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INTERIM REMEDIAL MEASURES WORK PLAN – PETROLEUM IMPACTED AREAS

**Huntley Power South Parcel
Tonawanda, New York
NYSDEC BCP Site Number C915337**

March 31, 2025
File No. 21.0056855.20



PREPARED FOR:

HUNTLEY POWER LLC

GZA GeoEnvironmental of New York

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MARCH 2025

CERTIFICATION STATEMENT

I, BART A. KLETTKE, P.E., certify that I am currently a NYS registered professional engineer, as defined in 6 NYCRR Part 375, and that this Interim Remedial Measures Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Bart A. Klettke BART A. KLETTKE, P.E.

MARCH 31, 2025 DATE





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1.0 INTRODUCTION

1.1 PURPOSE AND OBJECTIVE

This Interim Remedial Measures (IRMs) Work Plan is associated with the Huntley Power South Parcel Brownfield Cleanup Program (BCP; Site Number C915337) in the Town of Tonawanda, Erie County, New York. The 34.80-acre BCP Site and primary features are shown on **Figures 1 and 2**. The work described in this IRM Work Plan is being completed under a New York State Department of Environmental Conservation (NYSDEC) BCP Agreement. This IRM Work Plan presents the project scope, objectives, planned activities, sampling procedures and reporting requirements.

The objective of this IRM Work Plan is to address the petroleum impacted soils/fill within the Former Coal Pile.

1.2 PROJECT BACKGROUND

The Huntley Power South Parcel, BCP Site No. C915337, is located at 3500 River Road in the Town of Tonawanda, Erie County, New York (Site, see **Figure 1**). The Project Site is approximately 34.80 acres in size and is identified as tax parcel 064.16-1-1.2. A Site Plan is provided as **Figure 2**.

The Site is located in an industrial area of Tonawanda and is zoned General Industrial District. The area surrounding the Site to the north, south, and east is occupied by commercial, residential, and industrial properties.

The northerly adjoining properties are occupied by the inactive Huntley Plant, an electrical substation, transmission power lines, and portions of the Mid River Marina. Publicly accessible areas are located at the marina/boat launch, which are not immediately contiguous to the BCP Site boundary and are located approximately 2,000 feet northwest of the northern BCP Site boundary. A National Grid staging area adjoins the BCP Site to the north, which is not accessible to the public. A bike path and River Road adjoins the Site to the northeast, beyond which is Sumitomo Rubber (tire manufacturer), and Evonik Industries. The southerly adjoining property is occupied by the Erie County Water Authority. Staff foot traffic is anticipated to be associated with this occupant. The Site is adjoined to the west by the Niagara River.

The electric power generation plant, originally known as the River Station, later renamed the "Charles R. Huntley Station" was initially constructed in 1916. Buffalo General Electric Company with Stone & Webster Engineering designed and started the construction of the coal fired generating station in January 1916 with the first 20-megawatt (MWe) unit of 25 cycle power and started commercial operation on November 26, 1916. After the first unit went online, construction on three additional units continued. The fourth generating unit started commercial operation on December 19, 1919. The total capacity of the four-unit station was 95 MWe. The final two 25 cycle units were constructed and placed into commercial operation on August 14, 1930, bringing the Station's total output to 305 MWe. On May 12, 2006, Units 63 and 64 were retired from service. Units 65 and 66 were retired in 2007, and Units 67 and 68 were retired in 2016 at which time the facility ceased all electrical generation activities.



1.3 PROJECT DESCRIPTION

The IRM activities will include excavation, disposal and backfilling of the PIAs in the former coal pile area.

Petroleum Impacted Areas Within the Former Coal Pile Area:

During the active years of electrical generation, petroleum products were periodically placed on the stockpiled coal prior to being burned in the plant furnaces as approved by NYSDEC. After closure of the plant in 2016 and following coal removal, residual petroleum product was found in the soil/fill at two locations. These Petroleum Impacted Areas (PIAs) were confirmed and delineated during the Remedial Investigation (RI; October through November 2020) and Supplemental Remedial Investigations (SRI; August 2021). The PIAs will be addressed via excavation and disposal of the petroleum impacted soil/fill. If necessary, Institutional Controls/Engineering Controls (IC/ECs) will be implemented at the PIA remediated locations to mitigate potential vapor intrusion into future buildings.

1.4 PROJECT MANAGEMENT AND ORGANIZATION

1.4.1 Personnel

The general responsibilities of key project personnel are listed below.

NYSDEC Project Manager – Benjamin McPherson, P.E., will be responsible for regulatory oversight of work associated with BCP Site Number C915337.

GZA Principal-In-Charge – Bart A. Klettke, P.E. will have overall responsibility of GZA's work and serve as Professional Engineer of Record.

GZA Project Manager – Thomas Bohlen, P.G., will be responsible for management and implementation of BCP remedial activities. The Project Manager is responsible for technical quality control and project oversight.

GZA Quality Assurance (QA) Officer – Daniel Troy, P.E., will report to the Project Manager and will be responsible for ensuring that QA/QC procedures are being followed. The QA Officer will be responsible for review of field and laboratory data. The QA Officer will monitor the performance of the laboratory to verify Data Quality Objectives for the project are met.

GZA Field QA Officer – Ernest Thalhamer, M.S., will be responsible for field operations and will report directly to the Project Manager

1.4.2 Specific Tasks and Services

GZA will procure subcontractors to conduct soil excavation, transport/disposal, laboratory analyses, and data validation. Subcontractor bids and selection will be determined prior to mobilization.



2.0 DESCRIPTION OF IRM FIELD ACTIVITIES

2.1 GENERAL FIELD ACTIVITIES

General field activities include site meetings, mobilization, implementing the health and safety plan, soil excavations and disposal, analytical testing, backfilling, and equipment decontamination.

2.1.1 Site Meeting

A Site “kick-off” meeting will be held with Huntley, GZA, and the remedial subcontractor(s) prior to initiating field work. The purpose of the meeting will be to familiarize field team members, Huntley staff, and subcontractors with the Site, project personnel and responsibilities, background, scope of work, health and safety requirements, site-specific security and safety protocols, emergency contingencies, and other field considerations. NYSDEC staff will be notified at least seven days in advance of the meeting.

2.1.2 Mobilization

The selected remedial subcontractor will contact UDig NY (1-800-962-7962) to locate subsurface utilities that may be present in the work areas and/or at property lines prior to mobilization. UDig NY requires three-day notification to conduct utility clearance/location. GZA and the subcontractor will also consult with the Site owner regarding clearance of subsurface work.

2.1.3 Health and Safety

It is anticipated Level D Personal Protective Equipment (PPE) will be required during IRM work. Should health and safety monitoring during field activities warrant an upgrade to level C protection, work will stop and Site conditions will be re-evaluated prior to further remedial activities. See **Section 6.0** and **Appendix A** for additional information on Health and Safety.

2.2 COMMUNITY AIR MONITORING PLAN

The intent of a Community Air Monitoring Plan (CAMP) is to provide a measure of protection for the downwind community. During active IRM work, air surveillance screening for total volatile organics and particulate levels will be performed at the perimeter of the work area for health and safety concerns in accordance with New York State Department of Health (NYSDOH) CAMP requirements, **Appendix B**. Organic vapors will be monitored with a portable organic vapor meter (OVM) equipped with a photoionization detector (PID) using a 10.6 electron volt (eV) bulb. Particulates will be monitored using equipment that is capable of measuring particle size in the 10-micrometer range (PM-10) and can integrate measurements over 15-minute intervals. See VOC Monitoring/Particulate Monitoring, Response Levels and Actions sections in **Appendix B** for additional information on action levels regarding VOCs, particulates, dust, and odors. The equipment will also have an audible and/or visual alarm indicating an exceedance of the action level. Regular CAMP data will be logged and uploaded via telemetry. NYSDEC and NYSDOH will be provided real-time access to the project CAMP data during active remedial activities. Notification of CAMP exceedances and corrective actions will be provided to NYSDOH and NYSDEC within 24-hours via email.



Monitoring for visible dust and odors will be conducted outside of the immediate active work area. If visible dust and/or odors are observed outside of the immediate work area, work will stop and the contractor shall apply water and/or odor suppressants as required.

2.3 SOIL EXCAVATION, DISPOSAL, AND BACKFILLING

2.3.1 Petroleum-Impacted Areas in the Former Coal Pile

Petroleum impacted soil/fill within the two PIAs will be excavated, disposed, and backfilled in the two PIAs as described below.

2.3.1.1 Waste Characterization Sampling

To facilitate disposal of the excavated petroleum-impacted soil, the landfill requires a total of 8 waste characterization samples (dependent upon amount of impacted material encountered – estimated at 4,000 tons). To facilitate direct-loading of the excavated soil into dump trucks transporting to the disposal facility (to reduce the need to stockpile soil), GZA will collect waste characterization samples from the anticipated excavation areas and gain approval from the disposal facility to accept the excavated soil prior to the start of excavation. The disposal facility has requested additional testing before accepting the waste. In that regard, GZA will initially collect a total of 6 waste characterization samples, tested for Ignitability, and Toxicity Characteristic Leaching Procedure (TCLP) Benzene, for waste characterization for the disposal facility. Should additional material be required for removal, GZA will collect subsequent waste characterizations samples to facilitate direct loading onto trucks, as feasible/required.

2.3.1.2 Excavation:

The petroleum smear zone (where visible petroleum product is present at each of the two PIAs) is approximately 2 feet thick and covers a combined area of approximately 1.15 acres (50,000 square feet) for a total estimated volume of 3,700 cubic yards. The smear zone is located vertically at the approximate elevation of the groundwater surface. The groundwater surface rises and falls within the smear zone in response to variable precipitation, snow melt, and former periodic pumping at the PIAs. An oil recovery unit was formerly in operation in the PIAs. Associated sumps and piping will be removed during remedial activities. The sumps and pumps will be disposed as non-hazardous petroleum impacted solid waste, as required. Above the smear zone at each PIA is non-impacted soil/fill. This non-impacted soil/fill, estimated to average four feet in thickness, will be excavated and temporarily stockpiled outside of the PIAs and within the area of the former coal pile. The non-impacted soil/fill will be secured by polyethylene sheeting to prevent dust generation and runoff. Daily inspections of the stockpiles will be conducted during active remedial activities. Inspections will be conducted at least weekly during non-active remediation.

Waste characterization samples will be collected and analyzed prior to remediation in accordance with NYSDEC and disposal facility requirements. This will facilitate direct loading of impacted materials onto dump trucks for transport and disposal. Impacted materials will be transported and disposed of at Waste Management's Chaffee Landfill, located at 10860 Olean Road Chaffee, New York 14030 (NYSDEC Permit Number 9-1462-00001/00006). Transporters will have a current Part 364 permit which will be provided to the NYSDEC prior to commencement of excavation.

Some of the impacted soil/fill will be saturated with groundwater and will require dewatering prior to disposal. Any water derived will be managed with the other coal pile stormwater runoff. Any free oil will



be removed and recycled, and the water pumped into the municipal sanitary sewer system for treatment at the Town of Tonawanda treatment facility. See **Appendix C** for Town of Tonawanda Industrial Sewer Connection Permit 195.

2.3.1.3 Confirmation Sampling:

Once impacted soil has been sufficiently removed (based on field screening and consultation with NYSDEC), GZA will collect confirmatory soil samples. The northern PIA excavation will have an approximate 420 linear foot perimeter and 10,350 square foot area, and the northwestern PIA will have an approximate 840 foot perimeter and 47,280 square foot area.

Due to material homogeneity and the size of the remedial excavations, GZA proposes confirmatory excavation sidewall samples be collected at a frequency of one per every 60 linear feet, and excavation bottom samples be collected at a frequency of one per 1,800 square feet of excavation bottoms. Based upon those assumptions, it is anticipated approximately 23 sidewall samples and 33 bottom samples will be submitted for analysis for CP-51 list VOCs and SVOCs and RCRA-8 metals on a standard or rush laboratory analytical turnaround, as required to facilitate the project schedule. Samples will be biased towards the areas with the highest potential for impact to be present along the proposed final excavation sidewalls and bottom (*i.e.*, soil sample collected with the highest PID reading). Field observations including, staining, odors, and PID readings will be collected from each confirmatory sample location. Sample location details will be documented and provided as a summary table in the Construction Completion Report (CCR). Samples will be submitted for analysis for CP-51 list VOCs and SVOCs via USEPA Methods 8260 and 8270 and RCRA 8 metals via USEPA Methods 6010D and 7471B.

2.3.1.4 Backfilling:

Following approval from the NYSDEC to backfill, NRG's contractor will backfill the excavations with the staged non-impacted materials. Imported DER-10 compliant fill will backfill the remaining volume to grade, when secured. Fill will generally be placed in approximate 14-inch loose lifts and compacted to approximate 12-inch lifts with the excavator tracks and bucket (bottom of excavation to approximately four feet bgs). Backfilled materials from approximately four feet bgs to ground surface will be placed in approximate 10-inch or thinner loose lifts compacted to approximate six to eight-inch lifts with a vibratory smooth drum roller or other compaction equipment (a remote compactor or jumping-jack) and/ or the excavator tracks and bucket as warranted and feasible.

3.0 DATA DOCUMENTATION

Field notes will be kept during the IRM work, in addition to daily field summaries that will be generated by the GZA QA Officer, summarizing the field work and become part of the project file. The daily field summaries will be submitted to the NYSDEC within 24 hours of completion and will include the following daily information for the IRM activities:

- Date;
- Meteorological conditions (temperature, wind, precipitation);
- Site conditions (e.g., dry, damp, dusty, etc.);



- Identification of crew members (GZA and subcontractor present) and other personnel (e.g., agency or site owner) present;
- Description of field activities;
- Location(s) where work is performed;
- Samples collected;
- Problems encountered and corrective actions taken;
- Records of field measurements or descriptions recorded; and
- Notice of modifications to the scope of work.

IRM activities will be photo documented. Pertinent photographs will be included in the CCR.

4.0 CONSTRUCTION COMPLETION REPORT

A CCR will be prepared summarizing the work conducted in accordance with DER-10 Section 5.8. The report will include the following:

- Provide a summary of the activities completed as part of the IRM Work;
- Present the analytical data from the confirmatory samples collected. Tables containing the analytical results will identify laboratory qualifiers assigned to the data and will identify the method detection limits;
- Provide figures showing the size and location of remedial excavations and associated confirmatory sample locations;
- Provide completed daily field summaries and community air monitoring program data for the duration of the IRM activities;
- Provide pertinent photographic documentation of the activities completed; and
- Present the findings, conclusions and recommendations resulting from the IRM work. The report will be submitted to NYSDEC for review.
- The CCR will include figures showing the surveyed extent of remedial excavations and the locations of confirmatory analytical samples. Measurements will be made to document the elevation/depth of the excavations. Figures will be stamped and certified by the professional engineer of record.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

The Quality Assurance Project Plan (QAPP) to be used for the Huntley Power South Parcel IRM activities is the NYSDEC approved "Quality Assurance Project Plan, Huntley Power South Parcel Site, Tonawanda, New York, Brownfield Cleanup Program, Site No. C915337" dated March 2019 (**Appendix C**). The QAPP presents the sampling procedures, analytical methods and QA/QC procedures associated with the activities planned for the BCP Site. Protocols for sample collection, sample handling and storage, Chain of Custody procedures, and laboratory and field analyses are described or specifically referenced to related investigation documents. The data collected during the IRM will include NYSDEC Analytical Service Protocol (ASP) Category B deliverables for the development of a data usability summary report (DUSR).



6.0 HEALTH AND SAFETY PROTOCOLS

The health and safety protocols to be used for the Huntley Power South Parcel IRM activities are in the “Health and Safety Plan” dated July 2020 (**Appendix A**). The Health and Safety Plan (HASP) presents the specific health and safety protocols associated with the activities planned for BCP Site.

7.0 SCHEDULE

The anticipated schedule for the IRM field activities and CCR Report preparation is as follows:

Milestone:	Anticipated Date:
Submit IRM Work Plan	March 2025
PIA IRM Implementation	May 2025 through July 2025
Construction Completion Report	Within 90 days of completion of IRM activities



FIGURES



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LEGEND

-  NEW MONITORING WELL
-  EXISTING GROUNDWATER MONITORING WELLS
-  SITE FEATURES
-  BCP SITE BOUNDARY

SOURCE

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- 3) THE HISTORICAL UTILITY DATA WAS REFERENCED FROM ELECTRONIC FILES PROVIDED BY HUNTLEY POWER LLC., RECEIVED VIA EMAIL ON 09-06-2019, FILES: 34735SH01.CIT, 34736SH02.CIT, 34737SH03.CIT, 34738SH04.CIT, 34739SH05.CIT, 34740SH06.CIT, 34741SH07.CIT, 34742SH08.CIT AND FROM A PDF PREPARED BY NIAGRA MOHAWK POWER CORPORATION ENTITLED "STATION SITE PLAN, ENLARGED COMPOSITE OF STRUCTURES, AND YARD PIPING" DATED: 03-23-1977, ORIGINAL SCALE: 1" = 20 FEET.
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HUNTLEY POWER SOUTH PARCEL
3500 RIVER ROAD
TONAWANDA, NEW YORK

SITE PLAN

PREPARED BY:  GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: NRG HUNTLEY POWER, LLC	
PROJ MGR: JJR	REVIEWED BY: DJT	CHECKED BY: BK	FIGURE 2
DESIGNED BY: JJR	DRAWN BY: EMD / SMW	SCALE: 1" = 150 FEET	
DATE: 06/18/2024	PROJECT NO: 21.0056855.20	REVISION NO.	

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LEGEND

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|--|--|--|-------------------------------|
| | NEW MONITORING WELL | | SURFACE (0-2") SOIL SAMPLE |
| | NEW MONITORING WELL WITH SURFACE SOIL SAMPLE | | POND SEDIMENT SAMPLE |
| | EXISTING GROUNDWATER MONITORING WELLS | | PETROLEUM IMPACTED AREA (PIA) |
| | SOIL PROBE | | SLURRY WALL |
| | SOIL BORING | | BCP SITE BOUNDARY |
| | TEST PIT | | |
| | TEST PIT WITH SURFACE SOIL SAMPLE | | |

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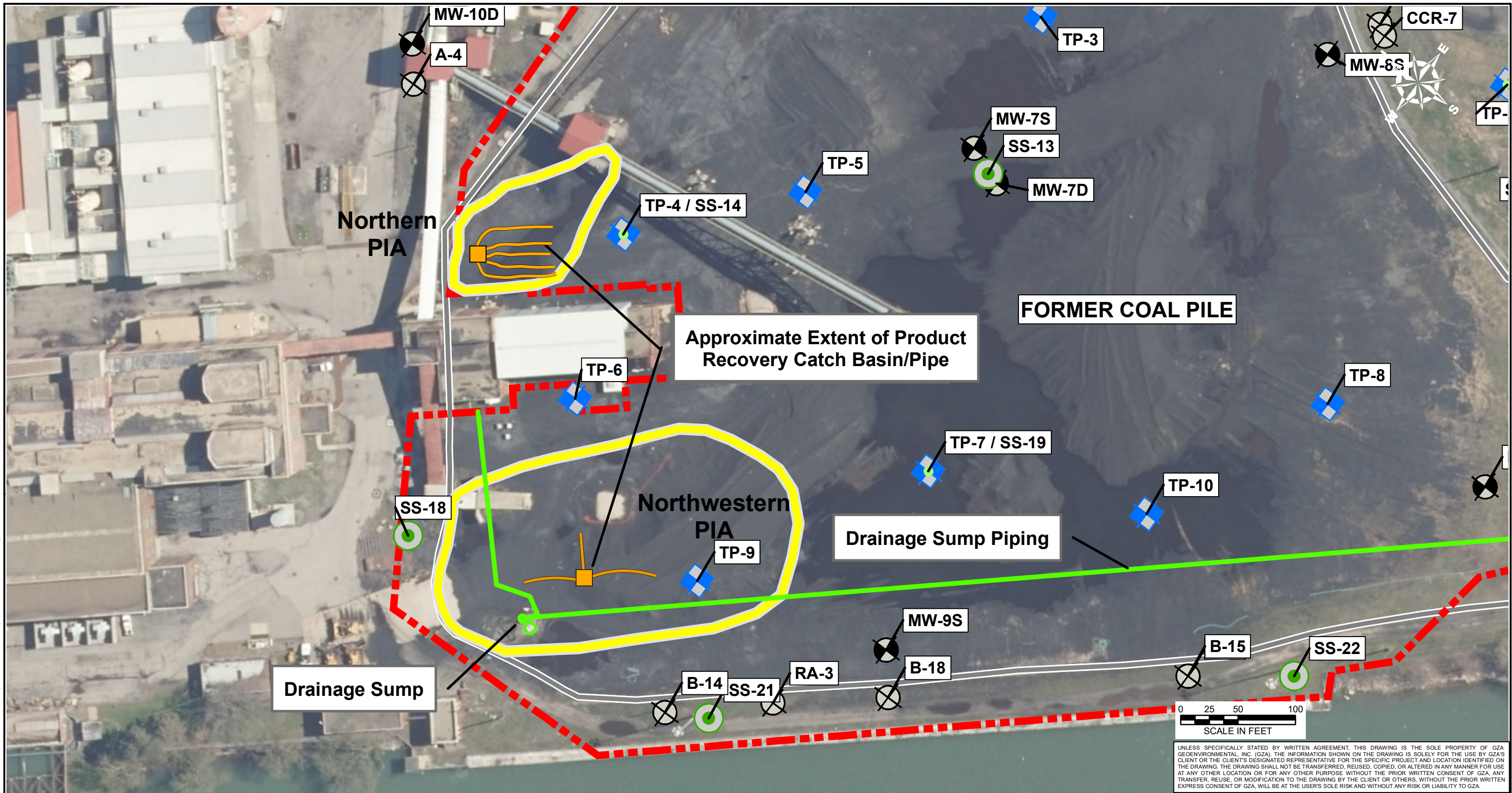
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HUNTLEY POWER SOUTH PARCEL
3500 RIVER ROAD
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PETROLEUM IMPACTED AREAS AND REMEDIAL STAGING AREAS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: NRG HUNTLEY POWER, LLC	
PROJ MGR: JUR	REVIEWED BY: DJT	CHECKED BY: BK	FIGURE 3
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LEGEND

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- 4) THE ADDITIONAL UTILITY DATA AND SITE EASEMENTS WERE REFERENCED FROM ELECTRONIC FILES PROVIDED BY HUNTLEY POWER LLC., RECEIVED VIA EMAIL ON 09-17-2019, FILE: NRG HUNTLEY - EASEMENT FIGURE - STANDARD.ZIP
- 5) LOCATIONS OF MONITORING WELLS WERE REFERENCED FROM MONITORING WELL AS-BUILTS SURVEYED BY WENDEL ON NOVEMBER 18TH 2020. ALL OTHER SITE FEATURES ARE APPROXIMATE PENDING RECEIPT OF FINAL AS-BUILTS.

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HUNTLEY POWER SOUTH PARCEL
3500 RIVER ROAD
TONAWANDA, NEW YORK

**PRODUCT RECOVERY SUMPS
AND COLLECTION PIPING**

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: NRG HUNTLEY POWER, LLC	
PROJ MGR: JUR	REVIEWED BY: DJT	CHECKED BY: BK	FIGURE 4
DESIGNED BY: JUR	DRAWN BY: EJT	SCALE: 1" = 83 FEET	
DATE: 08/28/2024	PROJECT NO: 21.0056855.20	REVISION NO:	



APPENDIX A
PROJECT HEALTH AND SAFETY PLAN

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

1. CLIENT/SITE/PROJECT INFORMATION		
Client: Huntley Power LLC		
Site Address: 3500 River Road, Tonawanda, New York		
Site Description (be sure to list pertinent site features, chemicals used at the facility, and other potential hazard sources: Inactive coal power plant; former coal pile, coal ash fill, and settling pond. Known elevated arsenic in soil/fill and LNAPL in former coal pile		
Work Environment (active manufacturing, office, vacant site, undeveloped property, etc.): Inactive coal storage, and coal ash management area of the power plant property, no buildings present on the Site.		
Job/Project #: 21.0056855.20	Estimated Start Date: 8/14/2024	Estimated Finish Date: 8/14/2025
Your locationSite is Covered by the Following Regulations:	OSHA HAZWOPER Standard ☒	Mine Safety and Health Administration ☐
	OSHA Construction Regulations ☒	

2. EMERGENCY INFORMATION		
Hospital Name: Kenmore Mercy Hospital		Hospital Phone: 716-694-4500
Hospital Address: 2950 Elmwood Avenue		Directions and Street Map Attached: ☒ Yes
Local Fire #: 911	Local Ambulance #: 911	Local Police #: 911
WorkCare Incident Intervention Services:	For non-emergencies, if an employee becomes hurt or sick call 888-449-7787	
Other Emergency Contact(s): George Streit of Huntley and Bart Klettke of GZA	Phone #'s: George Streit of Huntley: 716-200-2797 Bart Klettke of GZA: 716-570-2093	
Site-Specific Emergency Preparedness/Response Procedures/Concerns: Conduct pre-job site briefing with project members, including subcontractors and client representatives (as applicable) to review emergency procedures and responsibilities prior to start of each day's work. Review emergency contact information, locations of emergency equipment (e.g. first aid kits, fire extinguishers, evacuation routes), review of emergency procedures, and current location and access to hospital. Ensure that cell phones are charged daily and have vehicle phone chargers on hand. Possible emergencies on site include physical injuries. Personnel on site will have current first aid and will be able to respond to minor injuries while emergency response personnel are contacted for assistance.		

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN



 LIFTING Get help lifting or carrying anything over 50 pounds	 SITE RECON Walk your site before starting work to find and mark slips/trips/falls and insect nests	 DRIVING Don't use your mobile phone while driving	 ERGONOMICS Take a 5-minute break for every hour you work, whether it's in the office or the field
 CUTS Wear cut-resistant gloves when using knives or other sharp objects	 PPE At a minimum, always wear safety glasses and protective footwear in the field	 HASP Develop a HASP and have it with you in the field	 WORKCARE Without delay, call WorkCare immediately for any minor injury or illness at 888-449-7787

- All EHS Events must be reported immediately to the Project Manager and to the GZA People-Based Safety mobile app.
- In the event of a chemical release greater than 5 gallons, site personnel will evacuate the affected area and relocate to an upwind location. The GZA Field Safety Officer and client site representative shall be contacted immediately.
- Site work shall not be conducted during severe weather, including high winds and lightning. In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.

3. SCOPE OF WORK

General project description, and phase(s) or work to which this H&S Plan applies ¹ .	GZA will observe remedial measures conducted by subs including: excavation and off-site disposal of impacted soil, including sample collection, equipment decontamination and handling of waste.
Specific Tasks Performed by GZA:	GZA will observe remedial measures conducted by subs including: excavation and off-site disposal of petroleum impacted soil, screen soil for VOCs, and collect confirmation and characterization soil samples.
Concurrent Tasks to be Performed by GZA-hired Subcontractors (List Subcontractors by Name):	Contractor to conduct excavation work.
Concurrent Tasks to be Performed by Others:	None.

Any OSHA PERMIT-REQUIRED CONFINED SPACE entry?

☐ YES ☒ NO

IF YES, ADD CONFINED SPACE ENTRY PERMIT FOR THAT PORTION OF THE WORK

Any INDOOR fieldwork? ☐ YES ☒ NO

IF YES, EXPLAIN:

4. SUB-SURFACE WORK, UNDERGROUND UTILITY LOCATION

Will subsurface explorations be conducted as part of this work (drilling or excavation)? ☒ Yes ☐ No

Have GZA project files been scoured for existing private utility drawings? ☐ Yes ☐ No ☐ N/A

Has GZA requested utility drawings from our Client, property owner, and others? ☐ Yes ☐ No ☐ N/A

¹ Copy from or reference proposal or applicable design plan as appropriate.

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

Have existing drawings been reviewed for possible conflicts with planned work?		☐ Yes ☐ No ☐	
Will GZA personnel be required to use a hand-auger as part of this work?		☐ Yes ☒ No	
Site property ownership where underground explorations will be conducted on: 3500 River Road, Tonawanda, NY		Public Access Property	☐ Yes ☒ No
		Private Property	☒ Yes ☐ No
Have Necessary Underground Utility Notifications for Subsurface Work Been Made?		☒ Yes ☐ Yet to be conducted	
Specify Clearance Date & Time, Dig Safe Clearance I.D. #, And Other Relevant Information: NY Dig Safe; Ticket: 06050-547-037-00.			
IMPORTANT! For subsurface work, prior to the initiation of ground penetrating activities, GZA personnel to assess whether the underground utility clearance (UUC) process has been completed in a manner that appears acceptable, based on participation/ confirmation by other responsible parties (utility companies, subcontractor, client, owner, etc.), for the following:			
Electric:	☐ Yes	☐ No	☐ NA ☐ Other i.e. 345kV overhead transmission main located on north side of power plant
Fuel (gas, petroleum, steam):	☐ Yes	☐ No	☐ NA
Communication:	☐ Yes	☐ No	☐ NA
Water:	☐ Yes	☐ No	☐ NA
Sewer:	☐ Yes	☐ No	☐ NA
Other: _____	☐ Yes	☐ No	☐ NA
			☐ Other _____
			☐ Other _____
			☐ Other _____
			☐ Other _____
Comments:			

5. HAZARD ASSESSMENT (CHECK ALL THAT APPLY AND ADDRESS EACH HAZARD IN SECTION 6)

A. GENERAL FIELDWORK HAZARDS

☐ Confined Space Entry (Add Confined Space Entry Permit)	☒ Overhead Hazards (i.e. falling objects, overhead power lines)
☐ Abandoned or vacant building/Enclosed Spaces	☒ Portable Hand Tools or Power Tools
☒ Significant Slip/Trip/Fall Hazards	☐ Significant Lifting or Ergonomic Hazards
☐ Unsanitary/Infectious Hazards	☒ Electrical Hazards (i.e. Equipment 120 Volts or Greater, Work Inside Electrical Panels, or Maintenance of Electrical Equipment)
☐ Poisonous Plants	☐ Other Stored energy Hazards (i.e. Equipment with High Pressure or Stored Chemicals)
☒ Biting/Stinging Insects	☐ Fire and/or Explosion Hazard
☐ Feral Animal Hazards	☒ Elevated Noise Levels
☐ Water/Wetlands Hazards	☒ Excavations/Test Pits
☐ Remote Locations/Navigation/Orientation hazards	☐ Explosives or Unexploded Ordinance/MEC
☐ Heavy Traffic or Work Alongside a Roadway	☐ Long Distance or Overnight Travel
☒ Weather-Related Hazards	☐ Personal Security or High Crime Area Hazards
☒ Motor vehicle operation Hazards	☐ Working Alone
☒ Heavy Equipment Hazards	☐ Ionizing Radiation or Non-Ionizing Radiation
☐ Structural Hazards (i.e. unsafe floors/stairways/roof)	☒ Chemical/Exposure Hazards (See Part B for Details)
☐ Demolition/Renovation	☐ Other:
☐ Presence of Pedestrians or the General Public	

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

B. CHEMICAL/EXPOSURE HAZARDS (CONTAMINANTS ARE CONTAINED IN X SOIL, X VAPOR, X GROUNDWATER)

☐ No chemical hazards anticipated	☐ Methane
☐ Hydrogen Sulfide (H ₂ S)	☐ Chemicals Subject to OSHA Hazard Communication (attach Safety Data Sheet for each chemical GZA brings to the site)
☐ Cyanides, Hydrogen Cyanide (HCN)	☐ Containerized Waste, Chemicals in Piping & Process Equipment
☐ Carbon Monoxide	☒ Emissions from Gasoline-, Diesel-, Propane-fired Engine, Heater, Similar Equipment
☐ Herbicides, Pesticide, Fungicide, Animal Poisons	☒ General Work Site Airborne Dust Hazards
☒ Metals, Metal Compounds:	☒ Volatile Organic Compounds (VOCs), BTEX
☐ Corrosives, Acids, Caustics, Strong Irritants	☐ Chlorinated Organic Compounds
☒ Polychlorinated Biphenyls (PCBs)	☒ Fuel Oil, Gasoline, Petroleum Products, Waste Oil
☒ Polycyclic Aromatic Hydrocarbons (PAHs)	☐ Asbestos
☐ Compressed Gases	☐ Oxygen Deficiency, Asphyxiation Hazards
☐ Flammable/Combustible Liquids	☐ Other:
☐ Radiation Hazards (i.e. radioactive sealed/open source, x-rays, ultra violet, infrared, radio-frequency, etc.)	

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

6. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/MITIGATIONS (NOTE: Based on Hazard Assessment, Section 5)	
Describe the major hazards expected to be present at the jobsite, and describe the safety measures to be implemented for worker protection (refer to items checked in Section 5 above). Use brief abstract statements or more detailed narrative as may be appropriate.	
ON-SITE HAZARDS:	HAZARD MITIGATIONS:
Task Hazard Analyses	(list task hazard analysis applicable to the project and attach to this HASP)
Owning Zero	Ensure all GZA personnel on-site have downloaded the People-Based Safety app to their mobile phones and are familiar with using it to report safety events. Prior to work each day, review Owning Zero rules with all on-site (including subcontractors representatives) during the morning safety meeting. Hold daily tailgate meetings with all on-site (including subcontractors) to review planned work tasks, equipment operation, recent near misses or incidents, weather, and personnel changes.
Significant Slip/Trip/Fall Hazards	Inspect work area prior to starting work. Mark out or remove any potential hazards. Inspect area for uneven or sloped terrain, and uneven footing around soil borings. Wear steel toed-boots with ankle support and good tread. Site is an active commercial business, and ground surface is level and paved; Watch out for surface sinkholes (potholes), uneven asphalt/concrete, and keep work areas clean of debris and tooling. Maintain one free hand to break falls. Watch for equipment on ground and slippery surfaces. Keep work area clean, no running, be mindful of changing weather conditions that may change footing conditions. Maintain safe distance from open borings and cover borings upon completion.
Weather-Related Hazards	Weather conditions will be assessed prior to on-site work and forecast examined for anticipated period of work. If weather permits fieldwork, then workers will dress appropriately. Should inclement weather be encountered, the project scope may be reduced or rescheduled. Breaks will be taken to reduce exposure to the elements. If conditions change and lightning or thunder is observed, work will be suspended immediately, and workers will seek shelter. Work may resume if thunder and/or lightning cease for 30 minutes. In the case of cold weather, proper warm gear should be worn to minimize cold exposure. Hand warmers (e.g. "Hot Hands") should be used when appropriate to keep extremities warm and multiple breaks within a warm area (vehicle with heat) should be taken. Review the signs of heat stress and dehydration before the start of fieldwork. Water, sunscreen, hardhat, tinted safety sunglasses, rain gear (if necessary) and periodic breaks should all be planned for. Be sure to consume plenty of liquids on hot summer days and stay out of direct sunlight for extended periods of time to the extent possible. Use protective ointments such as sunscreen and chap stick, and consult the OSHA Heat Safety App daily.
Motor Vehicle Operation Hazards	Ensure vehicle is operating properly prior to leaving office. Review directions and check air pressure in vehicle tires prior to departure. Plan to take periodic breaks while driving long distances. Do not use cell phone (handheld or hands-free) while vehicle motor is running. While driving, be observant of other drivers and potential for severe weather conditions. Maintain appropriate speeds for the road conditions.
Heavy Equipment Hazards	Prior to mobilization to the project site, all underground utilities will be located and properly marked. All personnel working in proximity to heavy equipment will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. A first aid kit and fire extinguisher (10 # class B/C, minimum) will be available at all times. Watch for moving vehicles and equipment. Stay out of equipment swing radius while excavation is in progress. Maintain visibility and eye contact with operators when walking around excavator and trucks. Wear reflective vest to enhance visibility. Keep excavation equipment at least 25 feet from all overhead power lines; use spotters to assist operator in to positioning equipment when overhead power lines or other obstructions are near. All excavations will be adequately

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

	covered and/or barricaded if left unattended for any period of time to prevent injury. When excavation activities encounter the presence of gas, the crew shall immediately curtail excavation activity, shut down the excavation equipment and contact the Project Manager. The Site Safety and Health Officer shall contact the Project Manager/Project Safety and Health Officer and request analysis with an organic vapor detector and combustible gas indicator. These instruments will provide on-site analysis and approximate concentration of the contaminant gas. If organic vapors or gasses deemed to be a health hazard are detected, a site-specific safety and health plan addendum will be prepared in accordance with OSHA regulations (29 CFR 1910.120). Only those personnel enrolled in both the medical surveillance and hazardous waste site training program will be permitted to remain on the job site. See attached job hazard analyses –task 04.04a excavation and trenching.
Observation of Drill Rig Mobilization	Before drilling begins, confirm that drill rig has been parked properly and securely by the drilling contractor. Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times. Inform the driller if it is observed that the rig is being moved with the mast raised and/or tools and other equipment on the rig are not secured and can fall over and potentially hurt personnel.
Observation of Drilling	Do not wear loose fitting clothing. All GZA personnel working in proximity to a drill rig will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. Maintain safe distance from rotating auger, drill casing, rods and cathead at all times. Observe operations from a safe distance. Persons shall not pass under or over a moving stem or auger. Check that “kill” switches are present and working. Confirm with driller that daily inspection of rig has been performed prior to commencing work and no conditions were noted with the rig that would affect its proper operation. Do not touch or operate or assist with any rig operations and maintenance work. Make eye contact with operator before approaching equipment. Be alert and take proper precautions regarding slippery ground surfaces and similar hazards near rotating auger. Do not engage the driller or helper when drill is in operation. Work out prearranged signals to get their attention before approaching them. Confirm prior to drilling operations that driller and helper communicate and coordinate their actions and movements. GZA personnel are not allowed to be on the drill rig or operate a rig. Wear steel toed boots, hearing protection, hardhat and side-shielding safety glasses/goggles.
Overhead Hazards (i.e. falling objects, overhead power lines)	Prior to start of work, inspect work area for potential overhead hazards. Wear steel toed boots, hardhat and safety glasses with side shields. Stand clear of stacked drill rods. If stack appears unstable, inform driller. Do not stand directly in immediate vicinity of equipment in case malfunction occurs. Never stand under elevated loads or equipment. Keep equipment at least 10 feet from overhead utilities and other potential overhead hazards.
Portable Hand Tools or Power Tools	Be familiar with tool’s operating instructions and specific hazards before beginning work; wear leather gloves when appropriate. Contractor will cut acetate liners.
Elevated Noise Levels	Wear the appropriate hearing protection when heavy equipment is in operation. Wear appropriate hearing protection as necessary, either ear canal inserts and

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

	earmuffs. Do not stand with back to operating equipment or active travel lanes as hearing protection can minimize warning sounds.
Soil and Water Sampling Hazards	Proper PPE hard hat, safety glasses with side shields, steel-toed boots, gloves and boot covers will be used while working in contamination zone area. When drilling/excavating activities encounter the presence of gas, the drill crew shall immediately curtail drilling activity, shut down the drill rig and contact the Project Manager. The Field Safety and Health Officer shall contact the Project Manager/Project Safety and Health Officer and request analysis with an organic vapor detector and combustible gas indicator. These instruments will provide on-site analysis and approximate concentration of the contaminant gas. If organic vapors or gasses deemed to be a health hazard are detected, a site-specific safety and health plan addendum will be prepared in accordance with OSHA regulations (29 CFR 1910.120). Only those personnel enrolled in both the medical surveillance and hazardous waste site training program will be permitted to remain on the job site. Potential contaminants in soil are present both as an inhalation and ingestion hazard to workers within the project area. Project specific action levels, PPE, decontamination, and access control procedures have been established to minimize hazards that exist at the site. Protective measures to minimize contact with contaminated soils are addressed elsewhere in this plan. In the work area, food, beverages and tobacco products shall not be present or used, and cosmetics are not to be applied. Upon exiting the work area project staff shall properly decontaminate, including washing hands, forearms and face with soap and water prior to entering vehicle, eating, drinking, smoking or applying cosmetics. See attached JHA Task 11.01 - Hazardous Materials Survey and Remediation.
Polycyclic Aromatic Hydrocarbons (PAHs)	Due to the relatively low vapor pressure of PAH compounds, vapor hazards at ambient temperatures are not expected to occur. However, if site conditions are dry, the generation of contaminated dusts may pose a potential inhalation hazard. Therefore dust levels should be controlled with wetting if necessary. Repeated contact with certain PAH compounds have been associated with the development of skin cancer. Contact of PAH compounds with the skin may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultraviolet radiation. The major routes of exposure of PAHs during work activities to be conducted at this Site is through direct contact and inhalation. Exposure through direct contact will be addressed via the use of PPE as prescribed herein. Inhalation of PAHs may occur when the soil is disturbed causing respirable and nuisance dust particles. Dust monitoring will be performed to address potential inhalation exposure.
Volatile Organic Compounds (VOCs), BTEX	The major route of exposure of VOCs during work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil, and groundwater samples. Exposure through direct contact is possible and will be minimized through the use of PPE. Personnel are advised to approach monitoring wells from the upwind side, remove the cap, and allow the well to vent momentarily prior to sampling. Keep breathing zone to the upwind side of wells during sampling activities. If suspicious odors are noted, workers should move upwind of the drilling operations, notify the PM, and begin air monitoring with a PID. Field staff will wear level D PPE to prevent skin or eye contact with potential contaminants Utilize PID to alert to presence of elevated VOC concentrations to indicate possible exposure. Evacuate area as needed based on readings (refer to Section 7 for action levels). Maintain proper working distance to avoid fuel emissions and other air contaminants as practice.

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	Wash hands prior to eating and drinking. Wear nitrile gloves when handling soil samples. Eating within confined spaces or exclusion zones is prohibited.
Hazardous Contaminants including Silica	To reduce exposure of respirable crystalline silica, GZA will implement the following safety protocols at the Site: 1) Follow the provisions of Table 1 of the silica standard (https://www.osha.gov/silica/Table1sect1926.1153.pdf); 2) Identify the tasks that involved exposure and methods used to protect workers; 3) Designate a Competent Person to implement the HASP; 4) Restrict housekeeping practices that expose workers to respirable crystalline silica; and 5) Train workers (https://gza-totara.moonami.com/course/view.php?id=153) There may be opportunities for dust generation during the excavation of soils or dumping of soils collected. Soils may contain silica which impacts the respiratory system. Contractor should follow the OSHA construction regulations for silica dust, especially while operating excavation equipment or dumping collected soils. Table 1 of the regulations covers this operation and as long as those controls are in place no air monitoring is required, but other parts of the standard (training, medical surveillance, task-specific controls) may. GZA employees should be aware of visible dust being generated and maintain a safe distance and not breathe in the dust. If respiratory protection is required due to site conditions generating significant dust, GZA employee must follow the OSHA respiratory protection standard and all its required elements before wearing a respirator.
Excavation Hazards	Maintain safe distance from test pits. Stand at safest location in relation to test pit, at corner in full view of the excavator operator (corner unobscured by excavator arm). Secure and screen samples from excavator bucket away from excavation. Monitor excavation for stability and collapses. Stay clear of equipment while operating, and do not approach operating heavy equipment until eye contact is made with operator and equipment operation is stopped. Operators must be aware of your position on the site at all times. Consult with contractor to properly maintain Site access roads to assure vehicles can safely leave and enter the Site. Be especially aware of and clear of the swing radius of all heavy equipment. Stay aware of surroundings and wear proper PPE such as safety glasses, hard hats, high visibility vests, and steel toe boots. Stay alert for potential overhead hazards (utilities lines, tree limbs) and other overhead objects that may pose hazards or may dislodge and fall during excavation operations or while equipment is moving. Heed back up alarms of all equipment. Do not work under raised loads. Always first attempt to collect soil/water samples from the securely placed bucket of the excavator on the surface of the ground at a safe distance from the excavation. Use proper communication with operator when sampling from the bucket of the excavator. Only enter excavations if there is no alternative method to perform the work and it is safe to do so as determined by the designated Competent Person. DO NOT stand near edges of excavations, maintain 2' distance. Approach a test pit for logging from the sloped end. Never stand above vertical wall of excavation. A means of egress (stairways, ladders or ramps) from trench excavations greater than 4 feet in depth must be positioned so that no more than 25 feet of lateral travel is required. If needed to enter excavations consult with onsite Competent Person to assess if it is safe to do so. Never ride inside the bucket to observe the inside of the test pit excavation. Make sure the excavation area is barricaded to keep unauthorized workers out of the work zone. Keep materials at least three feet from the edge of the excavation. Test the atmosphere of excavations of 4 feet or greater before workers enter the excavation when it is anticipated that there may be an oxygen deficient atmosphere or a hazardous atmosphere is present. At five feet in depth, protective systems such as shielding, sloping, or shoring must be used. Excavations shall be inspected by the Competent Person every shift or as conditions change such as rain events.

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	Test pits are to backfilled soon after excavation and are not to be left open overnight unless appropriate precautions have been implemented to secure the excavation and the site. Excavation should never be left open unless absolutely necessary, and then only with proper barricading and controls to prevent accidental injury. Follow provisions of the OSHA trenching and excavation standard (29 CFR 1926.650-652) and GZA's Trench and Excavation Safety and CSE Program as appropriate during excavation activities. This includes test pit excavation and sampling activities.
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7. AIR MONITORING ACTION LEVELS – Make sure air monitoring instruments are in working order, calibrated before use, and 'bump-checked' periodically throughout the day and/or over multiple days of use

Is air monitoring to be performed for this project? Yes ☒ No ☐

ACTION LEVELS FOR OXYGEN DEFICIENCY AND EXPLOSIVE ATMOSPHERIC HAZARDS (Action levels apply to occupied work space in general work area)

☐ Applicable, See Below. ☒ Not Applicable

Parameter	Response Actions for Elevated Airborne Hazards
Oxygen	At 19.5% or below – Exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities Verify presence of adequate oxygen (approx. 12% or more) before taking readings with LEL meter. Note: If oxygen levels are below 12%, LEL meter readings are not valid.
LEL	Less than 10% LEL – Continue working, continue to monitor LEL levels Greater than or Equal to 10% LEL – Discontinue work operations and immediately withdraw from area. Resume work activities ONLY after LEL readings have been reduced to less than 10% through passive dissipation, or through active vapor control measures.

ACTION LEVELS FOR INHALATION OF TOXIC/HAZARDOUS SUBSTANCES (Action levels are for sustained breathing zone concentrations)

☒ Applicable, See Below. ☐ Not Applicable

Air Quality Parameters (Check all that apply)	Remain in Level D or Modified D	Response Actions for Elevated Airborne Hazards
☒ VOCs	0 to 5 ppm	Above 5 ppm continuously for 5 minutes in the breathing zone; discontinue activities, ventilate, retest. If levels persist contact EHS team for directions.
☐ Carbon Monoxide	0 to 35 ppm	At greater than 35 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities.
☐ Hydrogen Sulfide	0 to 10 ppm	At greater than 10 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities
☐ Dust	0 to mg/m ³	
☐	0 to	

SPECIAL INSTRUCTIONS/COMMENTS REGARDING AIR MONITORING (IF APPLICABLE)

8. HEALTH AND SAFETY EQUIPMENT AND CONTROLS

AIR MONITORING INSTRUMENTS

☒ PID Type: Lamp Energy: 10.6 eV
☐ FID Type:

PERSONAL PROTECTIVE EQUIPMENT

☐ Respirator – Type
☐ Respirator - Cartridge Type:

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

☐ Carbon Monoxide Meter ☐ Hydrogen Sulfide Meter ☐ O ₂ /LEL Meter ☐ Particulate (Dust) Meter ☒ Calibration Gas Type Isobutylene ☐ Others:	☒ Hardhat ☒ Outer Gloves Type: Nitrile ☒ Inner Gloves Type: Outer cut resistant unless nitrile (task dep.) ☒ Steel-toed boots/shoes ☐ Coveralls – Type ☐ Outer Boots – Type ☒ Eye Protection with side shields ☐ Face Shield ☒ Traffic Vest ☐ Personal Flotation Device (PFD) ☐ Fire Retardant Clothing ☐ EH (Electrical Hazard) Rated Boots, Gloves, etc. ☒ Noise/Hearing Protection ☐ Others:
OTHER H&S EQUIPMENT & GEAR ☐ Fire Extinguisher ☒ Caution Tape ☒ Traffic Cones or Stanchions ☐ Warning Signs or Placards ☒ Decon Buckets, Brushes, etc. ☐ Portable Ground Fault Interrupter (GFI) ☐ Lockout/Tagout Equipment ☐ Ventilation Equipment ☒ Others: First Aid Kit, Soap & Water, Hand Sanitizer	
Discuss/Clarify, as Appropriate:	

9. H&S TRAINING/QUALIFICATIONS FOR FIELD PERSONNEL

- | | |
|---|---|
| ☒ Project-Specific H&S Orientation (Required for All Projects/Staff)
☒ OSHA 40-Hour HAZWOPER/8 Hour Refreshers
☐ Hazard Communication (for project-specific chemical products)
☒ First Aid/CPR (required for HAZWOPER for at least one individual on site)
☒ Current Medical Clearance Letter (required for HAZWOPER)
☐ OSHA 10-hour Construction Safety Training
☐ Fall Protection Training
☒ Trenching & Excavation | ☐ Lockout/Tagout Training
☐ Electrical Safety Training
☒ Bloodborne Pathogen Training
☐
☐
☐
☐ |
|---|---|

Discuss/Clarify, as needed:

10. PERSONNEL AND EQUIPMENT DECONTAMINATION (SECTION ONLY REQUIRED FOR HAZWOPER SITES)

Describe personnel decontamination procedures for the project site, including “dry decon” (simple removal of PPE)	Equipment will be decontaminated, as needed, with high pressure hot water and/or Alconox and water. GZA personnel will utilize nitrile gloves when possibly contacting impacted materials. Used gloves will be disposed and “dry decon” will be used for clothing and shoes, as necessary. Frequently clean hands with hand sanitizer, and periodically wash hands using soap and water throughout the workday. Refrain from touching face.
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GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

11. PROJECT PERSONNEL - ROLES AND RESPONSIBILITIES		
GZA ON-SITE PERSONNEL:		
Name(s)	Project Title/Assigned Role	Telephone Numbers
Thomas Bohlen	Site Supervisor	Work: Cell: 716-570-5983
Thomas Bohlen	Field Safety Officer	Work: Cell: 716-570-5983
Thomas Bohlen	First Aid Personnel	Work: Cell: 716-570-5983
Ernest Thalhamer Mike Kress Morgan Brown	GZA Project Team Members	Cell: 716-316-1477 Cell: 716-570-2129 Cell: 716-803-5717
Site Supervisors and Project Managers (SS/PM): Responsibility for compliance with GZA Health and Safety programs, policies, procedures and applicable laws and regulations is shared by all GZA management and supervisory personnel. This includes the need for effective oversight and supervision of project staff necessary to control the Health and Safety aspects of GZA on-site activities. Field Safety Officer (FSO): The FSO is responsible for implementation of the Site Specific Health and Safety Plan. First Aid Personnel: At least one individual designated by GZA who has current training and certification in basic first aid and cardiopulmonary resuscitation (CPR) must be present during on-site activities involving multiple GZA personnel at HAZWOPER sites. GZA Project Team: Follow instructions relayed by the HASP and GZA manager on-site.		
OTHER PROJECT PERSONNEL:		
Name	Project Title/Assigned Role	Telephone Numbers
Bart Klettke	Principal-in-Charge	Work: 716-844-7035 Cell: 716-570-2093
Thomas Bohlen	Project Manager	Work: Cell: 716-570-5983
Michael Kress	Health and Safety Coordinator (HSC)	Work: Cell: 716-570-2129
Richard Ecord	GZA EHS Director	Work: 781-278-3809 Cell: 404-234-2834
Principal-in-Charge: Responsible of overall project oversight, including responsibility for Health and Safety. Project Manager: Responsible for day-to-day project management, including Health and Safety. Health and Safety Coordinator: General Health and Safety guidance and assistance. GZA EHS Director: H&S technical and regulatory guidance, assistance regarding GZA H&S policies and procedures.		

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

12. PLAN ACKNOWLEDGEMENT AND APPROVALS

GZA Project Site Worker Plan Acknowledgement

I have read, understood, and agree to abide by the information set forth in this Safety and Accident Prevention Plan. I will follow guidance in this plan and in the GZA Health and Safety Program Manual. I understand the training and medical monitoring requirements covered by the work outlined in this plan and have met those requirements.

GZA Employee Name	GZA Employee Signature	Date

Subcontractor Site Worker Plan Acknowledgement

GZA has prepared this plan solely for the purpose of protecting the health and safety of GZA employees. Subcontractors, visitors, and others at the site must refer to their organization's health and safety program or site-specific HASP for their protection. Subcontractor employees may use this plan for general informational purposes only. Subcontractor firms are obligated to comply with safety regulations applicable to their work, and understand this plan covers GZA activities only.

Subcontractor Employee Name	Subcontractor Employee Signatures	Date

GZA HASP Approval Signatures

The following individuals indicate their acknowledgement and/or approval of the contents of this Site Specific H&S Plan based on their understanding of project work activities, associated hazards and the appropriateness of health and safety measures to be implemented. A signed copy of this document must be present at the project site at all times work is being performed.

GZA Author/Reviewer Role	Signature	Date
HASP Preparer – Morgan Brown		8/14/2024
EHS Reviewer – Todd Bown		8/14/2024
Principal in Charge – Bart Klettke		8/14/2024

PORTA GAS

Material Safety Data Sheet

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

1. PRODUCT IDENTIFICATION CHEMICAL NAME; CLASS: **NONFLAMMABLE GAS MIXTURE** Containing One or More of the Following Components in a Nitrogen Balance Gas: Oxygen 0-23.5%; Isobutylene, 0.0005-0.9% **SYNONYMS:** Not Applicable **CHEMICAL FAMILY NAME:** Not Applicable **FORMULA:** Not Applicable **PRODUCT USE:** Calibration of Monitoring and Research Equipment **Document Number:** MSDS1069 **Note:** The Material Safety Data Sheet is for this gas mixture supplied in cylinders with 33 cubic feet (935 liters) or less gas capacity (DOT - 39 cylinders). This MSDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 2 (Composition and Information on Ingredients). Refer to the product label for information on the actual composition of the product.

SUPPLIER/MANUFACTURER'S NAME: Portagas **ADDRESS:** 6717-B Polk Street, Houston, TX 77011 **BUSINESS PHONE:** General MSDS Info: (713) 928-6477 **EMERGENCY PHONE:** INFOTRAC: (800) 535-5053

2. COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR				
			ACGIH-TLV		OSHA-PEL		NIOSH
			TWA	STEL	TWA	STEL	IDLH
			ppm	ppm	ppm	ppm	ppm
Isobutylene	115-11-7	0.0005-0.9%	There are no specific exposure limits for Isobutylene.				
Oxygen	7782-44-7	0-23.5%	There are no specific exposure limits for Oxygen.				
Nitrogen	7727-37-9	Balance	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.				

NE = Not Established. See Section 16 for Definitions of Terms Used. NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas mixture has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This is a colorless, odorless gas mixture. Releases of this gas mixture may produce oxygen-deficient atmospheres (especially in confined spaces or other poorly-ventilated environments); individuals in such atmospheres may be asphyxiated. Isobutylene, a component of this gas mixture, may cause drowsiness and other central nervous system effects in high concentrations; however, due to its low concentration in this gas mixture, this is unlikely to occur.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for this gas mixture is by inhalation. **INHALATION:** Due to the small size of an individual cylinder of this gas mixture, no unusual health effects from over-exposure to the product are anticipated under routine circumstances of use. The chief health hazard associated with this gas mixture is when this gas mixture contains less than 19.5% Oxygen and is released in a small, poorly-ventilated area (i.e. an enclosed or confined space). Under this circumstance, an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The effects associated with various levels of oxygen are as follows:

CONCENTRATION OF OXYGEN

12-16% Oxygen:

10-14% Oxygen:

6-10% Oxygen:

Below 6%:

OBSERVED EFFECT

Breathing and pulse rate increase, muscular coordination slightly disturbed.

Emotional upset, abnormal fatigue, disturbed respiration.

Nausea, vomiting, collapse, or loss of consciousness.

Convulsive movements, possible respiratory collapse, and death.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. The most significant hazard associated with this gas mixture when it contains less than 19.5% oxygen is the potential for exposure to oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, unconsciousness, and death. The skin of a victim of over-exposure may have a blue color. Additionally, Isobutylene, a component of this gas mixture, may cause drowsiness or central nervous system effects in high concentrations; however, due to its low concentration in this gas mixture, this is unlikely to occur. **CHRONIC:** Chronic exposure to oxygen-deficient atmospheres (below 18% oxygen in air) may affect the heart and nervous system. **TARGET ORGANS:** ACUTE: Respiratory system, eyes. CHRONIC: Heart, cardiovascular system, central nervous system.

4. FIRST-AID MEASURES RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s). **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to this gas mixture. **RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms and eliminate exposure.

5. FIRE-FIGHTING MEASURES FLASH POINT: Not applicable. **AUTOIGNITION TEMPERATURE:** Not applicable. **FLAMMABLE LIMITS (in air by volume, %):** Lower (LEL): Not applicable. Upper (UEL): Not applicable. **FIRE EXTINGUISHING MATERIALS:** Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire. **UNUSUAL FIRE AND EXPLOSION HAZARDS:** This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire. **Explosion Sensitivity to Mechanical Impact:** Not sensitive. **Explosion Sensitivity to Static Discharge:** Not sensitive. **SPECIAL FIRE-FIGHTING PROCEDURES:** Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of an oxygen deficient environment and other safety hazards than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel. Allow the gas mixture to dissipate. If necessary, monitor the surrounding area (and the original area of the release) for oxygen. Oxygen levels must be above 19.5% before non-emergency personnel are allowed to re-enter area. If leaking incidentally from the cylinder, contact your supplier.

7. HANDLING AND USE WORK PRACTICES AND HYGIENE PRACTICES: Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to oxygen deficiency. Do not attempt to repair, adjust, or in any other way modify the cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. **STORAGE AND HANDLING PRACTICES:** Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C [70°F]). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.** **SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** **WARNING!** Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure. **PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Nitrous Oxide and Oxygen.

RESPIRATORY PROTECTION: No special respiratory protection is required under normal circumstances of use. Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection when oxygen levels are below 19.5%, or during emergency response to a release of this gas mixture. During an emergency situation, before entering the area, check the concentration of Methane and Oxygen. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). **EYE PROTECTION:** Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards. **HAND PROTECTION:** Wear leather gloves when handling cylinders. Chemically resistant gloves should be worn when using this gas mixture. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada. **BODY PROTECTION:** No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

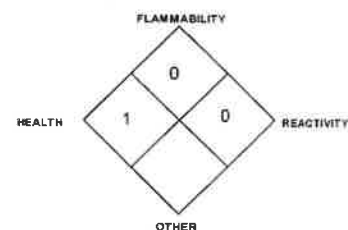
9. PHYSICAL AND CHEMICAL PROPERTIES The following information is for Nitrogen, a main component of this gas mixture. **GAS DENSITY @ 32°F (0°C) and 1 atm:** 0.072 lbs/ft³ (1.153 kg/m³) **BOILING POINT:** -195.8°C (-320.4°F) **FREEZING/MELTING POINT @ 10 psig:** -210°C (-345.8°F) **SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C):** 0.906 **pH:** Not applicable. **SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm:** 0.023 **MOLECULAR WEIGHT:** 28.01 **EVAPORATION RATE (nBuAc = 1):** Not applicable. **EXPANSION RATIO:** Not applicable. **ODOR THRESHOLD:** Not applicable. **SPECIFIC VOLUME (ft³/lb):** 13.8 **VAPOR PRESSURE @ 70°F (21.1°C) psig:** Not applicable. **COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable. The following information is for Oxygen, a main component of this gas mixture. **GAS DENSITY @ 32°F (0°C) and 1 atm:** 0.083 lb/cu ft (1.326 kg/m³) **FREEZING/MELTING POINT @ 10 psig:** -218.8°C (-361.8°F) **BOILING POINT:** -183.0°C (-297.4°F) **SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C):** 1.105 **pH:** Not applicable. **SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm:** 0.04.91 **MOLECULAR WEIGHT:** 32.00 **EVAPORATION RATE (nBuAc = 1):** Not applicable. **EXPANSION RATIO:** Not applicable. **ODOR THRESHOLD:** Not applicable. **VOLUME (ft³/lb):** 12.1 **VAPOR PRESSURE @ 70°F (21.1°C) psig:** Not applicable. **COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable. The following information is for the gas mixture. **APPEARANCE AND COLOR:** This is a colorless, odorless gas mixture. **HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no unusual warning properties associated with a release of this gas mixture. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

MSDS1069

March 2007

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM	
HEALTH HAZARD (BLUE)	1
FLAMMABILITY HAZARD (RED)	0
PHYSICAL HAZARD (YELLOW)	0
PROTECTIVE EQUIPMENT	
EYES	RESPIRATORY
HANDS	BODY
See Section 8	
For Routine Industrial Use and Handling Applications	

NFPA RATING



1 of 2

Rev. 1

PORTAGAS

Material Safety Data Sheet

10. STABILITY and REACTIVITY STABILITY: Normally stable in gaseous state. **DECOMPOSITION PRODUCTS:** The thermal decomposition products of Isobutylene include carbon oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire. **MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Titanium will burn in the Nitrogen component of this gas mixture. Lithium reacts slowly with Nitrogen at ambient temperatures. The Isobutylene component of this gas mixture is also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen difluoride, and nitrogen trifluoride). **HAZARDOUS POLYMERIZATION:** Will not occur. **CONDITIONS TO AVOID:** Contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

11. TOXICOLOGICAL INFORMATION TOXICITY DATA: The following toxicology data are available for the components of this gas mixture: **ISOBUTYLENE:** LC₅₀ (inhalation, rat) = 620,000 mg/kg/4 hours LC₅₀ (inhalation, mouse) = 415,000 mg/kg **NITROGEN:** There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant, which acts to displace oxygen in the environment. **SUSPECTED CANCER AGENT:** The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies. **IRRITANCY OF PRODUCT:** Contact with rapidly expanding gases can be irritating to exposed skin and eyes. **SENSITIZATION TO THE PRODUCT:** The components of this gas mixture are not known to cause human skin or respiratory sensitization. **REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of this gas mixture and its components on the human reproductive system. **Mutagenicity:** No mutagenicity effects have been described for the components in this gas mixture. **Embryotoxicity:** No embryotoxic effects have been described for the components in this gas mixture. **Teratogenicity:** No teratogenicity effects have been described for the components in this gas mixture. **Reproductive Toxicity:** No reproductive toxicity effects have been described for the components in gas mixture. *A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.* **BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for the components of this gas mixture.

12. ECOLOGICAL INFORMATION ENVIRONMENTAL STABILITY: The components of this gas mixture occur naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture. **OXYGEN:** Water Solubility = 1 volume Oxygen/32 volumes water at 20°C. Log K_{ow} = -0.65 **NITROGEN:** Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C. 1.6 volumes Nitrogen/100 volumes water at 20°C. **EFFECT OF MATERIAL ON PLANTS or ANIMALS:** No evidence is currently available on the effects of this gas mixture on plant and animal life. **EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on the effects of this gas mixture on aquatic life.

13. DISPOSAL CONSIDERATIONS PREPARING WASTES FOR DISPOSAL PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION. PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen. **HAZARD CLASS NUMBER and DESCRIPTION:** 2.2 (Non-Flammable Gas) **UN IDENTIFICATION NUMBER:** UN 1956 **PACKING GROUP:** Not applicable. **DOT LABEL(S) REQUIRED:** Class 2.2 (Non-Flammable Gas) **NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000):** 126 **MARINE POLLUTANT:** The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B). **SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation. **Note:** DOT 39 Cylinders ship in a strong outer carton (overpack). Pertinent shipping information goes on the outside of the overpack. DOT 39 Cylinders do not have transportation information on the cylinder itself. **TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This gas is considered as Dangerous Goods, per regulations of Transport Canada. **PROPER SHIPPING NAME:** Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen. **HAZARD CLASS NUMBER and DESCRIPTION:** 2.2 (Non-Flammable Gas) **UN IDENTIFICATION NUMBER:** UN 1956 **PACKING GROUP:** Not Applicable **HAZARD LABEL:** Class 2.2 (Non-Flammable Gas) **SPECIAL PROVISIONS:** None **EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX:** 0.12 **ERAP INDEX:** None **PASSENGER CARRYING SHIP INDEX:** None **PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX:** 75 **NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000):** 126 **NOTE:** Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION ADDITIONAL U.S. REGULATIONS: U.S. SARA REPORTING REQUIREMENTS: The components of this gas mixture are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act. **U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for this gas mixture. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20. **U.S. TSCA INVENTORY STATUS:** The components of this gas mixture are listed on the TSCA Inventory. **U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable. **OTHER U.S. FEDERAL REGULATIONS:** No component of this gas mixture is subject to the requirements of CFR 29 1910.1000 (under the 1989 PELs). Isobutylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds. The regulations of the Process Safety Management of Highly Hazardous Chemicals are not applicable (29 CFR 1910.119). This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR Part 82). Nitrogen and Oxygen are not listed as Regulated Substances, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Isobutylene is listed under this regulation in Table 3 as Regulated Substances (Flammable Substances), in quantities of 10,000 lbs (4,554 kg) or greater. **U.S. STATE REGULATORY INFORMATION:** The components of this gas mixture are covered under the following specific State regulations: **Alaska - Designated Toxic and Hazardous Substances:** No. **California - Permissible Exposure Limits for Chemical Contaminants:** Nitrogen. **Florida - Substance List:** Oxygen, Isobutylene. **Illinois - Toxic Substance List:** No. **Kansas - Section 302/313 List:** No. **Massachusetts - Substance List:** Oxygen, Isobutylene. **Michigan - Critical Materials Register:** No. **Minnesota - List of Hazardous Substances:** No. **Missouri - Employer Information/Toxic Substance List:** No. **New Jersey - Right to Know Hazardous Substance List:** Oxygen, Nitrogen, Isobutylene. **North Dakota - List of Hazardous Chemicals, Reportable Quantities:** No. **Pennsylvania - Hazardous Substance List:** Oxygen, Nitrogen, Isobutylene. **Rhode Island - Hazardous Substance List:** Oxygen, Nitrogen. **Texas - Hazardous Substance List:** No. **West Virginia - Hazardous Substance List:** No. **Wisconsin - Toxic and Hazardous Substances:** : No. **CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** No component of this gas mixture is on the California Proposition 65 lists. **ADDITIONAL CANADIAN REGULATIONS: CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this gas mixture are listed on the DSL Inventory. **CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this gas mixture are not on the CEPA Priorities Substances Lists. **CANADIAN WHMIS REGULATIONS:** This gas mixture is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

16. OTHER INFORMATION INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures. For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. **MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death. **Disclaimer:** To the best of Portagas's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type either express or implied are provided. The information contained herein relates only to this specific product. Data may be changed from time to time. Be sure to consult the latest edition.



GZA GEOENVIRONMENTAL, INC.

JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

**Analysis By: Anthony Zemba,
CHMM**

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Pre-work preparation	Overlooking of potential hazards	Become familiar with project area and job site by reviewing available on-line mapping (USGS Topographic, NWI Wetland, NRCS Soil, etc.; and aerial photographs before visiting site. Understand related hazards through review of this and other Task Hazard Analyses and participate in daily safety tailgate meetings (where applicable).
		Communicate Task Hazard Analysis and Lessons Learned information to operator(s) prior to initiating work and throughout the project as needed.
Driving to site	Vehicle accidents/collisions/injuries	Perform pre-operation check of vehicle, verifying service brakes, parking brake, steering, lights, tires, horn, wipers mirrors and glass are in good condition. verify that the rig is roadworthy.
		Wear seat belts always when driving even on site.
		Secure loose materials in cab or bed of vehicle.
Working within transportation corridors or active construction sites	Collisions injuries	Keep windshields, windows and lights cleans.
		Abide by safe driving procedures.
		Backing collisions
		If possible avoid backing by using a route that allows you to pull through.
		If backing up from a parked area do a quality 360 walker.
		Wear high visibility safety vest on site when out of personal or GZA vehicle.
		Park vehicle in designated parking locations, or select off-road area that is firm, and without hazards. Directly inspect parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking vehicle.
		Use emergency flashers or other appropriate vehicle warning system when parking outside of standard parking spaces, or to stop in right-of-way.
		Be alert at all times; never step outside traffic cones.



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JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

Analysis By: Anthony Zemba,
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Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Stand clear of moving heavy equipment and away from any overhead utility lines until equipment is safely in position and parked properly and securely by the contractor.
		Do not wear headphones or earbuds, or listen to music or talk on the phone, which may distract from work hazards.
	Crossing Automobile traffic lanes	Wear high visibility safety vests at all times when out of vehicle and working within or adjacent to the roadway.
	Crossing Airport Movement Areas (e.g., Runways, taxiways, approaches)	Learn, know, and conform to project site Airport's, Airfield's, or Airbase's protocol for crossing movement areas (whether on foot or in vehicle).
		Work within airport movement areas or safety zones must be coordinated with the Air Traffic Control Tower.
		Vehicles to have blinking or flashing lights or beacons; pedestrians to wear high visibility safety vests.
		Using protocol, maintain communication with airport security and air traffic controllers.
	Crossing Railways	Work within active railroad ROWs requires railroad safety training. No work can be done within the railroad traffic envelope without the permission of a railroad flagman.
		No equipment or vehicles can cross without the permission of a railroad flagman.
		Expect any train on any track coming from either direction at any time.
Working in Natural or Remote Areas	Slips, trips, fall	Be aware of loose ground materials such as talus, unconsolidated rock, soil, sediment, ice and other media that could cause slips, trips or falls.
		Be careful when walking in heavily vegetated areas. Mind tangles of vines, thorny branches, and slippery logs and rock surfaces. Dense vegetation and especially entangled vines present trip hazards, or can mask voids, sharp objects, or other hazards beneath.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

**Analysis By: Anthony Zemba,
CHMM**

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Be vigilant for signs of cracking, shifting, fracturing, and evidence of past movement.
		Use wood mats or other stabilizing materials for equipment if soft ground conditions are present.
		Use walking stick, auger, or ski poles to steady yourself when traversing loose material or slopes.



GZA GEOENVIRONMENTAL, INC.

JOB HAZARD ANALYSIS WORKSHEET

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CHMM

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear proper footwear for conditions.
		Store tools in their proper storage location when not in use.
		Provide adequate lighting when necessary.
	Falls into excavations/ voids	Stand away from edges of excavations and voids. Do not attempt access without proper equipment / training. Remember that some excavations or voids may constitute a confined space and may present structural stability issues.
	Cave-ins and engulfment	DO NOT enter caves, sinkholes, excavations, and other voids or concavities that are not sloped or shored properly and have not been evaluated by a competent person to be safe.
		Stand away from edges of excavations, cliffs, dug wells, and other voids.
		Watch for cracks/fissures in the ground surface in the immediate vicinity of a pit or void, which indicate imminent sidewall failure/cave-in.
		Assess if confined space entry procedures need to be implemented.
Working among hazardous biota	Plant toxins Incidental contact	Before entering void (if required to do so and with proper training) be aware of any hazards at the surface (boulders, equipment) which may fall into the void.
		Know the appearance of poison ivy and poison sumac in all seasons, and if sensitive to these toxins, carry and use special cleaning soaps/solutions when thought to be exposed. Stock first aid kit with poison ivy/sumac cleaning soaps/solutions.
		Ticks carry risk of Lyme's and other Diseases. Tick season is basically any field day above 40 degrees F.
		Tuck pants into long socks.
	Ticks	The application of DEET (or permethrin pre-treatment) to clothing in season to control exposure to ticks is recommended.
		Check clothing for ticks frequently.



GZA GEOENVIRONMENTAL, INC.

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Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Check whole body immediately upon returning from field and shower.
	Mosquitoes	Be aware of intermittent seasonal reports of mosquito borne diseases, such as West Nile disease and Eastern Equine Encephalitis (EEE), and their locations relative to your field site. Use of DEET or other mosquito repellant is recommended.
	Stinging bees and wasps	Be aware of potential cavity, suspended or ground nesting bee/wasp/hornet nests. Avoid undue disturbance or approach with appropriate safety clothing, protection and netting.
		Take appropriate precautions if allergic to bees. Carry at least two epi-pens in first aid kit as well as anti-histamines (oral and inhalers).
		Avoid areas of heavy bee activity if allergic. Avoid perfumed soaps, shampoos, deodorants, colognes, etc. that may attract bees.
	Poisonous Snakes	Be aware of terrain likelihood of harboring poisonous snakes in your work zone. Avoid reaching or stepping into hidden areas (such as into wood pile, rock pile, debris pile, stone wall, etc.) without pre-inspection.
		Coordinate with local hospitals to verify they have proper anti-venom in stock.
		Learn first aid procedures in case of poisonous snake bite.
	Wild Animals	Devise an action plan and include in the site-specific HASP.
		Do NOT handle wildlife unless properly trained to do so.
		Beware of any wild animal that shows no sign of wariness of humans.
		Do NOT attempt to feed wild animals or to help apparently injured wild animals.
		Be aware of domestic animals that may also pose a threat such as dogs off leash, bulls out to pasture, etc.



GZA GEOENVIRONMENTAL, INC.

JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

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CHMM

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Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Working in Adverse Weather Conditions	Heat / cold stress and other weather related hazards	Assess weather conditions prior to on-site work and examine forecast for anticipated period of work. Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work). Include clothing and the presence / absence of shade when calculating a heat index. Schedule work day to avoid working during hottest or coldest parts of the day, to the extent practicable. Keep exposed skin covered in extremely cold weather. Recognize signs of frostbite; use warming packs and layer clothing to maintain warmth. Use a wicking layer of clothing against your body to keep moisture away from skin. Wool clothing will continue to keep you warm after it becomes wet; cotton will not. Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions. Stay hydrated in hot weather; drink fluids regularly throughout the day, even if not thirsty. Recognize signs of heat stress; take frequent breaks in shade when working in direct sunlight for prolonged periods. Be familiar with Heat index chart - add 20 degrees to chart if fully clothed and if working in direct sunlight. NOTE: Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., icing, lightning, excessive cold or wind), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed.
	Working on Ice	Assess relative load bearing capacity of ice on lakes, ponds and other waterways. If unsure do not venture onto the ice.



GZA GEOENVIRONMENTAL, INC.

JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

Analysis By: Anthony Zemba, CHMM

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee, CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1

General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear proper footwear modified for traction on ice.
	Electrical storms	If lightning is observed during drilling activities, work shall be suspended immediately and employees shall find suitable shelter (building or vehicle at minimum). Work will commence no sooner than 30 minutes after the last indications of lightning have been observed
		Seek shelter inside a walled building or your vehicle.
		Open picnic pavilions and under trees are not adequate shelters.
		Assess vulnerability to lightning strikes as soon as thunder is heard on the horizon. Open areas and higher elevations are more susceptible to strikes.
		Tall objects such as metal towers and flag poles may attract lightning.
Working in areas without sanitary facilities	High Winds	Consult internet weather radar tracking devices to learn of impending storm patterns proximal to your work area.
		Avoid working at high elevations, elevated platforms, and other exposed areas during high wind conditions.
		Assess work area for equipment that may be blown down, over, or carried aloft by high winds.
Working in remote areas	Hygiene related hazards	Provide hand washing kits (e.g., baby wipes, hand sanitizers, paper towels, bottled water, etc.) to be used prior to eating and drinking.
		Have garbage bags handy to collect trash.
Working in remote areas	Emergency Conditions	Be familiar with onsite emergency procedures and route to nearest hospital.
		Have a first aid kit available; know its contents and how to use them.
	Disorientation	Carry a cell phone during all field work for emergency purposes, and confirm the nearest location of cell phone signal on site prior to start of worksite.
		Plan your route and anticipated progress prior to field work.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

Analysis By: Anthony Zemba,
CHMM

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Have multiple navigation aids (e.g., USGS Map, compass, GPS, etc.) and know how to use them before entering field. Remember to have charged batteries and battery back-ups for electronic devices.
		Share your progress plan with office staff prior to entering the field.
		Check in with office personnel periodically to update progress.
		Review and comply with GZA's Working Alone Policy 03-1009 in advance of working alone on a project site.
	Hunting	Be familiar with the various game hunting seasons. Follow rules and guidelines for remaining visible to hunters. Try to plan work around active hunting seasons or daily peak hunting hours as warranted.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Field Sampling

Analysis By: Christie Wagner

Reviewed By: Jayanti Chatterjee, CIH

Approved By: Jayanti Chatterjee, CIH

Date: November 4, 2011

Date: July 12, 2012

Date: July 12, 2012

Revised: July 12, 2012

Task 20.11
Field Sampling

HAZARD CONTROLS

GZA Job Tasks

Potential Hazards

Controls

Review Related THA's -

21.1 General Outdoor Field Work

Pre work task for site visit	Adverse Weather Conditions	Assess weather conditions prior to on-site work and examine forecast for anticipated period of work.
		Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work).
		Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions.
		Be aware of the anticipated weather conditions prior to mobilization to the site. Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., icing, lightening, excessive cold or wind), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed.
Conduct visual inspection of site	Dangerous Terrain	Be aware of the site terrain, watch for holes and rocks that can be tripping hazards
		Learn to identify and watch for plants such as thorn bushes and poison ivy that can either scratch you or give you a rash.
Collecting sample	Muscle strain from lifting heavy objects	Use proper lifting techniques. Use appropriate mechanical assistance and tools when possible. Wear work gloves and steel toed boots.
	Exposure to unknown sample	Be sure to treat effluent samples as unknowns and wear the proper PPE. If there are any unusual odors/fumes coming from a sample, especially those that cause reactions in the eyes or nose, leave the area and inform a supervisor immediately.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
<u>Review Related THA's –</u> 21.1 – General Outdoor Field Work		
Pre-Planning	Overlooking hazards	Review and become familiar with the requirements of GZA Policy 03-3006, <i>Excavation Safety Policy and Procedures</i> .
Observation of Deployment of Traffic Protection Equipment and Mobilizing Equipment by contractor	Collisions, struck by injuries	Wear high visibility vest at all times when out of personal or GZA vehicle.
		Park personal or GZA vehicle in designated parking locations, or select off-road area that is firm, and without hazards. Directly inspect parking location on foot if necessary.
		If parking outside of a designated parking area, demarcate vehicle with traffic cones or equivalent.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking personal or GZA vehicle.
		Observe if police detail or other required traffic control system (if necessary) is in place.
		Stay within the confines of the work area and do not venture outside of the demarcated work area into traffic.
		If you observe that contractor may back into structures, vehicles, fences, etc., notify contractor immediately with pre-determined signals. Do not cross the path of the heavy equipment.
		Stand clear of moving heavy equipment.
	Overhead electrical lines	Look overhead to assess if any utilities are present and confirm with the GZA subcontractor that they are aware of the overhead utility location and to take appropriate actions to prevent contact with the overhead utilities and to minimize any arc flash hazards. Review GZA's Electrical Safe Work Practices Program 03-3003
		Stand clear of overhead lines while equipment is being mobilized.
		If the equipment contacts an overhead power line, inform any occupant and/or operator to remain in/on the rig until the line is de-energized. Summon help immediately.
Unloading equipment and materials	Strains and sprains	Use proper lifting techniques when lifting equipment.

Job Hazard Analysis

Task 4.4A - Excavation and Trenching (Heavy Equipment)



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		GZA personnel are not to assist contractor with ~~contractor's work~~ .
		Use work gloves where appropriate to prevent hand injuries. Wear steel toed boots.
		Use equipment whenever possible to avoid heavy lifting.
	Slips, Trip and Fall Hazards	Inspect site for uneven terrain or tripping hazards; plan travel route to avoid these areas or improve the site to eliminate the hazard. Clear brush from work area and clear vegetation that could cause trip hazards, eye injury or obstruct sight lines.
	Unstable equipment	Trailers must be counter weighted properly before unloading equipment.
Excavation operations	Struck by	Stay clear of equipment at all times. Operators must be aware of your position on the site at all times. Wear high visibility reflective vests at all times while on site. Heed back up alarms of all equipment.
		Do not approach operating heavy equipment until eye contact is made with operator and equipment operation is stopped.
		Consult with contractor to properly maintain Site access roads to assure vehicles can safely leave and enter the Site.
		Confirm with contractor that excavating equipment are properly staged and stabilized to avoid roll overs and accidents.
		Be especially aware of and clear of the swing radius of all heavy equipment.
		Equipment buckets cannot be used to transport personnel from/into excavation.
	Underground utilities; above ground piping and appurtenances	Confirm that underground utility clearance procedures have been completed in accordance with GZA Policy # 04-0301 Responsibility for Utility Clearance of Exploration Locations for clearing utility locations prior to breaking ground.
		Confirm with contractor that safe distance from utilities, above ground piping and equipment are being maintained.

Job Hazard Analysis

Task 4.4A - Excavation and Trenching (Heavy Equipment)

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GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Have contractor hand excavate where required to expose utilities.
		Where possible have contractor lockout and purge active utilities.
		If excavation exposes utilities, have the contractor assure that lines are properly supported.
		Require the contractor to use non-sparking tools around active gas lines and implement safe work practices.
		If any damage is caused by GZA's subcontractor during excavation to utility lines, notify utility owner. If the contractor isn't working for GZA, either the contractor or its client should contact the utility owner.
		Notify utility owner if cathodic protection (coatings, groundbeds, etc.) has been exposed.
	Collisions with workers using shovels and hand tools	GZA employees must communicate and coordinate their actions and movements.
	Falling objects, debris	Wear hardhat and safety glasses/goggles.
		Do not work under raised loads
	Falls into Open Excavation	Secure work zone using barricades, caution tape, etc.
		DO NOT stand near edges of excavations, maintain 2' distance.
		Keep non-essential personnel away from the work zone.
	Hazardous Liquid Spills	Confirm with GZA sub contractor that spill control kit, including sorbents, pad booms and shovels are available on site if needed..
		Have GZA subcontractor line waste loading areas with polyethylene sheeting.
		Immediately report any spill to the project manager.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

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Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Exposure to Hazardous Substances	Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Assess whether procedures and contingencies are in place for characterizing hazards and protecting workers by use of appropriate air monitoring, personal protective clothing and respiratory protection, as needed. If contamination is identified at the Site only personnel trained and medically qualified to work on hazardous sites will be permitted to proceed with the work. Notify project manager if such conditions are encountered.
		Become familiar with hazards associated with hazardous commercial products used in construction (fuels, silica sand, grout, cement, etc.). Review Safety Data Sheets (SDSs) for such products and participate in daily safety tailgate meetings.
	Noise	Wear appropriate hearing protection.
	Cave-In Hazards	Excavation must be monitored by a Competent Person.
		Confirm with contractors that operators are properly trained for excavating.
		The proper sloping/shoring for the soil type must be used.
		There should be no standing water in the excavation.
		Place Spoils away from the edge of excavation as appropriate for the soil type.
		Excavations greater than 20 feet in depth must be designed by a registered professional engineer.
		Evaluate excavations at the beginning of each shift and following rain events
		DO NOT enter excavations unless absolutely necessary. The excavation must be safe to enter before entering. A means of egress (stairways, ladders or ramps) from trench excavations greater than 4 feet in depth must be positioned so that no more than 25 feet of lateral travel is required.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

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Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		If needed to enter excavations consult with onsite Competent Person to assess if it is safe to do so. If you are the Competent Person assess if it is safe to enter excavation before doing so.
	Hazardous Atmosphere	Identify possible contaminants.
		Set action levels for exposure.
		Monitor air quality.
		Air monitoring equipment must be properly calibrated.
		Refer to the site specific Health and Safety Plan for the use of proper personal protective equipment (PPE) and respiratory protection.
Soil Loading and Transport	Roadway/traffic hazards	Be alert at all times; never step outside traffic cones.
		Wear high visibility vests at all times.
		Be familiar with escape routes at each location. Stand clear of soil loading area and always make sure the equipment operator and truck drivers know your location.
		Follow project Traffic Control Plan. Be alert at all times and never step outside the traffic cones.
		Use a Police detail when necessary.
	Hazardous Material Contamination	Materials should be properly covered, including use of tarps on trucks. Stockpiled material awaiting transport should be placed on an impervious barrier such as polyethylene sheeting.
		Equipment and truck wheels, running boards, etc. must be free of loose materials before leaving Site.
Handling Flammable Liquids	Fire Hazards	Use only approved fuel containers for fuel, heavy duty metal cans with stable base and self closing nozzle is recommended.
		Store flammable liquids in appropriate flammable storage cabinet and containers.
		Be familiar with emergency procedures and where fire extinguishers are present on site.
		Inform GZA subcontractor if you observe improper storage of used rags and unsafe storage of flammable/combustible liquids brought on site.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

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Date: September 30, 2011

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Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Confirm with GZA subcontractor that fire extinguishers are present with heavy equipment and will be available at all times and that inspection tags are not expired. If GZA subcontractor is welding or cutting on site confirm there are no flammables or combustible materials near the vicinity of welding machines or torches (such as debris, fuels, grass/weeds, etc.). Review Site requirements for obtaining "Hot Work Permit". Stand well clear of welding/cutting/burning areas. When GZA project related subsurface activities encounter the presence of gas or electric, the operations shall immediately cease, shut down the equipment when possible and contact the Project Manager.
Tool Operation	Cuts, bruises, shocks, lacerations, sprains and strains	Do not use electrical tools with damaged cords or other electrical components. Use GFCI with all cords. Observe proper electrical safety practices. Tools must be properly maintained; do not use damaged tools. Wear proper Personal Protective Equipment Store and carry tools correctly. Use the correct tool for the job. Support the work piece (using clamps, vise, sawhorse, or other device). Do not hold the work piece with your hand. Unplug tools or remove batteries when servicing or changing bit, blades, abrasive wheels or other components. Protect your "off hand" from gouges, hammer blows, cutting tools, etc. Position your "off hand" to prevent injury in case of slip of the tool.
General site work	Slips, trips and falls	Maintain clean and sanitary work area free of tripping/slipping hazards. Store hand tools in their proper storage location when not in use. Provide adequate space for each to work safely with sound footing.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Excavation and Trenching (Heavy Equipment)

Analysis By: Andrew Whitsitt

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: September 30, 2011

Date: June 21, 2012

Date: June 26, 2012

Revised: June 21, 2012

Task 4.4A

Excavation and Trenching (Heavy Equipment)

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Do not perform work if adequate lighting is not available.
		Maintain an exit pathway away around equipment and work areas at all times.
Soil Sampling	Cave-ins, slips, trips and falls, exposure to hazardous contamination, struck by, caught by, slips, trips and falls	Unless absolutely necessary DO NOT enter excavations to sample. Work with the contractor's equipment operator to obtain sample from the excavation and sample soil from the bucket of the excavator.
		See above for controls for other physical hazards.
	Exposure to chemicals	Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.
		Understand potential hazards associated with handling sample collection preservatives.
		Review and have SDSs available for chemicals being brought on site, including that of sample preservatives.
Securing Site	Fall into excavations	Wear appropriate PPE identified in the HASP
		Wash hands before eating and drinking. Eating and drinking are prohibited in areas of soil contamination/work area.
		Make sure excavation is secured and properly marked with caution signs.
		If excavation is to be open over night have subcontractor erect a fence or properly cover excavations to keep public out of the area and away from the excavation and the removed tank.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Hazardous Materials Survey and Remediation

Analysis By: Benjamin Sallemi, Ph.D.

Reviewed By: Jayanti Chatterjee, CIH

Approved By: Jayanti Chatterjee, CIH

Date: September 30, 2011
Revised: July 2, 2012

Date: July 2, 2012

Date: July 2, 2012

Task 11

Hazardous Materials Survey and Remediation

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Review Related THA's – 21.1 Outdoor Field Work		
Hazardous Material Survey	Hazards associated with Asbestos, Lead-Based Paint, PCBs, etc.	Only GZA personnel trained and appropriately licensed/certified may perform these surveys. NOTE: Licensing and certification requirements may differ for States and municipalities. Be sure to check on the requirements.
	Working Alone	Review GZA's Working Alone Policy. Sign out or call into the office to leave site specific information where you are working, the anticipated duration/hours of work on site. Do this for each site if multiple in one day. Review GZA's Working Alone policy. Call office or the person identified as the emergency contact in the HASP when off site.
	Exposure to other building-related Toxic/Hazardous Substances	Wear appropriate safety equipment as required by the Site Specific Health and Safety Plan (HASP). Wear specific PPE and respiratory protection as required Become familiar with hazards associated with building-related components or materials (e.g., ACM, deteriorated lead-based paint, broken or damaged fluorescent light tubes/ballasts, visible mold, etc.). Review the HASP for details. Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Assess procedures and contingencies for characterizing hazards and protecting workers by use of appropriate personal protective clothing and respiratory protection, as needed.
	Vacant Buildings / Unsound Structures	Determine that the site building(s) is not inhabited by vagabonds or squatters. Determine that the site building(s) is not inhabited by wild animals. It is recommended that GZA employees in the field notify the local police prior to entering into a vacant building / property. GZA shall not enter into structurally damaged or unsound buildings, or buildings suspected of being unsound.



GZA GEOENVIRONMENTAL, INC.

JOB HAZARD ANALYSIS WORKSHEET

Job: Hazardous Materials Survey and Remediation

Analysis By: Benjamin Sallemi, Ph.D.

Reviewed By: Jayanti Chatterjee, CIH

Approved By: Jayanti Chatterjee, CIH

Date: September 30, 2011
Revised: July 2, 2012

Date: July 2, 2012

Date: July 2, 2012

Task 11

Hazardous Materials Survey and Remediation

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Slips, Trips, and Falls	Become familiar with physical site specifics to reduce or eliminate slips, trips and falls due to uneven surfaces, onsite equipment, discarded materials, or working at height. Review GZA's Fall Protection Program 03-3001 and use the appropriate fall protection equipment when necessary. Use the proper ladder for the work area and follow ladder safety work practices. If operating manlifts/scissor lifts review the proper use of the equipment and conduct an inspection of the equipment prior to operating. Use proper fall protection when using manlifts/scissor lifts.
	Electrical Hazards	Review GZA's Electrical Safety Work Practices Program 03-3003. Power tools, sampling equipment, lighting, and any electrical power requirements must be GFCI protected. All survey personnel must determine that electrical equipment (e.g. panels) that may need to be accessed for sampling are properly de-energized and locked/tagged out prior to suspect material sampling. No sampling shall take place unless it is safe to do so. Do not use damaged electrical cords or tools with damaged cords. Cords and tools with grounding tab removed or with damage shall be labeled damaged and removed from service.
	Manual lifting, equipment handling	Use proper lifting techniques when lifting / moving objects or equipment to gain access into survey areas. Seek assistance with heavy loads. Use work gloves where appropriate to prevent hand injuries. Wear steel-toed work shoes.
	Cuts, scrapes, bruises, lacerations from use of tools	Maintain tools properly; do not use damaged tools. Use the right tool for the work. Wear gloves when appropriate. Wear eye protection; especially during sample collection.
Hazardous Materials Abatement Monitoring / Oversight by GZA	Hazards associated with Asbestos, Lead-Based Paint, PCBs, etc.	Review hazards associated with the materials being abated and follow work practices identified in the HASP.

Job Hazard Analysis

Task 11 - Hazardous Materials Survey and Remediation

Page 2 of 3



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Hazardous Materials Survey and Remediation

Analysis By: Benjamin Sallemi, Ph.D.

Reviewed By: Jayanti Chatterjee, CIH

Approved By: Jayanti Chatterjee, CIH

Date: September 30, 2011

Date: July 2, 2012

Date: July 2, 2012

Revised: July 2, 2012

Task 11

Hazardous Materials Survey and Remediation

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Use PPE identified in the HASP. Follow proper decontamination procedures.
	Physical Hazards inside abatement work areas – Slips, trips and falls, tools and debris falling on head	Abatement work areas can be slippery due to the use of amended water or other chemicals to reduce dust. Be mindful of the work area and step carefully with sure footing. When performing overhead inspections assess the need for fall protection. Climb scaffolds and ladders with care always using the three point contact. If operating manlifts/scissor lifts review the proper use of the equipment and conduct an inspection of the equipment prior to operating.
		Workers working overhead with tools may accidentally drop tools or materials being removed could drop below. Wear hard hats and avoid standing directly underneath active abatement areas.
	Exposure to chemicals used for abatement operations	Review Safety Data Sheets (SDS) for chemicals and use the proper PPE identified in the HASP. Stay away from the work area where chemicals are being used if not needed to be there.
	Fire hazards	Contractors may use heat guns, torches, etc. or may conduct cutting operations that can generate heat and spark. Always evaluate the work area for the presence of flammable/combustible materials in the vicinity of "hot work" and notify the contractor if observed. Confirm with the contractor that appropriate fire extinguishers are available and know their locations. Stay away from cutting and hot work operations and observe safety protocols that are put in place by the contractor to prevent fires.
	Working Alone	See above.



APPENDIX B
NEW YORK STATE DEPARTMENT OF HEALTH 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ 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.

June 20, 2000

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMP1.DOC



APPENDIX C
TOWN OF TONAWANDA INDUSTRIAL SEWER CONNECTION PERMIT

Permit No. 195

TOWN OF TONAWANDA
INDUSTRIAL SEWER CONNECTION PERMIT

Company Name: Huntley Power LLC

Division Name (if Applicable) Huntley Generating Station

Mailing Address: 3500 River Road
Street or P.O. Box
Tonawanda, NY 14150

City, State and Zip Code

Facility Address: 3500 River Road
Street or P.O. Box
Tonawanda, New York 14150

The above Industrial User is authorized to discharge industrial wastewater to the Town of Tonawanda sewer system in compliance with the Town's Sewer Use Ordinance Number 2-2000, any applicable provisions of Federal or State law or regulation, and in accordance with discharge point(s), effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit is granted in accordance with the application filed on May 30, 2024 in the office of the Pretreatment Administrator, and in conformity with plans, specifications, and other data submitted to the Town in support of the above application.

Effective Date: September 1, 2024

Expiration Date: August 31, 2027

Permit No. 195

Date: 8-2-24 Signed: Paul K Morrow

Paul Morrow
Town of Tonawanda
Pretreatment Coordinator

Permit No. 195

Modified Date: _____

WASTEWATER STREAMS AUTHORIZED FOR DISCHARGE

WASTEWATER STREAM	APPROXIMATE FLOW(GPD)	YES	NO
A. Sanitary Discharge	<u>30</u>	<u>x</u>	<u> </u>
B. Storm and Groundwater from Coal Pile	<u>18,700</u>	<u>x</u>	<u> </u>
C. Storm and Groundwater from Plant	<u>140,000</u>	<u>x</u>	<u> </u>
D. Process Wastewater	<u> </u>	<u> </u>	<u>x</u>
E. Other	<u> </u>	<u> </u>	<u>x</u>
F. Other	<u> </u>	<u> </u>	<u>x</u>

PART 1 - WASTEWATER DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS**A. LOCALLY DERIVED LIMITATIONS**

The industrial user shall comply with the following locally derived effluent limitations effective as of: September 1, 2024

MONITORING LOCATION: Sanitary Manhole

SAMPLE TYPE: Grab

PARAMETERS	SAMPLE FREQUENCY	LIMIT	PURPOSE
pH	Quarterly	5.0-9.5 SU	Compliance
Oil and Grease (1664)	"	300 mg/l	"
BOD	"	250 mg/l	Surcharge
TSS	"	"	"
Total Phosphorus	"	6.0 mg/l	"

Note: The complete list of discharge limitations for dischargers to the Town Treatment Plant is contained in the Town's Local Law 2-2000. On the basis of the application and previous monitoring, parameters deemed applicable to this discharge have been excerpted and their limitations included above. The discharger should be aware that all other limitations apply and should consider all such limitations when considering process changes or plant modifications.

PART II - SPECIAL CONDITIONS/COMPLIANCE SCHEDULE

1. *The Industrial User shall develop, within 6 months of the effective date of this permit, an accidental spill prevention/slugs control/SPCC plan(s) to eliminate or minimize the accidental or slug discharge of pollutants into the sewer system, which could have an effect on the Town's treatment plant, sludge, or cause the Town to violate its SPDES permit.*

PART III - REPORTING REQUIREMENTS

1. *All Industries requiring submittal of self-monitoring reports (SMR's) must submit all laboratory results on all discharged samples. If a lab analysis was performed using an EPA approved test method, then those results must be included in the SMR. Persons signing SMR's must be a responsible company official, ie; owner, corporate manager, or supervise more than two hundred fifty (250) employees. Any of the above may appoint a company representative to sign SMR's but written notice must be supplied to this office authorizing said employee to sign.*

The following statement will be required on all SMR's and baseline monitoring reports (BMR):

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violation."

2. *If an Industrial User knows in advance of the need for a bypass, it shall submit prior notice to the Town, if possible at least ten days before the date of the bypass. An Industrial User shall submit oral notice of an unanticipated bypass or slug discharge that exceeds applicable Pretreatment Standards to the Town within 24 hours from the time the Industrial User becomes aware of the bypass or slug discharge. A written submission shall also be provided within 5 days of the time the Industrial User becomes aware of the bypass or slug discharge. The written submission shall contain a description of the bypass or slug discharge and its cause; the duration of the bypass/slugs discharge, including exact dates and times, and, if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass/slugs discharge. The Town may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.*
3. *The Industrial User shall notify the Town 30 days prior to the introduction of new wastewater or pollutants or any substantial change in the volume or characteristics of the wastewater being introduced into the POTW from the User's industrial processes. The Industrial User is required to notify the Town immediately of any changes to its facility affecting its potential for slug discharge.*

4. *Any upset experienced by the Industrial User of its treatment that places it in a temporary state of non-compliance with wastewater discharge limitations contained in this permit or other limitations specified in the Town's Ordinance shall be reported to the Town within 24 hours of first awareness of the commencement of the upset. Immediate resampling for the non-compliance pollutant shall begin. A detailed report shall be filed within 5 days.*
5. *The Industrial User is required to submit to the Town reports on the results of its sampling of the pollutants specified in Part I of this Permit. This report shall also contain monthly flows.*
6. *Analytical procedures must be performed in accordance with 40 CFR Part 136. Additional pollutants not contained in Part 136 must be performed using validated analytical methods approved by EPA (40 CFR 403.12 [g] [4]).*
7. *All self-monitoring reports shall be submitted to the following address by the 25th day of the month following the reporting period:*
Paul Morrow, Pretreatment Coordinator
Wastewater Treatment Facility
Two Mile Creek Road
Tonawanda, New York 14150

PART IV - STANDARD CONDITIONS

1. *The Industrial User shall comply with all the general prohibitive discharge standards in Article IV of the Local Law 2-2000.*
 - a. *BOD 250 mg/l, SS 250 mg/l, P 6 mg/l are not to be construed as discharge limits of the above pollutants but as a baseline for generating abnormal sewer charges. Permittees that sample more frequently than required for surchargeable parameters and have a greater than 30% variation in flow per reportable day will have a flow averaged used for surcharge calculation.*

2. RIGHT OF ENTRY

The Industrial User shall, after reasonable notification by the Town, allow the Town or its representatives, exhibiting proper credentials and identification, to enter upon the premises of the User, at all reasonable hours, for the purposes of inspection, sampling, or records inspection. Reasonable hours in the context of inspection and sampling includes any time the Industrial User is operating any process which results in a process wastewater discharge to the Town's sewerage system.

3. RECORDS RETENTION

The Industrial User shall retain and preserve for no less than three (3) years, any records, books, documents, memoranda, reports, correspondence and all summaries thereof, relating to monitoring, sampling and chemical analysis made by or in behalf of the User in connection with its discharge.

- a) *All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the Town shall be retained and preserved by the Industrial User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.*

4. CONFIDENTIAL INFORMATION

Except for data determined to be confidential under Article VII, Section 4 of the Town's Ordinance, all reports required by this permit shall be available for public inspection at the office of the Pretreatment Coordinator, Wastewater Treatment Facility, Two Mile Creek Road, Tonawanda, New York 14150.

5. RECORDING OF RESULTS

For each measurement or sample taken pursuant to the requirements of this permit, the user shall record the following information:

- a) *The exact place, date and time of sampling;*
- b) *The dates the analyses were performed;*
- c) *The person(s) who performed the analyses;*
- d) *The analytical techniques or methods used, and*
- e) *The results of all required analyses.*
- f) *Where sanitary sewer discharge is measured by a mechanical or electronic device, accuracy of device shall be certified correct every year by the manufacturer*
- g) *Where sanitary sewer discharge is measured as consumed water, the water meter must be certified as per the following schedule: meter size 5/8 to 1 inch every ten years, meter size 1 inch to 4 inch every five years, and meter size 4 inches and larger every year.*

6. DILUTION

No Industrial User shall increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit

7. PROPER DISPOSAL OF PRETREATMENT SLUDGES AND SPENT CHEMICALS

The disposal of sludges and spent chemicals generated shall be done in accordance with Section 405 of the Clean Water Act and Subtitles C and D of the Resource Conservation and Recovery Act.

8. TOXIC SUBSTANCES

All waters shall be maintained free of toxic substances in concentrations that are toxic to or produce detrimental physiological responses in human, plant, animal, or aquatic life.

9. SIGNATORY REQUIREMENTS

All reports required by this permit shall be signed by a principal executive officer of the User, or his designee.

10. REVOCATION OF PERMIT

The permit issued to the Industrial User by the Town may be revoked when after inspection, monitoring or analysis it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State, or local laws, ordinances, or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to the permit application or any other required reporting form, shall be cause for permit revocation.

11. LIMITATIONS ON PERMIT TRANSFER

Transfer of permit. Industrial waste permits are issued to a specific user for a specific operation. In the event of any change in ownership of the industrial facility, the permittee shall notify the new owner of the existence of the permit by letter, a copy of which shall be forwarded to the Pretreatment Administrator 30 days prior to change of ownership. A new industrial waste permit must be issued to the new owner.

12. FALSIFYING INFORMATION OR TAMPERING WITH MONITORING EQUIPMENT

Knowingly making any false statement on any report or other document required by this permit or knowingly rendered any monitoring device or method inaccurate, may result in punishment under the criminal law of the Town, as well as being subjected to civil penalties and relief.

13. MODIFICATION OR REVISION OF THE PERMIT

- a) The terms and conditions of this permit may be subject to modification by the Town at any time as limitations or requirements as identified the Town's Ordinance, are modified or other just cause exists.*
- b) This permit may also be modified to incorporate special conditions resulting from the issuance of a special order.*
- c) The terms and conditions may be modified as a result of EPA promulgating a new federal Pretreatment standard.*
- d) Any permit modifications which result in new conditions in the permit shall include a reasonable time schedule for compliance if necessary.*

14. DUTY TO REAPPLY

The Town shall notify a User sixty (60) days prior to the expiration of the User's Permit. Within thirty (30) days of the notification, the User shall reapply for re-issuance of the permit on a form provided by the Town.

15. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

16. LIMITATIONS

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State or Local regulations.

17. ENFORCEMENT OF THE SEWER USE LAW AND PERMITS

The Town has developed and received USEPA approval of its Enforcement Response Plan which details the standard responses to be taken by the Town when it encounters various violations of the Sewer Use Law or the terms of this permit. Copies of this document are available at the office of the Pretreatment Administrator. Town of Tonawanda Sewer Use Ordinance 2-2000 Article VI 165-33 allows for punitive Administrative fines of up to \$5,000 per day. The Town of Tonawanda may also maintain an action or proceeding in the name of the Town of Tonawanda in a court of competent jurisdiction for injunctive relief of any violation Article 6 of the Town Sewer Use Ordinance 2-2000



APPENDIX D
PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN

**QUALITY ASSURANCE PROJECT PLAN
HUNTLEY POWER SOUTH PARCEL SITE
TONAWANDA, NEW YORK
BROWNFIELD CLEANUP PROGRAM
SITE NO. C915337**

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Table 1 Summary Analytical Plan

FIGURES

Figure 1 Locus Map

ATTACHMENTS

SOP B1: Sampling for Per- and Poly-Fluorinated Alkyl Substances

1.0 INTRODUCTION

1.1 PURPOSE AND OBJECTIVE

This Quality Assurance Project Plan (QAPP) has been developed by GZA GeoEnvironmental of New York (GZA) for project activities described in the associated Remedial Investigation Work Plan (RIWP) for the Huntley Power South Parcel Site, located at 3500 River Road, Town of Tonawanda, New York (see **Figure 1**). This QAPP presents the project scope, objectives, organization, planned activities, sampling procedures, data quality objectives and quality assurance/quality control (QA/QC) procedures.

Protocols for sample collection, sample handling and storage, equipment decontamination, chain-of-custody procedures, etc. are described in Section 3. This QAPP was developed in general accordance with the requirements of Section 2.4 of the NYSDEC DER-10/Technical Guidance for Site Investigation and Remediation, effective May 3, 2010 (NYSDEC DER-10).

1.2 PROJECT BACKGROUND

The Huntley Power South Parcel Site (Site) is a brownfield site with known contamination of on-site fill, soil and groundwater. The Site is planned to be remediated for future sale and redevelopment for industrial, commercial, and/or passive recreational use. The Site is part of the former Niagara Mohawk electric power generating plant that was operated from 1916 to 2016. The on-Site soil and groundwater contamination will require further investigation and remediation prior to Site redevelopment. The nature, extent, and impact of the environmental contamination is not yet sufficiently defined, thus further environmental investigation work must be completed to provide information necessary to evaluate and select remedial measures. The RIWP provides descriptions of the investigation procedures to be implemented to characterize the environmental conditions of the Site. Data collected through the RI will be used to define the nature and extent of environmental contamination and the related risks to human health and the environment, if any. Potential remedial alternatives will then be identified and assessed in a remedial Alternatives Analysis Report (AAR). Recommended remedial actions will then be presented in a Remedial Work Plan (RWP). This QAPP was prepared to supplement and support the RIWP, IRMs, and in remediation implementation.

1.3 PROJECT DESCRIPTION

This QAPP is the quality control basis for the scope of work, which is further described in the RIWP. The major tasks involved at the Site are:

- Characterization of Surface Soil;
- Characterization of Subsurface Soil/Fill and Native Soil; and
- Characterization of Groundwater.

1.4 PROJECT MANAGEMENT AND ORGANIZATION

1.4.1 Personnel

The general responsibilities of key project personnel are listed below.

NYSDEC Project Manager – Benjamin McPherson, P.E. will have the responsibility for regulatory oversight for the work associated with BCP.

Huntley Power LLC Project Manager – Michael Sommer will have the responsibility for implementing the project and has the authority to commit funding necessary to meet the objectives and requirements.

GZA Principal-In-Charge – Bart A. Klettke, P.E. will have overall responsibility of GZA's work and serve as Professional Engineer of Record.

GZA Project Manager – Thomas Bohlen, P.G. will be responsible for managing the implementation of the activities associated with the remedial investigation, remediation and coordinating the collection of data during the project. The Project Manager is responsible for technical quality control and project oversight.

Quality Assurance (QA) Officer – Daniel Troy, P.E. will report to the Project Manager and will be responsible for ensuring that QA/QC procedures are being followed. The QA Officer will be responsible for overseeing the review of field and laboratory data.

The QA Officer will monitor the performance of the laboratory to verify that the Data Quality Objectives for the project are met.

Field QA Officer – Ernest Thalhamer, M.S. will be responsible for the overall operation of the field team and reports directly to the Project Manager.

2.0 SITE INVESTIGATION PROCEDURES AND RATIONALE

General field activities are described in the following sections and described in further detail in the Remedial Investigation Work Plan.

2.1 AIR SURVEILLANCE AND MONITORING

Air surveillance screening for total volatile organics and particulates for health and safety concerns will be performed with a portable organic vapor meter (OVM) equipped with a photoionization detector (PID) equipped with a 10.6 electron volt (eV) bulb and dust monitors that will be placed at both upwind and downwind locations of intrusive work sites. Monitoring will be performed during invasive activities such as the planned soil excavations of the berm. The OVM will also be used to field screen samples.

Additional details are presented in the Site-specific Health and Safety Plan (Appendix D of the RIWP) which includes the NYSDOH generic Community Air Monitoring Plan (CAMP).

2.2 SOIL SAMPLING

Soil sampling will occur during remedial investigation activities involving soil boring and berm excavation activities and waste characterization, as needed. Samples will be collected and transferred to sample containers as soon as possible after being retrieved from the subsurface (i.e., split spoon samplers).

The larger sampling equipment, such as drilling augers and split-spoons will be decontaminated by the subcontractor prior to arrival on-Site. During remedial investigation activities, decontamination will be accomplished using steam or high-pressure hot water cleaning to wash equipment prior to moving to the next location. Detailed decontamination procedures are provided in this QAPP under "Section 2.3 Equipment Decontamination" below. In general, equipment that contacts or is used to collect samples for laboratory analysis shall be cleaned manually with a plastic brush, non-phosphate detergent (i.e., Alconox powder) wash, and if sampling for PFAS, a Per- and Poly-Fluorinated Alkyl Substances (PFAS) free water rinse. In accordance with SOP B1 "Sampling for Per- and Poly-Fluorinated Alkyl Substances" (**ATTACHED**). Equipment that has contacted impacted soil will be thoroughly cleaned using steam or high-pressure hot water cleaning and manual (brush with detergent) followed by a second high-pressure rinse prior to leaving the Site.

Soil samples, with the exception of those collected for VOCs and PFAS analysis, will be homogenized by transferring it to a new previously unused sealable plastic bag. Deleterious debris, such as bricks, large stones, organics, etc., will be removed from the sample. The soil will be mixed to provide a more homogeneous sample for lab analysis. The soil will be thoroughly mixed until the material appears homogenous. An aliquot of mixed soil will then be transferred to the required sample containers, slightly tamped-down, filled to near the top of the container, and sealed with the appropriate cap. Soil or sediment on the threads of the container will be removed prior to placing the cap on the sample container. Soil samples for VOC and PFAS analysis will be collected and directly placed into their respective sample containers (one unpreserved 2 oz. jar per sample location for VOCs and one unpreserved polyethylene bottle for PFAS). If sampling for PFAS, samples for PFAS shall be collected first, followed by VOCs. The remaining samples will be homogenized and collected in order of decreasing volatility or sampling priority if there is limited sample volume.

Soil screening will be performed in two ways: by holding the probe of the OVM directly over the sample once it is retrieved from the subsurface and again by headspace screening after a representative portion of the soil samples has been placed in resealable, Ziplock brand, plastic Ziplock brand, baggies, allowed to warm to ambient temperature, and placing the tip of the OVM into the plastic bag.

The OVM will be calibrated daily, in accordance to manufacturer's requirements using a standard gas. Where possible a low-flow regulator will be used to calibrate the OVM. If a Tedlar™ bag is used to calibrate the OVM, then the Tedlar™ bag shall not be used in the sampling area, and the OVM shall not be used near the sample until the PFAS sample has been collected. Prior to screening, the headspace soil samples will be allowed to equilibrate to ambient temperature. For headspace screening, a hole will be made in the sample bag and the tip of the OVM inserted into the bag, and the peak response will

be recorded. A response of less than 1 part per million (ppm), using this method, is not considered significant and will be reported as “not detected”.

2.3 EQUIPMENT DECONTAMINATION

To avoid cross contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the following procedures outlined below.

2.3.1 Non-Dedicated Reusable Equipment

Non-dedicated reusable equipment such as stainless-steel mixing bowls; pumps used for groundwater evacuation (and sampling, if applicable) etc., will require field decontamination. Acids and solvents will not be used in the field decontamination of such equipment. Tubing will not be re-used (new, dedicated tubing will be used for each well). The decontamination procedure will be as described in the following sections. Any adjustments to the decontamination procedure to account for field conditions shall be in accordance with SOP B1 (**ATTACHED**).

Sampling Equipment

Equipment that contacts or is used to collect samples for laboratory analysis shall be cleaned manually with a plastic brush, non-phosphate detergent (i.e., Alconox powder) and distilled water wash, and if sampling for PFAS, a PFAS-free water rinse as follows:

1. Remove visible soil or other material from the equipment by pressure-washing, steam-cleaning, brushing and/or rinsing with potable water.
2. Place the sampling equipment in an Alconox (or similar) – Distilled Water solution or pour an Alconox – Distilled Water Solution over the equipment and scrub with a plastic brush (see SOP B1 [**ATTACHED**] for acceptable materials).
3. Rinse the equipment with a distilled water rinse until there is no visible detergent remaining on the equipment.
4. If sampling for PFAS, triple rinse all portions of the equipment that will contact material being sent to the laboratory with PFAS-free water provided by the laboratory.
5. Wherever possible allow equipment to dry prior to re-use.

Other Equipment Onsite

Equipment that does not contact samples for laboratory analysis shall be cleaned using either a high-pressure wash or manually with a plastic brush followed by a non-phosphate detergent (i.e., Alconox powder) and a distilled water wash:

1. Remove visible soil or other material from the equipment by pressure-washing, steam-cleaning, brushing and/or rinsing with potable water.
2. Place the sampling equipment in an Alconox (or similar) – Distilled Water solution or pour an Alconox – Distilled Water Solution over the equipment and scrub with a plastic brush (see SOP B1 [**ATTACHED**] for acceptable materials).
3. Rinse the equipment with a distilled water rinse until there is no visible detergent

remaining on the equipment.

Equipment that has contacted impacted soil will be thoroughly cleaned using steam or high-pressure hot water cleaning and manual (brush with detergent) followed by a second high-pressure rinse prior to leaving the Site.

2.3.2 Disposable Sampling Equipment

Disposable sampling equipment will be made of materials approved for sampling PFAS and will not be field-decontaminated; equipment may be rinsed with PFAS-free water prior to use. Disposable spoons or spatulas purchased from non-environmental equipment vendors (such as restaurant supply houses) will be decontaminated by scrubbing/washing with a laboratory grade Alconox powder detergent and PFAS-free water and PFAS-free water rinse; or by using steam or high-pressure hot water rinse, followed by PFAS-free water rinse. The equipment will be allowed to air dry prior to use. Materials used for sampling shall not have had adhesives on them (i.e., stickers, labels, or similar).

2.3.3 Heavy Equipment

Certain heavy equipment such as, excavator buckets, etc. may be used to obtain samples. Such equipment will be subject to high pressure hot water or steam cleaning between uses. A member of the sampling team will visually inspect the equipment to check that visible contamination has been removed by this procedure prior to sampling. Such equipment will be cleaned between excavation locations. Decontamination between excavation samples at a single location will be performed using Alconox and deionized water, and when sampling for PFAS, PFAS-free water to clean the samplers. Samples submitted for analysis will not include material which has been in direct contact with the heavy equipment.

2.4 STORAGE AND DISPOSAL OF INVESTIGATION-DERIVED WASTE

The sampling methods and equipment have been selected to limit both the need for decontamination and the volume of waste material to be generated. Investigation-derived material (e.g., decon sediments and water) generated during this project shall be presumed to be non-hazardous waste and will be discharged to the ground surface unless evidence of contamination such as visual petroleum or solvent product are encountered. If petroleum free product is encountered, soil IDW will be containerized in 55-gallon drums for proper characterization and disposal during Site remediation.

Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as a non-hazardous solid waste.

Decontamination Fluids

Wash water and rinse water, including mild detergent, generated during Site work will be discharged to the ground surface on-site near the site of generation.

3.0 SAMPLE HANDLING

3.1 SAMPLE IDENTIFICATION/LABELING

Samples will be assigned a unique identification using the sample location or other sample-specific identifier. Sample identification will be limited to seven alphanumeric characters to be consistent with the limitations of the laboratory tracking/reporting software. The general sample identification format will be as follows.

SB-XX-Y-Y

Where:

SB	=	Type of sample (i.e., Soil Boring, groundwater, surface soil)
XX	=	Numeric character indicating the number from which the sample was obtained.
Y-Y	=	Depth of the sample.

Quality control (QC) field duplicate samples will be submitted blind to the laboratory; a fictitious sample identification will be created using the same system as the original. The sample identifications (of the original sample and its field duplicate) will be marked in the project specific field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager. Sample containers will be labeled in the field prior to the collection of samples. Affixed to each sampling container will be a non-removable label on which the following information will be recorded with permanent water-proof ink:

- Site name and location;
- Sample identification code;
- Date and time;
- Sampler's initials;
- Preservative; and
- Requested analyses.

3.2 SAMPLES, BOTTLES, PRESERVATION, AND HOLDING TIME

Table 1 specifies the analytical method, matrix, holding time, containers, and preservatives for the various analyses to be completed. Sample bottle requirements and holding times are discussed further below.

3.2.1 Sample Bottles

The selection of sample containers used to collect samples is based on the criteria of sample matrix, analytical method, potential contaminants of concern, reactivity of container material with the sample, QA/QC requirements and regulatory protocol requirements. Sample bottles will be provided by the analytical laboratory and will conform to the requirements of USEPA's Specifications and Guidance for Contaminant-Free Sample Containers. Wherever possible the "clean hands" personnel shall not handle materials known to contain PFAS. If sample bottleware included PFAS-containing materials (e.g.,

Teflon-lined lids), and additional staff are not available, then the “clean hands” personnel (see SOP B1 [ATTACHED]) shall wear double gloves if handling the non-PFAS sample bottleware. Sample bottleware shall be maintained in two coolers: one for PFAS bottles and one for other bottles. All bottles shall be labeled with PFAS-free labels provided by the analytical laboratory. Labels will be completed using a ballpoint pen. Sharpies and Write-in-Rain pens shall not be used.

3.2.2 Holding Times

Holding times are judged from the verified time of sample receipt (VTSR) by the laboratory; samples will be shipped from the field to arrive at the lab no later than 48 hours from the time of sample collection. Holding time requirements will be those specified in the NYSDEC ASP; it should be noted that for some analyses, these holding times are more stringent than the holding time for the corresponding USEPA method.

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

3.3 CHAIN OF CUSTODY AND SHIPPING

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

Once the sample containers are filled, they will be immediately placed in the cooler with ice (in plastic bags to prevent leaking) to maintain the samples at $\leq 4^{\circ}\text{C}$. The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain of custody forms will be signed and placed in a sealed (Ziplock Brand) plastic baggie in the cooler. The completed shipping container will be closed for transport with strapping or shipping tape, and two paper custody seals will be affixed to the lid. The seals must be broken to open the cooler and will indicate tampering if the seals are broken before receipt at the laboratory. The cooler will be shipped either by laboratory-provided courier or by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked and lab personnel will sign the chain-of-custody form.

4.0 QUALITY ASSURANCE/QUALITY CONTROL PROTOCOLS

This section describes the analytical methods, principles and procedures that will be used to generate quality data. These protocols include laboratory calibration, field equipment calibration, QC sample collection and analysis, quantitative evaluation of data quality protocols and data qualification, if necessary.

4.1 ANALYTICAL METHODS, PROCEDURES & CALIBRATION

4.1.1 Methods

Analytical methods to be used during this project are presented in the NYSDEC Analytical Services Protocol (ASP), June 2005. Specific methods and references for each parameter are shown in **Table 1**. The sample preservation and holding time requirements are also identified in **Table 1**. Quantification and detection limits for all analyses are those specified under the appropriate test methods.

It is the laboratory's responsibility to be familiar with this document, procedures and deliverables pertaining to the Site work. Analytical testing will be performed by a laboratory certified by the NYSDOH Environmental Laboratory Approval Program and Contract Laboratory Protocol.

4.1.2 Laboratory Instrumentation & Equipment

Laboratory instruments and equipment will be calibrated following SW-846 analytical methods protocol. Initial calibrations will be performed before sample analysis. Calibration checks will be performed at the frequencies specified in each analytical method.

4.1.3 Field Equipment

Field equipment will be used during various activities and the project and during the collection of environmental samples. Field equipment to be used includes:

- OVM with a photoionization detector.
- Particulate monitors
- Electronic water level indicator.
- Water quality meter
- Peristaltic pump

Field equipment will be cleaned and calibrated prior to use. The Operating and Maintenance (O&M) manuals for the field equipment will be kept in the field when in use and a copy will be retained in project files.

Calibration and standardization for the field equipment during project use will be in accordance with the manufacturer's recommendations and will be recorded in the field log book. If instrument

performance or data fall outside acceptable limits, then corrective actions will be taken. These actions may include recalibration of instruments, acquiring new standards, replacing equipment, or repairing equipment. Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

4.2 QUALITY CONTROL SAMPLES

4.2.1 Analytical Equipment

The analytical methods to be utilized, (**Table 1** of the RIWP) for laboratory sample analysis address the quality control to be used and the frequency of replicates, blanks and calibration standards for laboratory analytical equipment.

4.2.2 Field Samples

Field quality control samples will consist of trip blanks, blind sample duplicate, matrix spike and matrix spike duplicate, rinsate blanks, and sampler blanks. Trip blanks, for VOCs only, will consist of analyte free reagent grade water in VOC sampling containers to be used for the project. Trip blanks will be prepared at the laboratory, sealed, transported to the Site and returned without being opened to assess contamination that may have occurred during transport. Trip blanks will be submitted at a rate of one per sampling event when VOCs are shipped to the laboratory.

Field duplicate samples are used to assess the variability of a matrix at a specific sampling point and to assess the reproducibility of the sampling method. For soil samples, these samples are separate aliquots of the same sample; prior to dividing the sample into "sample" and "duplicate" aliquots, the samples are homogenized (except for the VOC aliquots, which are not homogenized). Aqueous field duplicate samples are second samples collected from the same location, at the same time, in the same manner as the first, and placed into a separate container. Each duplicate sample will be analyzed for the same parameters as the original sample collected that day. The blind field duplicate Relative Percent Difference (RPD) objective will be $\pm 50\%$ percent RPD for all matrices. Field duplicates will be collected at a frequency of 1 per 20 environmental samples for both matrices (aqueous and non-aqueous) and test parameters.

Matrix spike/matrix spike duplicate (MS/MSD) samples are used to assess the laboratory method's accuracy and precision. These samples are spiked with known quantities of target analytes at the laboratory. The samples are collected at a frequency of five percent (1 in 20).

4.2.3 Rinsate Blanks

Rinsate blanks (also known as Equipment Blanks) are used to assess the cross-contamination potential from reusable equipment. Rinsate blanks are collected at a frequency of one rinsate blank per piece of reusable equipment per sampling event (for sampling programs less than 10 days in duration) or one rinsate blank per piece of reusable equipment per 40 samples (for sampling programs greater than 10 days in duration) for all parameters that are being analyzed. Rinsate blanks are collected by

pouring VOC-free (for VOC samples), PFAS-free (for PFAS samples), or distilled water (for other analytes) over the reusable equipment and collecting the rinsate in a laboratory-provided sample container. VOC-free and PFAS-free water should be provided by the analytical laboratory. Rinsate blanks should be labeled as “RB-XX” where XX is the sampler type. The field notes and chain of custody shall document the sampler type for each rinsate blank.

If analytes for rinsate blanks associated with aqueous sampling equipment are detected above half of the limit of quantitation (LOQ) and greater than 10% of the regulatory limit, then the results for the samples associated with that equipment shall be flagged in the project report and/or resampled if determined appropriate by the QA manager. Results for solids sampling equipment where analytes are detected in rinsate blanks may be flagged in the project report and/or resampled at the discretion of the QA Manager.

4.2.4 Field Blanks

Field Blanks (also known as Sampler Blanks) are used to assess cross-contamination potential from samplers or the environment at the sampling location. Field Blanks will be collected at a frequency of one field blank per “clean hands” sampler and at least one field blank per 20 PFAS samples and submitted to the laboratory for PFAS analysis only. Field blanks are collected by pouring PFAS-free water from its container into a laboratory-supplied sampling container at the point where PFAS samples are being collected (i.e., at the well head or drill rig). Leaving the cover off of the sample container is not an acceptable method for collecting a field blank. The PFAS-free water must be poured from one container to another. Field blanks should be labeled as “FB-XX” where “XX” denotes the sample location where the field blank was collected. “FB-SB01” would denote a field blank collected at location SB01.

If PFAS analytes are detected in field blanks at a concentration greater than half of the LOQ and greater than 10% of the regulatory limit or detected concentration, the results from the associated location shall be flagged in project reports and may be resampled if determined by the QA Manager.

5.0 DATA DOCUMENTATION

5.1 FIELD NOTEBOOK

Field notebooks will be initiated at the start of on-Site work, in addition to field forms that will be filled out summarizing field work and become part of the project file. The field notebook will be of standard paper (not waterproof) with less than 10% post-consumer recycled content, and ball-point pens (not felt-tipped markers) will be used to write the field notes which will include the following daily information for Site activities:

- Date;
- Meteorological conditions (temperature, wind, precipitation);
- Site conditions (e.g., dry, damp, dusty, etc.);
- Identification of crew members (GZA and subcontractor present) and other personnel (e.g., agency or site owner) present;
- Description of field activities;
- Location and types of field and rinsate blanks;
- Location(s) where work is performed;
- Problems encountered and corrective actions taken;
- Records of field measurements or descriptions recorded; and,
- Notice of modifications to the scope of work.

5.2 FIELD REPORTING FORMS

Field reporting forms (or their equivalent) to be utilized during the remediation may include the following:

- Excavation Log;
- Soil Boring log;
- Well construction log;
- Sample Collection Log;
- Chain of Custody Form; and
- Calibration Log.

These forms, when completed, will become part of the project file.

6.0 CORRECTIVE ACTIONS

If instrument performance or data fall outside acceptable limits, then corrective actions will be taken. These actions may include recalibration or standardization of instruments, acquiring new standards, replacing equipment, repairing equipment, and reanalyzing samples or redoing sections of work. Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

Situations related to this project requiring corrective action will be documented and made part of the project file. For each measurement system identified requiring corrective action, the responsible individual for initiating the corrective action and also the individual responsible for approving the corrective action, if necessary, will be identified. As part of its total quality management program, GZA makes the results of laboratory audits and data validation reports available to the analytical laboratories. The laboratories are therefore made aware of non-critical items and areas where improvement may be made in subsequent NYSDEC ASP work.

7.0 DATA REDUCTION, VALIDATION, AND REPORTING

The guidance followed to perform quality data validation, and the methods and procedures outlined herein pertain to initiating and performing data validation, as well as reviewing data validation performed by others (if applicable). An outline of the data validation process is presented here, followed by a description of data validation review summaries.

7.1 LABORATORY DATA REPORTING AND REDUCTION

The laboratory will meet the applicable documentation, data reduction, and reporting protocols as specified in the 2005 revision of the NYSDEC ASP CLP. Laboratory data reports for non-CLP data will conform to NYSDEC Category B deliverable requirements. With full CLP documentation, deliverables will include the following, but not be limited to:

Organics

Chains of Custody
Blanks
Holding Times
Internal Standards
Laboratory Duplicates
Tentatively Identified Compounds
GC/MS Instrument Performance Check
System Monitoring Compound Recovery
Matrix Spike & Matrix Spike Duplicates
GC/MS Tuning
Surrogate Recoveries

Inorganics

Chains of Custody
Holding Times
Blanks
Furnace AA QC
CRDL Standards
ICP Serial Dilutions
Laboratory Control Samples
Laboratory Duplicates
ICP Interference Check
Spiked Sample Recovery

Copies of the laboratory's generic Quality Assurance Plan (QAP) will be on file at GZA. The laboratory's QAP will indicate the standard methods and practices for obtaining and assessing data, and how data are reduced from the analytical instruments to a finished report, indicating levels of review along the way.

In addition to the electronic full copy of the data report, the laboratory will be asked to provide the sample data in spreadsheet form to minimize possible transcription errors resulting from the manual transcription of data.

7.2 DATA VALIDATION AND DATA USABILITY SUMMARY REPORT

CLP data will be validated by a data validation subcontractor. Data validation will be performed in accordance with guidelines established in Appendix 2B of the NYSDEC DER-10. Where necessary and appropriate, supplemental validation criteria may be derived from the EPA Functional Guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540/R-94/012, February 1993; and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540/R-94/013, February 1994).

Data Usability Summary Reports (DUSRs) will consist of text results of the review and marked up copies of Form I (results with qualifiers applied by the validator). Validation will consist of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data will be documented in the report text.

There may be some analyses for which there is no established USEPA or NYSDEC data validation protocol. In such cases, validation will be based on the EPA Region II SOPs and EPA Functional Guidelines as much as possible, as well as the laboratory's adherence to the technical requirements of the method, and the professional judgment of the validator. The degree of rigor in such validation will correspond to the nature of the data and the significance of the data and its intended use. Unless otherwise requested, non-CLP data (e.g., total organic carbon and PFAS) is not subject to validation.

7.3 FIELD DATA

Field chemistry data collected during air monitoring, well development, well sampling, and soil screening (e.g., OVM readings), will be presented on field logs and provided in the appendices of the report.

8.0 PERFORMANCE AND SYSTEM AUDITS

An audit of the laboratory(s) during the BCP work will not be performed unless warranted by a problem(s) that cannot be resolved by any other means, or at the discretion of GZA or NYSDEC.

9.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

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

The project manager, through task managers, will be responsible for verifying that records and files related to this project are stored appropriately and are retrievable.

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

TABLES

FIGURES

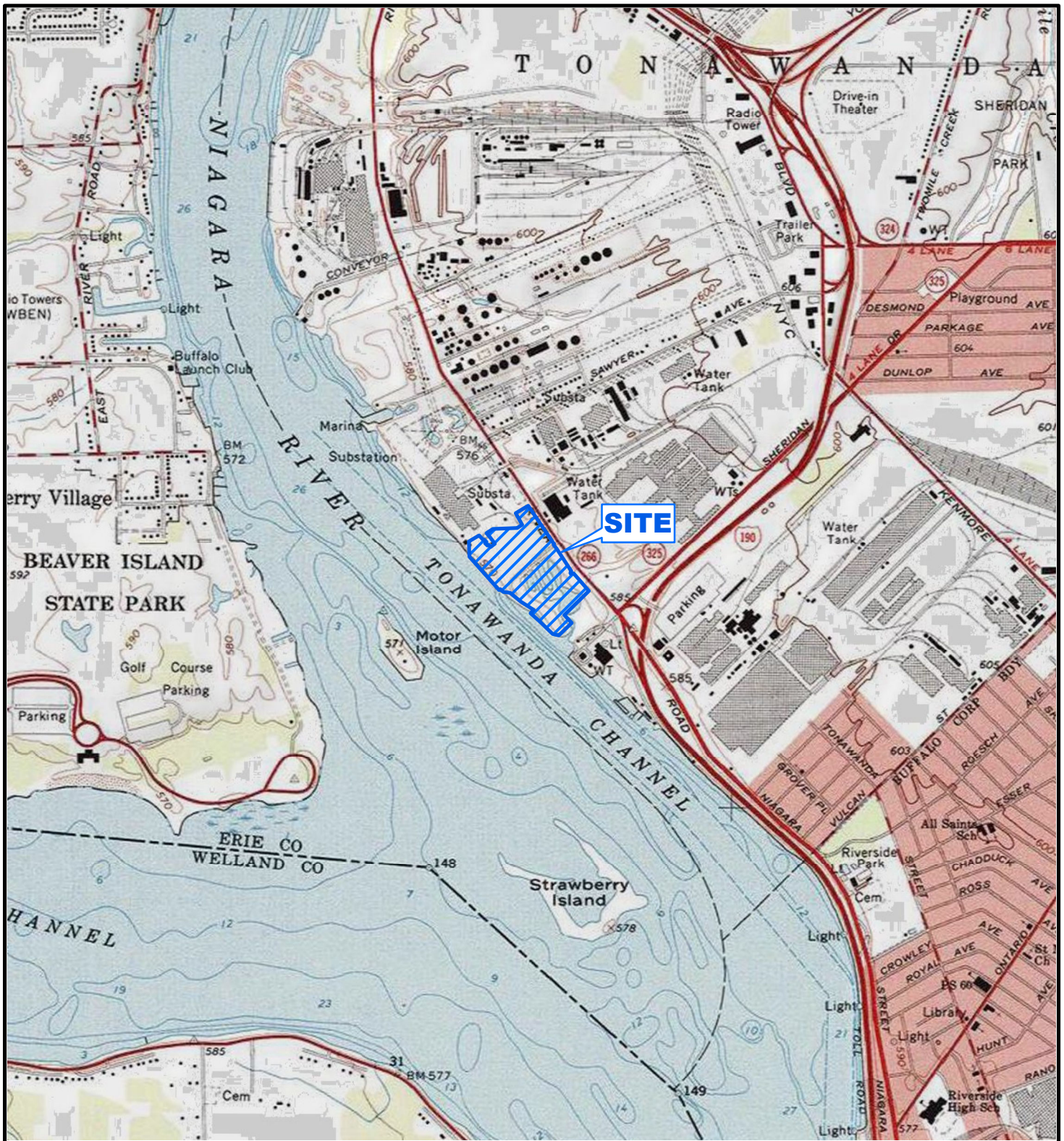
ATTACHMENTS

TABLES

QAPP Table 1
Summary of Analytical Program

Medium	Analysis Type	Method	Sample Container	Preservative	Temperature	Holding Time
Soil	Volatile Organic Compounds	EPA 8260	Glass with Teflon Line Cap	None	4° C (Minimize Headspace)	14 Days
Soil	Semivolatile Organic Compounds	EPA 8270	Amber Glass with Teflon Line Cap	None	4° C (Store in Dark)	14 Days
Soil	Metals	EPA 6010	Glass	None	4° C	180 Days
Soil	Polychlorinated BiPhenyls	EPA 8082	Glass with Teflon Line Cap	None	4° C	14 Days
Soil	Pesticides	EPA 8081	Glass with Teflon Line Cap	None	4° C	14 Days
Soil	Herbicides	EPA 8151	Glass with Teflon Line Cap	None	4° C	14 Days
Soil	Total Cyanide	EPA 9012	Glass	None	4° C	14 Days
Soil	Hexavalent Chromimium	EPA 7196A	Glass	None	4° C	30 Days
Water	Volatile Organic Compounds	EPA 8260	Glass with Teflon Line Cap	Hydrochloric Acid	4° C (Minimize Headspace)	14 Days
Water	Semivolatile Organic Compounds	EPA 8270	Amber Glass with Teflon Line Cap	None	4° C (Store in Dark)	7 Days
Water	Metals	EPA 6010	Plastic	Nitric Acid (pH <2)	4° C	180 Days
Water	Polychlorinated BiPhenyls	EPA 8082	Glass with Teflon Line Cap	None	4° C	7 Days
Water	Pesticides	EPA 8081	Glass with Teflon Line Cap	None	4° C	7 Days
Water	Herbicides	EPA 8051	Amber Glass with Teflon Line Cap	None	4° C	7 Days
Water	Total Cyanide	EPA 9012A	Plastic	Sodium Hydroxide (pH<12 + 0.6g Asorbic Acid)	4° C	14 Days
Water	Hexavalent Chromimium	EPA 7196A	Plastic	None	4° C	24 Hours
Water	1,4-Dioxane	EPA 8270D-SIM	Amber Glass with Teflon Line Cap	None	4° C	7 days
Water	PFAS -(NY 21 List)	EPA Method 1633	Plastic	None	4° C	14 Days

FIGURES



SOURCE : THIS MAP CONTAINS THE ESRI ARCGIS ONLINE USA TOPOGRAPHIC MAP SERVICE, PUBLISHED DECEMBER 12, 2009 BY ESRI ARCGIS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

Data Supplied by :



PROJ. MGR.: JJR
DESIGNED BY: JJR
REVIEWED BY: DJT
OPERATOR: EMD
DATE: 03-15-2019

SITE LOCUS

HUNTLEY POWER SOUTH PARCEL
3500 RIVER ROAD
TONAWANDA, NEW YORK

JOB NO.
21.0056855.00

FIGURE NO.
1

ATTACHMENTS

PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide guidance for collecting samples for per- and poly-fluorinated alkyl substances (PFAS) analyses. *Please note that PFAS are emerging contaminants; therefore, this SOP will be modified as new information becomes available.*

Because of the potential presence of PFAS in common consumer products and in equipment typically used to collect groundwater samples, and the low detection limits associated with laboratory PFAS analyses, special handling and care must be taken when collecting samples for PFAS analyses.

This SOP outlines general practices for collecting PFAS samples and provides a summary of non-acceptable field and sampling materials (likely to contain PFAS) and acceptable alternatives.

BACKGROUND

Based on U.S. Environmental Protection Agency (USEPA) guidance¹, “per- and polyfluoroalkyl substances (PFAS)” is the preferred term to refer to this class of chemicals, although the general public and others may also refer to them as “perfluorinated chemicals (PFCs)” or “perfluorinated compounds (PFCs).”

PFAS are a family of man-made compounds that do not naturally occur in the environment. They have a large number of industrial uses and are found in many commercial products because of their properties to resist heat, oil, grease, and water. Once released to the environment, PFAS are persistent and do not readily biodegrade or break down. There are areas within the United States where widespread PFAS impacts to drinking water supplies have been identified.

The USEPA issued drinking water lifetime health advisories for two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) on May 19, 2016.

RESOURCES

Frequently asked questions, fact sheets and additional information concerning PFAS can be found on the EPA website². The Northeast Waste Management Officials' Association (NEWMOA) provided a five-part webinar training³ series in 2016. The National Groundwater Association (NGWA) published a PFAS guidance document *Groundwater and PFAS: State of Knowledge and Practice* in 2017. Other training events and information are available online. The Interstate Technology & Regulatory Council (ITRC)⁴ is also in the process of preparing educational materials, which will also be available online when completed.

GENERAL GUIDANCE

SITE CONTROL

Due to the ease by which cross-contamination may occur when collecting samples for PFAS analyses, strict site control must be maintained. During daily setup, the field team shall clearly demarcate an exclusion zone (area within approximately 30 feet of sampling location). The exclusion zone shall be marked with stakes, cones, flags, caution tape, or equivalent visual cues. Visitors to the sampling area (including other contractors, managers, regulators, residents, and the public) must stay outside of the exclusion zone while sampling and investigation activities are on-going. If an individual requests access to the exclusion zone, they must receive training on the components of this SOP that are pertinent to the activities occurring at the

¹ <https://www.epa.gov/pfas/what-are-pfcs-and-how-do-they-relate-and-polyfluoroalkyl-substances-pfass>

² <https://www.epa.gov/pfas/what-are-pfcs-and-how-do-they-relate-and-polyfluoroalkyl-substances-pfass>

³ <http://www.newmoa.org/cleanup/workshops.cfm>

⁴ <http://www.itrcweb.org>

time of their access and they will be subject to GZA's health and safety plan. Documentation of all non-GZA personnel within the exclusion zone shall be provided in the daily field summary as well as on the field sample data sheet.

PERSONAL PROTECTIVE EQUIPMENT

Disposable nitrile gloves must be worn at all times within the exclusion zone. Further, a new pair of nitrile gloves shall be donned prior to the following activities at each sample location:

1. Decontamination of re-usable sampling equipment.
2. Contact with sample bottles or water containers.
3. Insertion of anything into the well (e.g., tubing, pump, bailer, water level meter).
4. Insertion of silicon tubing into the peristaltic pump.
5. Sample collection upon completion of monitoring well purging.
6. Handling of any quality assurance/quality control samples including field blanks and equipment blanks.

New gloves shall also be donned after the handling of any non-dedicated sampling equipment, contact with non-decontaminated surfaces, or when judged necessary by field personnel.

Typically, 3 pairs of gloves are required when collecting PFAS samples at a location. Gloves may be worn in layers so that gloves are removed between tasks revealing a set of clean gloves below:

- One pair of gloves is used for sample preparation (exclusion zone setup, transporting coolers to the sample site, preparing field documentation);
- A new pair is donned for labeling sample bottles; and
- A new pair is donned for the sample collection. The use of a different colored glove (e.g., bright orange) for the collection of PFAS samples can help provide a visual reminder to prevent cross-contamination.

Note that field blanks and equipment blanks require a clean set of gloves to avoid cross-contamination with the field samples. Once PFAS samples are collected then bottles for other analytes may be filled if required.

SAMPLE COLLECTION METHOD/SEQUENCE

Bottleware for PFAS samples is provided by the laboratory and should arrive onsite or at the staging area in coolers separate from other (non-PFAS sample) bottleware. Additionally, PFAS bottleware should arrive packaged in Ziploc® brand or equivalent LDPE resealable bags. These bags are used to re-package the PFAS samples following collection. Samples are returned to the laboratory coolers separate from other types of samples to reduce the likelihood of cross-contamination.

During sample collection there are two individuals with different roles. One individual is responsible for handling and labelling the sample bottles and physically collecting the sample (referred to as Clean Hands). The other individual is responsible for purging and disposing of purge water and handling all non-dedicated equipment (referred to as Dirty Hands). The typical sampling procedures is:

1. Clean Hands puts on a new pair of gloves and labels the bottles with information for the lab.
2. Clean Hands then places the bottleware back in the Ziploc® bag provided by the laboratory.
3. After donning a new pair of nitrile gloves, Clean Hands collects the sample for PFAS **first**, prior to collecting samples for any other parameters into any other containers; this avoids contact with any other type of sample container, bottles or packaging materials that may have PFAS-related content. Clean Hands shall remove the bottles (1 at a time) from the plastic bag, remove the cap and obtain the sample. Gloves are removed after each sample and clean gloves are donned for subsequent PFAS samples.

4. Do not place the sample bottle cap on any surface when collecting the sample and avoid all contact with the inside of the sample bottle or its cap. Do not allow sample ports, spigots, and tubes to touch the inside of the bottle or cap.
5. Once the sample is collected, capped and labeled, place the sample bottle(s) in the laboratory-provided Ziploc® bag and place in a PFAS sample-dedicated cooler packed only with double-bagged ice.

SAMPLES COLLECTED FROM MONITORING WELLS

1. If collecting field parameters using a multiparameter meter, samples for laboratory analyses must be collected before the flow-through cell and the three-way stopcock. This will be done by disconnecting the three-way stopcock from the pump discharge tubing so that the samples are collected directly from the pump tubing.
2. When feasible, use dedicated, single-use, or disposable polyethylene or silicone materials (tubing, bailers, etc.) for monitoring well purging and sampling equipment.
3. When reuse of materials or sampling equipment across multiple sampling locations is necessary, follow project decontamination protocols as defined in the QAPP and using allowed materials identified in the table below. If reusable equipment is used, incorporate collection of equipment blanks into the sampling program.
4. When using positive displacement/submersible pump or bladder pump sampling equipment, familiarize yourself with the sampling pump/accessory equipment specifications to confirm that device components are not made of nor contain polytetrafluoroethylene (PTFE, also known as Teflon®) or other PFAS-containing components. For details, please see the list of prohibited and allowed items below.

SAMPLES COLLECTED FROM SOIL BORINGS, TEST PITS, SURFACE WATER, OR SHALLOW SOIL/SEDIMENT

1. Don't use detergent to decontaminate drilling or excavation equipment unless otherwise specified in the QAPP, scrub with a plastic brush and rinse thoroughly in approved tap water, then triple-rinse in distilled or deionized water.
2. Use PFAS-free drilling fluids; collect representative water sample used during drilling activities (see sample handling and chain of custody SOP in Appendix A of the site-specific QAPP).
3. Don't re-use PVC materials.
4. Surface water must be collected by inserting a capped sampling container (polypropylene or HDPE) with the opening pointing down to avoid the collection of surface films. The bottle shall be re-capped below the water surface. For additional details see the surface water sampling SOP in Appendix A of the site-specific QAPP.
5. Soil and sediment core samples must be collected directly from single-use PVC liners that must not be decontaminated or reused at different locations.

DECONTAMINATION

Decontamination fluids have been viewed as a possible source of equipment cross contamination. Therefore, more frequent changes of decontamination liquids may be warranted. Refer to the Equipment and Materials Table below for prohibited and acceptable decontamination liquids.

A final rinse with "PFAS-free" deionized (DI) water is required.

ADDITIONAL CONSIDERATIONS

1. No food or drink shall be brought on-site, with the exception of bottled water and hydration drinks (i.e., Gatorade® and Powerade®) and available for consumption only outside of the exclusion zone.
2. When field personnel require a break to eat or drink, they should remove their gloves and coveralls (if used) and move to an appropriate (downwind) location. When finished, field personnel should then wash with approved materials and put their coveralls (if used) and gloves back on prior to returning to the exclusion zone.

3. Visitors to the site are asked to remain outside of the exclusion zone. Visitors wishing to enter the exclusion zone must have appropriate PPE, be trained on applicable portions of this SOP, and will be subject to GZA's health and safety plan.
4. Note that "PFAS-free" water may contain other contaminants (such as VOCs); therefore, equipment blanks collected for PFAS should utilize "PFAS-free" water while those collected for other analytes should use laboratory-provided water or commercial deionized water depending on the site-specific QAPP requirements.
5. Collect a field blank from each batch of PFAS-free DI water while in the field by pouring an aliquot of the water into the appropriate PFAS sample container. Leaving the lid off of the PFAS-free water container and submitting that container to the laboratory is not acceptable.
6. Refer to the site-specific QAPP for the quantity of field blanks to be collected. At a minimum, field blanks must be collected by the person (clean hands) collecting PFAS samples. Consideration should also be given to when the field blank should be collected so that it is representative of the conditions most likely to influence the sample.

EQUIPMENT AND MATERIALS

The following table provides a summary of items that are likely to contain PFAS (i.e., prohibited items) and that are not to be used by the sampling team at the site, along with acceptable alternatives. This list may change as new information becomes available.

Category	Prohibited Items	Allowable Items
Field Equipment Including: • Pumps • Tubing • Bailers	Teflon and other fluoropolymer-containing materials (e.g., Teflon tubing, bailers, tape; Teflon-containing plumbing paste, or other Teflon materials) Note: The Grundfos Redi-Flow Submersible Pump is a submersible pump which, as of this revision, has a Teflon impeller and is not recommended for collecting PFAS samples.	High-density polyethylene (HDPE) - <i>preferred</i>, or silicone tubing HDPE or stainless steel bailers Peristaltic pumps Stainless steel submersible pumps (e.g., ProActive stainless steel pumps with PVC [polyvinyl chloride]) leads and Geotech Stainless Steel Geosub pumps) Bladder pumps with polyethylene bladders and tubing need to be evaluated on a case by case basis because the gaskets and O-rings may contain PFAS. Equipment with Viton components needs to be evaluated on a case by case basis. Viton contains PTFE but may be acceptable if used in gaskets or O-rings that are sealed away and will not come into contact with sample or sampling equipment.) Gasola NT Non-PTFE Thread Sealant™ has been confirmed by the manufacturer to be PFAS-free and is acceptable for use.
Health & Safety Equipment	Leather Gloves (may be treated)	Cut resistant gloves: MaxiFlex Cut cut-resistant gloves
Decontamination	Decon 90	Alconox®, Liquinox® ¹ , or Citranox®, potable water followed by triple rinse with "PFAS-free" deionized water.

Category	Prohibited Items	Allowable Items
Sample Storage and Preservation	LDPE or glass bottles, PTFE-or Teflon-lined caps, chemical ice packs	Laboratory-provided sample container <i>-preferred</i> ; or, HDPE or polypropylene bottles with an unlined plastic screw cap, as specified by the laboratory doing the analysis, regular ice double-bagged in Ziploc® brand bags. Bubble wrap may be used for shipping provided it does not come into contact with the inside of the bottle or cap before, during, or after sampling.
Field Documentation	Waterproof/treated paper or field books, recycled paper, plastic clipboards, binders, Sharpie® and other markers, electrical tape, Post-It® and other adhesive paper products.	Plain Paper, metal clipboard, ballpoint pens Duct Tape is acceptable provided it doesn't contact the media that is being sampled.
Clothing/Laundrying	Clothing or boots made of or with Gore-Tex™ or other synthetic water proof/ resistant and/or stain resistant materials, coated Tyvek® material that may contain PFAS, fabric protectors (including UV protection), insect-resistant chemicals, stain-resistant chemicals; Fabric softener	Synthetic or cotton material, previously laundered clothing <u>washed greater than six times without the use of fabric softeners</u> . Polyurethane and wax coated materials. Boots made with polyurethane and PVC, untreated leather boots Tyvek material that is PFAS free (e.g., uncoated)
Personal Care Products (for day of sample collection)	Cosmetics, moisturizers, hand cream, antiperspirant/deodorant, scented body wash/shampoo/conditioner and other related products. Hand sanitizer gel. Dental floss and plaque removers.	Personal Care Items: <u>Unscented</u> soaps (7 th Generation unscented, Tom's of Maine Unscented, or similar. No "naturally scented" items) Sunscreens: Alba Organics Natural Yes to Cucumbers Aubrey Organics Jason Natural Sun Block Kiss My Face Baby-safe sunscreens ('free' or 'natural') Insect Repellents: Jason Natural Quit Bugging Me Repel Lemon Eucalyptus Herbal Armor California Baby Natural Bug Spray BabyGanics Deep Woods OFF Sawyer Permethrin Sunscreen and Insect Repellents: Avon Skin So Soft Bug Guard-SPF 30

Category	Prohibited Items	Allowable Items
Food and Beverage	Pre-packaged food, fast food wrappers or containers. Non-stick cookware & containers, aluminum foil. Fast food shall not be consumed within 48 hours of sampling.	Food that is brought and consumed only outside the exclusion zone and does not include prohibited items listed in this table. Hands and faces must be thoroughly washed with soap and water after consuming food and before entering the exclusion zone. Bottled water or hydration drinks (i.e., Gatorade® and Powerade®)

¹. While Alconox and Liquinox soap is acceptable for use for PFAS decontamination, they may contain 1,4-dioxane. If Alconox and Liquinox soap is used at sites where 1,4-dioxane is a COC, then equipment blanks must be analyzed for 1,4-dioxane.

REFERENCES

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GZA GeoEnvironmental of New York