand Digging ➢ Hand Augering ➢ Post Hole Digging	

Rationale

Below, identify the step or steps the variance is being requested for and an explanation of why the waiver is necessary and/or justified.

Step No.	Rationale for Variance Request

Approvals

	Name	**Date**
Parsons Manager (Program, Sector, or Operations)		

APPENDIX E NYSDEC CORNING AREA GLASS SAMPLING STANDARD OPERATING PROCEDURES

NYSDEC CORNING AREA GLASS SAMPLING STANDARD OPERATING PROCEDURE

TABLE OF CONTENTS

PARSONS

1. Objective

The purpose of this task is to collect and identify specific waste items associated with historic manufacturing waste (largely associated with glass manufacturing) disposal throughout the area. Performing this work involves the need to preserve unique shapes, markings, etc. of archive samples. Archived samples may be analyzed at NYSDEC's discretion to define their physical and chemical characteristics.

2. Procedure

a. Equipment and Supplies

The following equipment will be used:

- Clear Zip-Loc bags
- Digital camera
- PPE in accordance with the HASP
- Sample logs
- Ruler
- Tape measure
- Ultraviolet flashlight
- Fibrous brush
- Basic glass cutting equipment - different equipment may be utilized based on site- and sample-specific circumstances, including:
    - Triangular file
    - Hammer & chisel
    - Other hand tools (as applicable)

b. Notification

Prior to any archive sample being collected, to the extent practical, Corning Incorporated will be alerted of field archive sample collection if required by an order on consent or at the discretion of NYSDEC if not. Split samples may be provided to Corning Incorporated upon request. If splitting of a sample would otherwise impact the ability to get test results for the sampled material or would otherwise alter the nature of the material to damage it beyond its intended use as an archive sample, then Parsons and/or NYSDEC shall take the sample without splitting with Corning Incorporated and properly maintain the sample. NYSDEC solely reserves the right to refuse to split a sample.

c. Sampling Method

The following observations will be noted in the glass archiving sampling record log (Appendix A):

- Site name;
- Project number;

- Sampling date;
- Samplers;
- Sample ID;
- Parcel ID;
- Sampling Method;
- Location;
- Surrounding soil (or subject material) type & appearance;
- Optionally, if the following physical properties are applicable to a specific archive sample, record dimensions, shape, and color of the archive sample. Record opacity, fracture, and UV/fluorescence as applicable after sample collection; and
- Other notable observations.

To the extent possible, archive samples will be logged prior to being disturbed (e.g., moved by an excavator). A digital camera will be used to take photos of the archive sample and location; a ruler will be staged in the photo frame as a dimensional reference. An ultraviolet flashlight will be used to determine fluorescence of the archive sample after sample collection. A sketch of the samplelocation relative to property landmarks (e.g., fenceline, vegetation, shed, etc.) must be drawn and recorded in a field book, or supplemented with a written location description or photograph.

When handling the archive sample, samplers will wear nitrile gloves. Prior to or after the archive sample being split or bagged, a fibrous brush will be used to remove debris attached to glass or brick material.

As provided in Section 2.b., NYSDEC and Corning Incorporated will be notified before collection of any archive sample. If requested by Corning Incorporated, and where reasonable, larger pieces of glass may be split sampled into two pieces. A glass cutting device will be used to split the sample into two halves (to the extent possible). Glass pieces may be cut by scoring the glass witha triangular file and then breaking along the score, by breaking with a hammer and chisel, or by another appropriate hand methods. If hand tools are inadequate to physically split the glass sample, additional methods may be considered (e.g., a wet saw). Alternative methods of splitting samples will need to consider health and safety risks and generation/disposal of wastes prior to implementing.

If splitting a glass piece may harm its integrity, damage a unique and distinguishable shape, isn’t feasible due to its size or shape, or presents another issue, field personnel will collect two pieces of similar material found together. One piece of the sample will be offered to Corning Incorporated as a split sample. NYSDEC and Corning Incorporated can discuss these instances, if they arise, and may make a future arrangement to split the piece.

The cutting device and splitting method (e.g., cut, crushed, or alternative method) must be noted on the glass archiving sampling record log (Appendix A). Additionally, an estimate of the percentage of the glass that is salvageable for archiving must be noted on the log. Once the archive sample is split, a photo must be taken of the glass samples. If an archive sample is unevenly split, NYSDEC reserves the right to choose the piece(s) to collect.

Sample identification information must be affixed to the Zip-Loc bag containing the archive sample. The following information must be noted on the bag, chain of custody, and/or sampling record log:

- Sample ID
- Chain of Custody number
- Sampler(s)
- Date sample collected
- Collection location (Area, Parcel ID, etc.)
- Sampler company (i.e., Parsons)
- Client (i.e., NYSDEC)

In the event a Corning Incorporated representative is unable to be present during the archive sample collection, the sample will be collected and stored in a secure location (e.g., the Parsons trailer). Corning Incorporated will be notified of the completion of the sampling effort. At Corning Incorporated's request, the archive sampling information will be shared. The archive sample may be split when a Corning Incorporated representative is present.

d. Chain of Custody

Archive samples will be collected under a chain of custody (Appendix B).

- The total number of samples on a chain is limited to 20.
- If the chain has multiple pages, it must be noted (e.g., Page 1 of 2).
- At the end of the workday, a picture will be taken of the chain to capture an electronic copy of the signed chain. A .pdf copy of the signed chain will be saved to the project file.

The *Site ID* consists of the work location (e.g., Study Area, Van Etten Road, etc.) that the archive sample is collected from.Each location has its own *Site ID*. Site IDs for each work location will be as follows, and this SOP will be amended as needed to list additional Site IDs.

Work Location	Site ID
Study Area	SA
Stewart Park	Stewart
Van Etten	Van
Guthrie Medical Center	GMC
Guthrie Center North Parking Lot	GCNPL
City of Corning Fire Department	CCFD
Post Creek	Post
3510 West Road	WR
McKinney Park	MCP; McKinney
William Street Park	WSP
Vine Street Site	Vine; 6FLA

Chain Numbers are the *Site ID + Sampling Date* (e.g., SA-072420 are the archive samples collected in the Study Area on July 24, 2020).

Field Sample IDs must be unique. The *Field Sample ID* for locations within the Study Area consists of the *Site ID + Residence Number + Date + Sequential Number + Sample Type* (AG for archive glass, FB for furnace brick, CS for ceramic, and ASH for ash). For example, SA-Res012-072420-01-AG would be the first sample collected at Study Area Residence 12 on July 24,2020 and would consist of archive glass. The *Field Sample ID* for locations outside of the study area will consist of *Site ID + Date + Sequential Number + Sample Type*. For example, Stewart-101220-04-FB would be the fourth sample collected at Stewart Park on October 12, 2020 and would consist of furnace brick.

3. Attachments

A. APPENDIX A GLASS ARCHIVING SAMPLING RECORD LOG

B. APPENDIX B SAMPLE CHAIN OF CUSTODY FORM

Sensitive

PARSONS
GLASS ARCHIVING SAMPLING RECORD

SITE NAME: ______________________

PROJECT NUMBER: 452163.03000

SAMPLING DATE / TIME: ______________________

WEATHER: ______________________

SAMPLERS: ____________ of Parsons

____________ of ____________

____________ of ____________

SAMPLE ID: ______________________

PARCEL ID: ______________________

SAMPLING METHOD: Hand collection

DESCRIPTION OF SAMPLING POINT

LOCATION:

SURROUNDING SOIL/SUBJECT MATERIAL TYPE & APPEARANCE:

ORIENTATION:

DEPTH TO TOP:

DEPTH TO BOTTOM:

ABG* PROPORTIONS:

ARCHIVE SAMPLE DESCRIPTION

DIMENSIONS (Photograph with ruler): ______________________

SHAPE: ______________________

COLOR: ______________________

OPACITY: ______________________

FRACTURE: ______________________

UV/FLUORESCENCE TESTING: ______________________

OTHER: ______________________

CHAIN OF CUSTODY

SAMPLE SPLIT?: Y | N

SPLITTING DEVICE: ______________________

SPLIT METHOD: ______________________

SPLIT RECOVERY %: ______________________

CHAIN OF CUSTODY NUMBER: ______________________

SHIPPED VIA: Dropped off at

COMMENTS / MISCELLANEOUS ______________________

*ABG denotes ash, brick, and/or glass

Submitted to:

Chain Of Custody / Analysis Request

AESI Ref:			
COC # :			
Lab Use Only			
Lab Proj #			
Lab ID			
Job No.			

Privileged & Confidential

Site Name:

EDD To:

Location of Site:

Client Contact: (name, co., address)

Sampler:

P O #

Analysis Turnaround Time:

Standard -

2 weeks -

1 week -

Next Day -

Hardcopy Report To:

Invoice To:

Grab/Composite | MS/MSD | Field Filtered Sample ?

Preservative: 0 | 0 | 2

Sample Identification

	Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Sample Date	Sample Time	Sample Type	Sample Matrix	Sample Purpose	# of Cont.	Units
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Special Instructions:
Samples will be held at the Parsons field office following sample collection, and may be submitted under chain of custody for analytical testing at a later date.

Notes:

Sample Collected/Held by	Company			Company		Condition		Custody Seals Intact	
	Date/Time			Date/Time		Cooler Temp.			
Transferred to Archived by	Company			Company		Condition		Custody Seals Intact	
	Date/Time			Date/Time		Cooler Temp.			

Preservatives: 0 = None; [1 = HCL]; [2 = HNO3]; [3 = H2SO4]; [4 = NaOH]; [5 = Zn. Acetate]; [6 = MeOH]; [7 = NaHSO4]; 8 = Other (specify):