MOVE YOUR ENVIRONMENT FORWARD

SITE CHARACTERIZATION WORK PLAN

Witmer Road Site - Site #932027
James Avenue at Witmer Road
Niagara, New York

Prepared For:

Contract# D009808, Work Assignment No. 32
New York State Department of Environmental Conservation
Division of Environmental Remediation
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1.0 INTRODUCTION

On May 16, 2022, HRP Associates, Inc. (HRP) was authorized to complete this New York State Department of Environmental Conservation (NYSDEC) Work Assignment (WA) No. 32 (D009808-32) for Site Characterization (SC) at the Witmer Road Site, or "Site", located near James Avenue at Witmer Road in Niagara, New York (**Figure 1**). The scope of work for the SC portion of the Work Assignment, discussed herein, was developed based on HRP's review of documents detailing activities on the Site during its operation, and discussions and planning with NYSDEC staff.

1.1 Purpose and Objectives

This Site-specific SC Work Plan describes the details of the scope of work, including all proposed field activities, laboratory analyses and data quality assurance and quality control (QA/QC) evaluation that will be associated with the SC at the Site.

The purpose of the SC is to investigate the identified Areas of Concern (AOCs) associated with the Site (see **Section 1.4**) and determine if they have resulted in surface or subsurface contamination. Specifically, the WA provided by the NYSDEC requested that HRP evaluate the presence of any soil impacts onsite, document groundwater flow patterns and shallow groundwater quality, and evaluate the presence of any impacts to soil vapor across the Site to determine whether the Site should remain in the Registry of Inactive Hazardous Waste Disposal sites. In accordance with DER-10 *Technical Guidance for Site Investigation and Remediation (May 2010),* the primary objectives of the SC scope of work are to:

- Obtain geologic and hydrogeologic data from the Site. The specific information that will be collected and/or verified includes:
    - Soil types (or fill)*;*
    - Depth to groundwater;
    - Groundwater flow direction;
    - Subsurface geology;
    - Bedrock characteristics; and
    - Determine if applicable standards, criteria, and guidance (SCGs) contained in NYSDEC DER-10 and set forth for the Site are contravened.
- Preliminarily delineate the vertical and horizontal extent of impacted soil, sediment, surface water, groundwater, and soil vapor, if any;
- Establish a baseline for any remedial work that may be necessary to address impacted media; and
- Determine if the Site represents a significant threat to public health or the environment and should remain in the Inactive Hazardous Waste Site Registry.

1.2 Site Description and Background Information

The subject Site is located near James Avenue at Witmer Road in Niagara, New York, (**Figure 1**), and is the focus of this investigation. The one-acre study area includes portions of four tax parcels (including Kach's Auto Salvage, a portion of Garlock's Auto Scrap Yard, a high voltage transmission right-of-way used by Niagara Mohawk Power Corporation, and segments of three "paper roads," which are roads that were proposed for development but were never developed).

Historic reports indicate that portions of the site were reportedly used as disposal areas for various types of waste including lime clean-outs from the International Mineral and Chemical Company, wastes from air pollution control equipment owned and operated by Airco Alloys and slag materials from the Vanadium Corporation from the early 1940s to 1965. The City of Niagara also reportedly operated two refuse burning pits where paper, furniture and wood debris were burned. These burning operations ceased in the 1960s due to citizen complaints of odor and smoke. The burn bays were reportedly cleaned out and debris removed subsequent to these complaints.

The Site is connected to the municipal water supply. The Site is zoned for commercial use, as are surrounding properties. Abutting properties include several other scrap yards that include:

North: Dave's Auto Wrecking (across Niagara Mohawk Right-of-Way)
East: Kach's Auto and Witmer Road
South: Satarian Auto Parts and Double C Realty of NY, Inc.
West: Niagara Mohawk Powerlines and Garlock's Auto

1.3 Site Geology and Hydrogeology

According to the information and a cursory review of historic project files provided by the NYSDEC, surficial soils at the Site include sands, gravels, clay, silt, slag and miscellaneous surficial debris deposited as part of site disposal activities. Bedrock is presumed to be Lockport Dolomite, which likely occurs at elevations between 595 feet and 590 feet above mean sea level (MSL). The top of rock reportedly slopes to the southwest in this area. The Lockport Dolomite forms the uppermost bedrock aquifer. Although zones of perched water may occur seasonally at depths between 7.5 and 11.3 feet below ground surface, no continuous overburden/soil aquifer has reportedly been identified in this area. Local groundwater flow is presumed to be in a westerly to southwesterly direction based upon a preliminary Site Assessment performed by ABB Environmental Services in 1993.

1.4 Areas of Concern

Several phases of assessment activities have been completed at the Site including preliminary site assessments, supplemental site characterizations, site surveys, right-of-way site assessments, and geophysical surveys. As mentioned previously the Site has a documented history of industrial/municipal waste disposal based upon information provided to HRP. This past property usage has resulted in the designation of several Areas of Concern (AOCs) associated with the Site.

Portions of the Site were historically used for the disposal of refuse or burning of municipal wastes by the City of Niagara from the 1940s into the 1960s. Ash was reportedly hauled offsite during the operational timeframe of the burn pits.

ISCO Chemical Company, Inc., also known as Innes Spelden and Company, deposited lime cleanouts from process vessels at the Site. The Niagara County Health Department (NCHD) noted that ISCO Chemical manufactured a soil fumigant/larvicide called chloropicrin. Chloropicrin bottles labeled "poisonous larvicide" were identified during the Geomatrix Consultants Right-of-Way Assessment, Titanium Station Report done for National Grid in October 2001.

NCHD also reported that baghouse dust from Airco as well as slag materials from the Vanadium Corporation were also disposed at the Witmer Road Site. The Site, as well as several adjacent properties, have documented histories as automobile salvage yards dating back to the 1950s based upon historic reports. The general location of these known AOCs is shown in **Figure 2**. The presence of slag from the Vanadium Corporation at the Site indicates the potential presence of radioactive materials with the slag, requiring the completion of a Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) survey at the Site (**Section 2.2.2**).

1.5 Previous Site Investigations

ABB Environmental Services (ABB) completed a Preliminary Site Assessment of the Witmer Road property for the NYSDEC in 1993. The site boundaries were not clear prior to the completion of this assessment but the report noted that the Site had been used as a disposal area for various types of waste including lime baghouse clean-out and slag materials from local industries, as well as the operation of two burn pits on the present day Kach's Auto Scrap yard portion of the property.

The first round of intrusive Site assessment activities occurred in June 1982. The United States Geological Survey (USGS) completed a soil boring program adjacent to the refuse burn pits. These shallow soil borings (terminated at less than 7 feet below ground surface) indicated elevated levels of copper (up to 28,000 µg/kg) and iron (up to 1,400,000 µg/kg). Additional soil borings installed by the USGS in 1983 confirmed the presence of 1,1,1 trichloroethane (1,1,1–TCA), bis(2-ethylhexyl) phthalate, benzene, carbon disulfide, 2-octadecanol, 2-methyl(s)-1-dodecanol, molecular sulfur, and unknown hydrocarbons.

Groundwater samples were collected within the vicinity of the nearby Hyde Park Landfill (**Figure 2**) in 1984 to establish regional groundwater flow direction and conditions. Three nearby private domestic wells were also sampled as part of this study performed by the NYSDOH. The Site and the surrounding area are presently serviced by a municipal water supply and private wells are believed to have been taken out of service. Samples showed low levels of miscellaneous chlorinated compounds, including TCE, PCE, benzene, and dichloromethane. The NYSDOH determined that the concentrations detected were below levels of concern.

The Site was evaluated and scored to determine whether it posed a relative risk or danger to the environment. The facility was determined to not pose an imminent risk but warranted further assessment in the future.

Additional samples and site inspections were completed at the Site through the late 1980s. These sampling results showed the presence of low levels of polychlorinated biphenyls (PCB's), lead, and chromium. A Site visit was conducted in July 1990. The results of which indicated that there were

12-14 open 55-gallon drums and 10-15 partially buried drums containing "tar like substances and residuals liquids" and several mounds of ash and slag across the Site.

Several rounds of additional sampling were completed over the next few years, including the installation of three monitoring wells across the Site. It was determined that the waste piles were not D002 hazardous waste, although one of the drums was labelled as containing 1,1,1-TCA and some of the glass bottles observed were labeled "poisoned larvicide" as mentioned previously. A soil sample collected from one of the fill piles exhibited a pH greater than 12.5.

In January 1994, the NYSDOH issued a memo stating that the Site is "not readily accessible, and no significant threat exists although a re-evaluation would be necessary if the Site use changes." Numerous discussions between the Regional NYSDEC Office and Central Office occurred over the next year and no changes were made to the jurisdictional issues associated with the Site.

Niagara Mohawk began site assessment activities associated with their Titanium Substation Right-of-Way evaluation in July 2000. Several Volatile Organic Compounds (VOC's) were identified in work completed within the ash piles. Five drums were also identified; two were empty, one was full and labelled "used antifreeze," one was full of water with an oily residue, and one was quarter full of rainwater. Glass vials/bottles labeled "Poison Larvicide"/Chloropicrin, a larvicide, were also noted at the Site. Chloropicrin is a registered toxic compound in New York State. A sample collected from one of the ash piles also showed a concentration of chloropicrin of 34 mg/kg. Niagara Mohawk completed additional sampling at the Site including the collection of 7 surface fill pile soil samples, including 3 discrete surface soil samples that were collected from 0-4 inches below grade; an additional surface sample was collected near two 55-gallon drums, as well as 13 subsurface fill pile soil samples, and 7 background soils samples of native soil. They also installed 2 temporary and collected samples from 2 permanent monitoring wells that were found at the Site.

HRP staff completed a Site visit to Kach's Auto Salvage in November 2022 at the request of the NYSDEC. HRP personnel delivered a site access letter to the Site owner while also doing a walkthrough of the salvage yard. Approximately 120 55-gallon drums were observed on the eastern portion of the salvage yard. Roughly 60% of the drums were filled to some capacity and unlabeled; approximately 20% were labeled either "waste oil" or "used antifreeze" while the remaining 20% were unfilled and not labeled. The drums were highly variable in exterior condition. Three mounds of waste tires were also noted as well as at least three spills/staining of areas across the Site. Non-aqueous phase liquid-like sheen and droplets were observed on most bodies of standing water at the Site. These locations are shown in **Figure 2**. These Site issues were reportedly being addressed under a Notice of Violation (NOV) issued by Region 9 of the NYSDEC and are not part of this assessment program.

In summary of the review of previous investigations at the Site, the following media of concern are:

- Groundwater:
    - tetrachloroethene;
    - metals;
    - 1,1-dicholoroethene;
    - 1,1-dichloroethane;

  - 1,1,2-trichloroethene;
  - benzene; and
  - toluene.

- Soil:
  - tetrachloroethene (PCE);
  - toluene;
  - polycyclic aromatic hydrocarbons (PAHs);
  - chloropicrin; and
  - PCBs.

- Surface soils:
  - polycyclic aromatic hydrocarbons (PAHs); and
  - chloropicrin (VOC without established SCO).

- Soil vapor:
  - volatile organic compounds.

The Site has been dormant for some time and more recent sampling data is needed to determine whether the Site poses a risk to human health and the environment. The proposed investigation locations are based on historic areas of concern. Boring locations are biased towards the historic waste fill piles (which are now at ground surface), unlabeled drums, and burn pits found on- and off-site as shown in **Figure 2**. The proposed preliminary activities, sampling procedures, and investigation techniques used to evaluate this Site are described below in **Section 2.**

2.0 SITE CHARACTERIZATION (SC) SCOPE OF WORK

This scope of work has been designed to gather data to evaluate each project objective listed in **Section 1.1** of this work plan. The following sections provide specifics regarding the scope of work developed under this NYSDEC-approved Work Assignment (D009808-32) in support of the completion of a SC at the Witmer Road Site (Site # 932027).

2.1 Preliminary Activities

As part of the scope of work, the following documents have been prepared under this Work Assignment:

- Project-specific Work Plan (this document) to accompany the generic Field Activities Plan (FAP),
- Site-specific Health and Safety Plan (HASP) (included as **Appendix A** of this Work Plan),
- Community Air Monitoring Plan (Appendix B),
- Project-specific Quality Assurance Project Plan (QAPP) (included as **Section 3** of this Work Plan) to accompany the generic QAPP.

The NYSDEC-approved generic FAP, HASP, and QAPP are on file with the NYSDEC. The Site-specific elements are provided below.

2.1.1 Work Plan

This SC Work Plan has been prepared for use in performing the SC and will serve as the "Site-specific FAP." This SC Work Plan identifies the components of the Site Investigation and a description of the tasks to be performed including the specific methods or procedures that will be used to conduct the field sampling. A proposed project schedule is included in **Section 4.1** of this SC Work Plan.

2.1.2 Health and Safety Plan

A Site-specific HASP is provided in **Appendix A**. The HASP provides guidance to maximize health and safety of on-site workers during the completion of the SC - specific tasks including media sampling, installation of wells, surveying, and other field related activities. The HASP has guidelines for health and safety supervision, air monitoring, medical monitoring, personal protective equipment, site controls, safe work practices and decontamination, etc. Included along with the Site-specific HASP is a Community Air Monitoring Plan (CAMP) that details procedures for air monitoring during intrusive activities. The CAMP will be implemented during intrusive activities, described in Section 2.2.2 of this Work Plan. Details of the CAMP can be found in **Appendix B** and the DER-10 Technical Guidance referencing CAMP can be found in **Appendix C**.

2.1.3 Quality Assurance Project Plan

A Site-specific QAPP has been prepared and is included in **Section 3** of this SC Work Plan. The Site-specific QAPP was prepared as a supplement to the Generic QAPP with necessary Site-specific information. Deviations from the protocols specified in the QAPP will be subject to the approval by NYSDEC, and by the HRP QA Officer.

The Generic QAPP provides general information related to QA/QC procedures associated with the collection and analysis of samples of environmental media and includes specific representative standard operating procedures (SOPs) applicable to sample handling and field instrumentation use. Information provided in the Generic QAPP includes definitions and generic goals for data quality and required types and quantities of QA/QC samples. The procedures address field documentation; sample handling, custody, and shipping; instrument calibration and maintenance; auditing; data reduction, validation, and reporting; corrective action requirements; and QA/QC reporting specific to the analyses performed by the laboratories that are used for analysis of environmental media collected under Standby Contract No. D009808.

All laboratory analytical work will be performed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) approved laboratory certified in all categories of Contract Laboratory Protocol (CLP) and Solid and Hazardous Waste analytical testing. A Data Usability Summary Report (DUSR) will be included in the Site Characterization Report (SCR) for each round of analytical work. Category B deliverables will be retained in the project files and available for full data validation by a qualified, independent third party.

2.2 Investigation, Environmental Sampling, and Implementation

The SC will include the components described below and consist of subsurface/intrusive characterization. The SC will include characterizing and sampling of the surface (0-2 inches below vegetative cover) and subsurface soil (anticipated to occur at 15-18 inches bgs) and groundwater to meet project objectives. The number and type of samples to be collected is discussed below and summarized in **Table 1**. The field investigation tasks for the Site are listed below in the order that they will be completed.

1. Determine the Site boundaries and obtain site access to the Site with Site owners. This may require access agreements between the DEC and property owner to be obtained. (HRP will assist the NYSDEC in the procurement of access agreements as per the NYSDEC's request).
2. Call in Underground Utility Clearance through NYS Code Rule 753/Dig Safe System.
3. Complete a Ground Penetrating Radar (GPR) survey to locate utilities and/or obstructions in the ground that may affect the locations of soil borings and/or monitoring wells.
4. TENORM Survey
5. Subsurface Soil Investigation (Soil boring installation and sampling of up to 15 locations)
6. Groundwater Characterization (Well installation and sampling of up to 4 locations)
7. Soil Vapor Characterization (Soil vapor point installation and sampling of up to 4 locations)
8. Characterization and Disposal of Investigation Derived Waste (IDW), if generated
9. Analytical Data Quality Evaluation
10. Base Map Development and Site Survey

2.2.1 Underground Utility Clearance and Ground Penetrating Radar (GPR)

Prior to implementing any intrusive activities, a utility clearance will be conducted. HRP will rely upon multiple lines of evidence to ensure to the maximum extent practicable that subsurface features are identified prior to commencement of intrusive work.

HRP will mark sampling locations prior to installation and contact public utility clearance services to mark out the utilities prior to the survey. The drilling contractor, or HRP, will request utility mark outs through NYS Code Rule 753/Dig Safe System. The Underground Facilities Protection Organization is limited to public right-of ways and will only identify utilities entering private property rather than utilities present on-site.

GPR is a non-destructive and non-intrusive geophysical exploration technique that uses radar waves to detect subsurface objects, such as tanks, drums, and piping. The GPR is also capable of detecting discontinuities in the subsurface materials indicative of excavated and backfilled areas, such as those associated with possible USTs. The objective of performing this survey is not only to make subsurface investigation as safe as possible for the field staff while protecting utilities, but also to identify possible sources and migration pathways (utility corridors, etc.). All anomalies identified during the GPR survey will be marked in the field. Boring locations will also be photographed for inclusion in the daily site inspection reports.

If necessary, the upper five feet at all boring locations will be cleared of any underground utilities by non-mechanical means, such as hand-digging methods.

2.2.2 TENORM Survey

HRP is proposing to retain the MJW Companies (MJW) to complete a TENORM Survey of the property due to the potential presence of radioactive slag on the Site.

The radiological characterization services will include a GPS-Enabled Gamma Walkover Survey and the collection of soil samples. Characterization efforts will focus on identification of TENORM. However, the gamma walkover survey design will also detect radiation from other Naturally Occurring Radioactive Materials (NORM) and most anthropomorphic sources if present. Following gamma survey activities, soil and slag samples will be prepared for shipment to the analytical laboratory for analysis by gamma spectroscopy. Following receipt of sample analytical data, a data quality assessment and review of the data will be performed before being summarized and reported. A summary report describing characterization activities, the data assessment process, and findings relevant to the project objectives will be provided. If anticipated or needed, documentation describing the safe handling and management of the radioactive materials identified can also be completed.

Project radiological characterization activities to be performed will include the following:

1. **Pre-Mobilization**

   MJW will prepare a Radiological Work Safety Plan (RWSP) detailing the Site radiological hazards, appropriate monitoring instrumentation and techniques, contamination levels requiring alternative actions, initial safety briefing/radiological training, and PPE requirements. The RWSP will be commensurate with the scope of the radiological hazards to be encountered during the radiological work activities and in compliance with NRC- and NYDOH-mandated regulatory requirements.

2. Overland Gamma Radiation Survey and Soil Sampling

Based on the project objectives and information, an MJW radiological technician (RCT) and radiological support supervisor (RCS) will perform a GPS-enabled gamma walk-over survey of the Site to identify potentially TENORM-impacted areas. Impacted areas will be identifiable by noting elevated gamma count rate readings above background levels and typical of near surface TENORM impacts. The gamma survey will also include scanning in a background area with similar surface and soil materials to establish a project-specific investigation level (IL) which will be used as an indicator of TENORM impacts. Gamma survey area coverage will be determined based on accessibility. The gamma walkover survey will be conducted by a two-person crew consisting of a Field Supervisor (RCS) and a Radiological Technician (RCT). The survey team will use a 2x2 NaI gamma detector coupled to a GPS unit to record gamma survey and location data.

A subsurface investigation will be conducted to characterize the near surface soil profile in elevated measurement locations (EML) identified in the gamma walkover survey. The subsurface investigation will involve a hand dig or hand auger in 6-inch intervals to a depth of 2-feet below ground surface. Gamma scans of the depth intervals combined with visual identification of slag will be used as criteria to determine sample collection. The number of samples collected will be determined in the field based on the radiological site characterization, the number of EMLs identified, consistency of gamma count rates, and visual identification of slag. The estimated number of samples is 3-5 samples including a background soil sample for comparison.

3. Radiation Survey Report

HRP will be provided with a summary report of the activities performed. This report will include: a narrative regarding the Site conditions and background, activities performed, targeted scope and data objectives, the quality data assessment, gamma scan and soil sample results summary including spatial assessment using a posting plot depicting the gamma count rate intensity, likely locations of impacted subsoils, and radiological concentrations of impacted TENORM materials based on laboratory sample results. A conclusion regarding the activities performed will present the results of those activities and highlight areas that may warrant further investigation. The results of this report will be provided in the SC Report to the Department and/or reviewed prior to Site-intrusive work detailed below.

2.2.3 Surface and Subsurface Soil Characterization

In order to assess surface and subsurface soil at the Site, the unconsolidated soils at the Site will be evaluated at representative locations. Samples on the National Grid Right-of-Way will be collected by hand, no machinery will be used. It is anticipated that any soil cuttings will be containerized and labelled in 55-gallon drum(s) for proper disposal if evidence of impacts are noted (i.e., odor, sheen) during the investigation. Further discussion of IDW is discussed in **Section 2.2.5**. These proposed testing locations are provided in **Figure 2**; exact locations may vary based on the results from the GPR survey and site access.

2.2.4 Soil Boring Installation

Surface soil samples will be collected at 0-2 inches at all proposed sampling locations to confirm surface soil quality. As mentioned previously, samples on the National Grid Right-of-Way will be collected using a hand auger. The 10 soil borings will then be advanced using a direct-push drilling rig to collect continuous soil samples and characterize subsurface conditions from surface grade to approximately 20 ft bg, top of bedrock or refusal as was completed during historic site investigative activities. Specifically, HRP will collect data to determine the characteristics of the subsurface soils at the Site and the distribution of compounds in the subsurface. All soil samples will be screened for volatile organic vapors using a photoionization detector (PID) equipped with an 11.7 electron volt (eV) bulb to detect volatile chlorinated compounds (including chloropicrin), and any evidence of impacts will be noted and used for selection of soil samples. Two soil samples from each boring will be submitted for laboratory analysis based on field observations. One sample will be collected from the water table interface and one sample will be collected from the first two feet below grade or in areas of elevated PID readings if encountered. An estimated total of 26 grab samples (20 regular samples, 2 duplicate, 2 matrix spike, and 2 matrix spike duplicate) will be analyzed by Pace Laboratories or similar call out laboratory for the full list of characterization parameters:

- Target Compound List (TCL) VOCs +10 by EPA Method 8260 (including chloropicrin);

Additionally, nine soil samples (6 regular samples, 1 duplicate, 1 matrix spike, and 1 matrix spike duplicate) will be analyzed for:

- TCL SVOCs +20 by EPA Method 8270;
- Target Analyte List (TAL) Metals by EPA Method 6010B;
- Total cyanide by EPA Method 7471A;
- Total mercury by EPA Method 9012;
- TCL PCBs by EPA Method 8082;
- TCL chlorinated herbicides, pesticides by EPA Method 8081B;
- PFAS Analyte list compounds by modified EPA Method 1633; and
- 1,4-dioxane by EPA Method 8270 SIM.

2.2.5 Soil Sample Collection and Handling Procedures

Soil samples will be collected directly above the water table or at an interval that is impacted based on physical observation (above or below the water table), olfactory senses, or elevated PID reading. Soil samples collected using the direct-push drilling rig will be collected using a macro-core sampler.

The sampling equipment to be used includes stainless steel trowels, bowls, spoons, or scoops, drill tooling, sample containers, sampling zip lock bags, and coolers with ice.

Nitrile gloves will be worn at all times by personnel collecting and handling the samples. All non-disposable equipment and tooling used for sampling will be properly decontaminated between sampling locations and intervals. Decontamination procedures are described in **Section 2.3.3.** Soil samples will be collected using clean laboratory-supplied, appropriate containers (as listed in **Table 2**) and will be preserved on ice in coolers during field sampling activities. Target samples will then be submitted for laboratory analysis. Contingency samples will be stored at proper temperatures, as

listed in **Table 2**, pending follow-up analysis, as necessary. Duplicate and MS/MSD will be collected at a frequency of 1 per 20 samples.

2.2.6 Groundwater Characterization

For the purpose of evaluating groundwater quality and to obtain groundwater flow information, 4 soil borings will be converted to monitoring wells at the Site. The proposed locations were selected in an effort to determine the level of impacts (if any exists) and the direction of groundwater flow on the Site. The proposed locations are presented in **Figure 2**.

2.2.7 Monitoring Well Installation

A direct-push or hollow stem auger (HSA) drilling rig will be advanced through the overburden material and used to set each of the 4 monitoring wells. The HSA drill rig will be employed if the direct push Geoprobe rig is not able to advance the proposed well points. The target depth and construction of these wells will be dependent on the subsurface conditions encountered in the field but are anticipated to be completed at approximately 20 ft bg (note depth to water has been measured as occurring at approximately 11 ft bg).

Unless significantly elevated VOC concentrations are observed (indicating that alternative materials such as stainless steel be used) monitoring wells will be constructed of 2-inch PVC solid well pipe riser and a ten-foot PVC 10-slot screen that will be positioned to intercept the water table. All 4 wells will be finished with protective casing and locked covers. All equipment will be appropriately decontaminated between sampling locations, as described in **Section 2.3.3**. Based on well location, any soil cuttings will be spread either on-site or containerized as discussed in **Section 2.3.4**.

2.2.8 Soil Vapor Characterization

The NYSDOH October 2006 Guidance Document suggests that Soil Vapor Investigations (SVIs) start at areas of known or suspected source areas and work outward based upon site specific conditions. This Site will be difficult to complete given its historic use as an automotive junkyard and documented historic site disposal activities. HRP proposes to complete the previously mentioned site assessment activities and generate soil and groundwater quality data to determine the nature and extent of impacts at the Site. As outlined in the DOH guidance document, sampling locations will vary based upon surface features, subsurface conditions and targeted areas of impacted soil and groundwater quality. There are no occupied on-site structures, only the office for an adjacent junkyard so all sampling will be through the use of soil vapor sampling points to assess the migration of gaseous vadose zone contamination. We propose to complete the following activities:

- Install up to 4 soil vapor points across the Site. A direct push drill rig will be used to advance soil borings to a maximum depth of 10 ft bg. The soil vapor points are to be co-located with proposed monitoring wells. Proposed soil vapor point locations are depicted in **Figure 2**.

- For the purpose of determining depth to water (if present) and identifying potential sources of impacts to soil vapor quality, soil samples will be collected continuously, logged, and screened using a calibrated PID.

- Soil vapor points are to be constructed using 6-inch steel screens and nylon, Teflon, or Teflon-lined tubing. Soil vapor points are to be backfilled with No. 0 filter sand and/or glass beads and finished with a 2-foot bentonite seal and an 8-inch road box. Soil vapor points will be set at a depth of one foot above the water table or 10 ft bg, whichever comes first.

Collect soil vapor samples from each of the four soil vapor points for laboratory analysis. Duplicate soil vapor samples will be collected at a frequency of one per 20 samples. Ambient outdoor air samples will be collected at a frequency of one sample per day. Up to 6 air samples (4 soil vapor, 1 duplicate soil vapor, 1 outdoor air) will be analyzed for VOCs via EPA Method TO-15 by an ELAP laboratory selected from the NYSDEC call-out contract. Sample locations and totals are summarized in **Table 2**. Sample quality assurance details are summarized by analysis and matrix on **Table 3**.

2.2.9 Sampling of Monitoring Wells

Prior to sampling, depth to water measurements will be collected from all monitoring wells using a water level meter graduated in 0.01-foot increments. Monitoring wells will be measured from the top of each surveyed point prior to sampling activities. Data from each monitoring well will be used to construct a groundwater contour map to determine the direction of groundwater flow and the hydraulic gradient on the Site. Until deemed unnecessary, in addition to measuring the water level, the wells will be checked for both light and dense non-aqueous phase liquids (LNAPLs and DNAPLs) using an interface probe.

Groundwater samples will be collected from the newly installed wells a minimum of seven days after well development has been completed. A complete synoptic round of water levels will be taken prior to the start of groundwater sampling. Field parameters will be collected for depth to water, temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential (ORP), and turbidity to ensure stabilization prior to sampling. All groundwater samples will be collected in general accordance with EPA low-flow groundwater sampling procedures. It is estimated that a total of 9 groundwater samples (4 normal, 1 duplicate, 1 field blank, 1 matrix spike, 1 matrix spike duplicate, and 1 trip blank) will be analyzed by Pace-Contest Laboratories or another NYSDEC "call-out" laboratory for analysis of following parameters:

- TCL Volatile Organic Compounds (VOCs) +10 by EPA Method 8260;
- TCL SVOCs +20 by EPA Method 8270;
- TAL metals by EPA Method 6010B;
- Total cyanide by EPA Method 7471A;
- Total mercury by EPA Method 9012;
- TCL PCBs by EPA Method 8082;
- TCL chlorinated herbicides, pesticides by EPA Method 8081B;
- Chloropicrin by EPA Method 8011;
- PFAS Analyte list compounds by modified EPA Method 1633; and
- 1,4-dioxane by EPA Method 8270 SIM.

All analytical samples will be completed using QA/QC NYSDEC Method Category B. The laboratory will submit analytical results to HRP in NYSDEC EDD format. IDW generated from the installation of monitoring wells and the development and sampling of monitoring wells shall be analyzed in accordance with NYSDEC DER-10. As mentioned in the material included with the WA this material

may be discharged to the ground surface if not grossly contaminated based upon field observations. Representative samples of cuttings and spoils may have to be analyzed to determine classification, treatment, and disposal.

2.3 Survey of Investigation Locations

2.3.1 Base Map Development and Site Survey

The subject property and surrounding areas will be surveyed by a New York State licensed land surveyor. The field survey will include establishing project horizontal control and the collection of planimetric features for the development of 2D mapping. Subsequently, a base map of the Site will be developed using Computer Aided-Design (CAD) software that will be utilized to place all sampling locations from previous on-site and off-site investigations. The sample locations will be placed on the base map by geo-referencing previous figures into the local CAD coordinate system, and will include all monitoring wells, borings, surface soil samples. Property lines and other pertinent site features will be shown on this base map.

Upon completion of the investigation fieldwork, a survey will be conducted to properly locate all sampling points such as monitoring wells and soil borings, and any other sample locations. The elevations of all monitoring well casings will be established to within an accuracy of plus or minus 0.01 feet based on an arbitrary local vertical benchmark. A notch will be etched in all interior casings, or a permanent black mark, to provide a reference point for all future groundwater elevation measurements.

2.3.2 Well Development

Each newly installed well will be developed a minimum of 24 hours after completion by pumping and surging for two (2) hours or until the field parameters stabilize for a minimum of three (3) consecutive readings of 10 percent variability of less. The field parameters include temperature, pH, oxidation reduction potential, dissolved oxygen, and specific conductance. In addition, the turbidity of the groundwater should achieve a reading of 50 Nephelometric Turbidity Units (NTUs) or less during the field parameter readings.

All purge water generated during well development and sampling will be containerized and disposed of in accordance with NYSDEC DER-10. If olfactory or visual impacts are observed, the groundwater will be segregated and handled as described in **Section 2.3.4**. All development equipment will be appropriately decontaminated between sampling locations or disposed of after a one-time use.

Monitoring well, soil vapor point, and soil boring locations and elevations will be surveyed according to a horizontal and vertical datum by a New York State licensed land surveyor. Field surveying will include establishing project horizontal control and the collection of soil borings, monitoring wells, soil vapor samples and other relevant Site features. Coordinates and elevations provided to HRP by the surveyor will be plotted on an aerial image base map of the Site.

Monitoring well top of casing elevations will be surveyed according to a vertical datum to within an accuracy of plus or minus 0.01 feet. A notch or a permanent black mark will be etched in all interior casings, to provide a reference point for all future groundwater elevation measurements.

2.3.3 Decontamination Procedures

Non-dedicated sampling equipment (i.e., water level indicators, etc.) will be subject to decontamination procedures prior to each sample collected to reduce the potential for cross-contamination as described in the Generic Field Activities Plan. The decontamination procedures will include the use of a scrub wash with a solution consisting of Alconox® detergent and potable distilled water followed by a rinse with DI water. Liquinox® will not be used as if samples are to be collected for 1,4-dioxane analysis since Liquinox® may contain a small amount of 1,4-dioxane. The decontaminated equipment will be stored in clean environments (i.e., the manufacturer's storage case). Decontamination fluids will be properly labeled and securely stored in the designated waste-container staging area.

2.3.4 Disposal of Investigation Derived Waste

IDW generated from the subsurface characterization, monitoring well installation and development will be handled in accordance with NYSDEC DER-10. HRP will be responsible for supplying the equipment and materials necessary for the proper handling and storage of the IDW, such as DOT-approved 55-gallon drums. All containers will be labeled and stored properly.

Soil will be handled and disposed of in accordance with DER-10. If off-site disposal of the derived waste is required, it will be disposed of or treated according to applicable local, state and federal regulations. Soils from the SC (including the TENORM survey)may be disposed within the borehole provided the hole will not be used for the installation of a monitoring well (cuttings may also be used to backfill holes resulting from soil sampling), the boring did not penetrate an aquitard nor an aquiclude and backfilling the hole with cuttings will not create a significant path for vertical movement of compounds. Soil additives (bentonite) may be added to the cuttings to reduce permeability. Six (6) inches of cohesive, compacted soil may be placed over the area of the hole.

Material that is visually stained or exhibits strong odors may be segregated from non-impacted material. Additionally, cuttings which are stored/disposed on-site shall be monitored for volatile emissions and for fugitive dust emissions. Monitoring instruments available at the Site as determined by the site-specific HASP may generally be sufficient. If any action level specified in the HASP is exceeded, corrective actions such as interim cover, placement in containers, etc., shall be implemented promptly.

Decontamination fluids will be containerized separately from other SC derived waste, and any decontamination fluids that do not exhibit evidence of impacts will be containerized separately from those exhibiting evidence of impacts.

2.4 Site Characterization Report

2.4.1 Electronic Data Delivery

In addition to appropriate data summary tables and boring logs included in the report, all environmental data will be submitted electronically in a specified Electronic Data Deliverable (EDD) format named in accordance with the data submission procedures outlined on the NYSDEC's web site (http://www.dec.ny.gov/chemical/62440.html).

2.4.2 Analytical Data Quality Evaluation

This Work Plan and the associated site-specific QAPP Section detail the data quality objectives and analytical requirements needed for this WA. Quality assurance protocols are provided in the Generic QAPP.

During the final Work Plan review period, the site-specific QAPP Section and Work Plan will be reviewed and modified according to NYSDEC requirements and comments. Once the plans are finalized, deviations, if required, from protocols specified in the plans will be approved in advance by NYSDEC. As required, the selected analytical laboratory will maintain NYSDOH ELAP certification in all categories of CLP and Solid and Hazardous Waste analytical testing for the duration of the project.

The selected laboratory will supply all required data deliverables (USEPA CLP and NYSDEC ASP deliverable format) to enable the data to be validated. All environmental data will be submitted electronically in a specified format named 'NYSDEC' in accordance with the data submission procedures outlined on the NYSDEC's web site (http://www.dec.ny.gov/chemical/62440.html).

Upon receipt of the sample data, the validation contractor will quantitatively and qualitatively validate the laboratory data. The validation of the analytical data will be performed according to the protocols and QC requirements of the analytical methods, the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Review (February 1994), the USEPA Region II CLP Data Review SOP, and the reviewer's professional judgment.

Additional data review, validation, and analysis includes:

- Review Category B data to complete Data Usability Summary Report (DUSR) in accordance with DER-10 guidance.
- Process all laboratory data obtained during the investigation through the NYSDEC EQuIS processor for validation.
- Submit EQuIS approved EDD to the Department and DEC Project Manager.

2.4.3 Site Characterization Report

The Site Characterization Report (SCR) will be prepared as part of this work assignment following completion of the field activities. The SCR will provide a description of the field activities, present data collected during field characterization, present a physical description of the Site including geology and hydrogeology, and provide an analysis and interpretation of the available data in the context of existing Site conditions. The report will include tabulated laboratory analytical results, Site maps and a discussion of compound concentrations, including a comparison to NYSDEC SCGs, as described in Section 3.13 of DER-10.

The SCR prepared as part of this assignment will also provide a summary of the general nature of environmental impacts (if present) on the Site to the extent investigated by the SC including, without limitation, the numbers of areas of concern requiring further investigation and/or remediation and

any significant events or seasonal variation which may have influenced sampling procedures or analytical results. A description of each area of concern identified, including dimensions, suspected and actual contamination and suspected source of discharge or disposal recommendations for either additional investigation in the SC, remediation, or no further action for each area of concern. The submitted report will include the report text, appropriate tables, figures, photographs, data summary tables, and boring logs in a PDF format. The electronic file will contain "bookmarks." In addition, a hard copy of the report will be sent, if requested.

3.0 SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN

This site-specific Quality Assurance Project Plan (QAPP) has been prepared as a companion Section to accompany the Generic QAPP for the standby subcontract prepared by HRP for the New York State Department of Conservation (NYSDEC) under Standby Contract No. D009808. The purpose of the QAPP is to specify QA/QC procedures for the collection, analysis, and evaluation of data that will be legally and scientifically defensible.

3.1 Site Specific Sampling

3.1.1 Sample Handling

Soil and groundwater samples will be collected during this SC. Detailed sampling procedures are detailed in Section 4.0 of the Generic QAPP. Matrix types, number of samples (including QA/QC) and analytical details are summarized in **Table 1**. Proposed sample locations are depicted in **Figure 2.**

3.1.2 PFAS Sampling

Sampling for PFAS will occur at the Site during the planned activities covered in this Work Plan. Specific requirements for field sampling procedures including precautions to be taken, pump and equipment types, decontamination procedures, and a list of approved materials to be used during sampling for PFAS compounds are included in Section 14.1 of HRP's Generic FAP, on file with NYSDEC. During soil and groundwater sampling, PFAS samples will be collected and placed in appropriate laboratory provided containers prior to sampling for other parameters. Only regular ice will be used in the transport of samples being analyzed for PFAS.

The PFAS compounds will be analyzed by methods based on EPA Method 1633. Specific PFAS compounds to be analyzed include:

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8

Group	Chemical Name	Abbreviation	CAS Number
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

The minimum method achievable Reporting Limits for PFAS will be less than or equal to 0.5 μg/kg (micrograms per kilogram or ppb) for soil samples and less than or equal to 2 ng/l (nanograms per liter or ppt) for aqueous samples.

3.2 Data Quality Assessment and Usability

Data quality objectives for the Site are focused towards 1) the characterization of releases of hazardous substances impacting environmental media at the Site and 2) the evaluation of the requirements and feasibilities of remediation in significantly impacted areas and/or a specific source area, if defined.

To achieve these objectives, QA/QC measures will be implemented throughout the SC investigation to provide input as to the validity and usability of data generated through soil and groundwater sampling. The procedures for data QA/QC management include field documentation; sample handling, custody, and shipping; instrument calibration and maintenance; auditing; data reduction, validation, and reporting; corrective action requirements; and QA reporting specific to the analyses performed by the laboratory under subcontract to HRP. **Table 2** lists the sample containers, preservation, and holding time requirements for the parameters specific to this Site. These tables will be referenced by field personnel.

For all data generated during the SC, a Category B Data package and DUSR will be prepared to provide a thorough evaluation of analytical data utilizing third-party data validation. Environmental Data Services, Inc. will be the third-party data validator for this project.

4.0 PROJECT MANAGEMENT

HRP has the responsibility of the overall management of this project and will respond to any NYSDEC requests. A proposed project schedule, key milestones, key project personnel, and project-specific subcontractors follow.

4.1 Project Schedule and Key Milestones

The proposed project schedule for this work assignment is outlined below. Key milestones are identified to monitor work progress. The following milestones will be applicable for this project:

- Milestone 1: SC WA Field Activity Plan development — Ongoing
- Milestone 2: NYSDEC and NYSDOH review of all Site-specific plans — Ongoing
- Milestone 3: TENORM Survey — March 2024
- Milestone 4: Subsurface soil sampling — May 2024
- Milestone 5: Installation and sampling of monitoring wells/vapor points — May 2024
- Milestone 6: Installation and sampling of soil vapor points — May 2024
- Milestone 7: Removal of any investigation-derived waste — August 2024
- Milestone 8: Complete Data Validation — September 2024
- Milestone 9: SCR — November 2024

The field work associated with soil and groundwater sampling (Milestone 4) will begin within 1-2 weeks of NYSDEC review and approval of all site-specific plans, contingent upon availability of subcontractors. Soil and groundwater samples will be submitted for laboratory analysis within 24 hours of field collection, and laboratory results can generally be expected within 10 days of submission. Any investigation-derived waste generated from the Site during the SC will be scheduled with the contractor to be removed within 1 week of the completion of Milestone 5, sampling of the monitoring wells. The timeframe of pickup and removal of this waste (Milestone 7) will be determined by the contractor upon scheduling. Data validation (Milestone 8) will begin upon receipt of the first set of laboratory results and will continue to be submitted for validation as the results are received from the laboratory. Data validation is expected within a 4-week timeframe. The SCR (Milestone 9) will be submitted as a draft report within 60 days after HRP receives the last round of analytical data from the laboratory. A second draft SCR will be submitted, if needed, within 2 weeks after the data validation company has reviewed the final analytical submitted for the investigation. A final version of the SCR will be submitted within two weeks after the DEC Project Manager's comments on both draft reports are received by HRP.

4.2 Key Project Personnel

A list of the project personnel of the prime consultant and subcontractors responsible for performance of the investigation has been submitted to the NYSDEC for approval. Primary project staff are listed below:

Personnel	Company	Title for this Work Assignment	Responsibility
David Stoll, PG (Senior Project Manager)	HRP Associates, Inc. (Prime Consultant)	Project Manager	Overall management of the WA
Alisa Werst, CSP (Project Manager)	HRP Associates, Inc.	Office Health & Safety Manager	Approval of HASP and responsible for overall health and safety issues with the WA
Michael Varni (Senior Project Geologist)	HRP Associates, Inc.	Corporate QA/QC Officer	Responsible for QA/QC on the WA
Elliott Jackson (Project Consultant)	HRP Associates, Inc.	Field Manager and Site Health & Safety Officer	Responsible for the on-site sampling and investigative tasks
John Gorman (Project Consultant)	HRP Associates, Inc.	Field Geologist	Responsible for on-site sampling and supporting investigative tasks

Subcontractors for this project will include:

- Survey – TO BE DETERMINED
- Ground Penetrating Radar – NW Contracting
- Drilling – NW Contracting
- Laboratory – Pace Analytical to provide all media sample analyses
- Data Validation – Environmental Data Services, Inc.
- Investigation-derived waste (contingent upon analytical results) – Clean Harbors
- TENORM Survey – The MJW Companies

5.0 REFERENCES

Engineering-Science with Dames & Moore, Phase I Investigation, January 2016

E.C. Jordan Co., Preliminary Site Assessment, March 1991

ABB Environmental Services, Geophysical Survey Summary Report, December 1992

Geomatrix Consultants, Inc., Right-of-Way Site Assessment, November 2001

NYSDEC, Internal NYSDEC Site History Memorandum, March 1994

NYSDEC, Witmer Road Timeline

NYSDEC, Work Plan, Witmer Road Site, Site No. 932027, Supplemental Site Characterization

FIGURES

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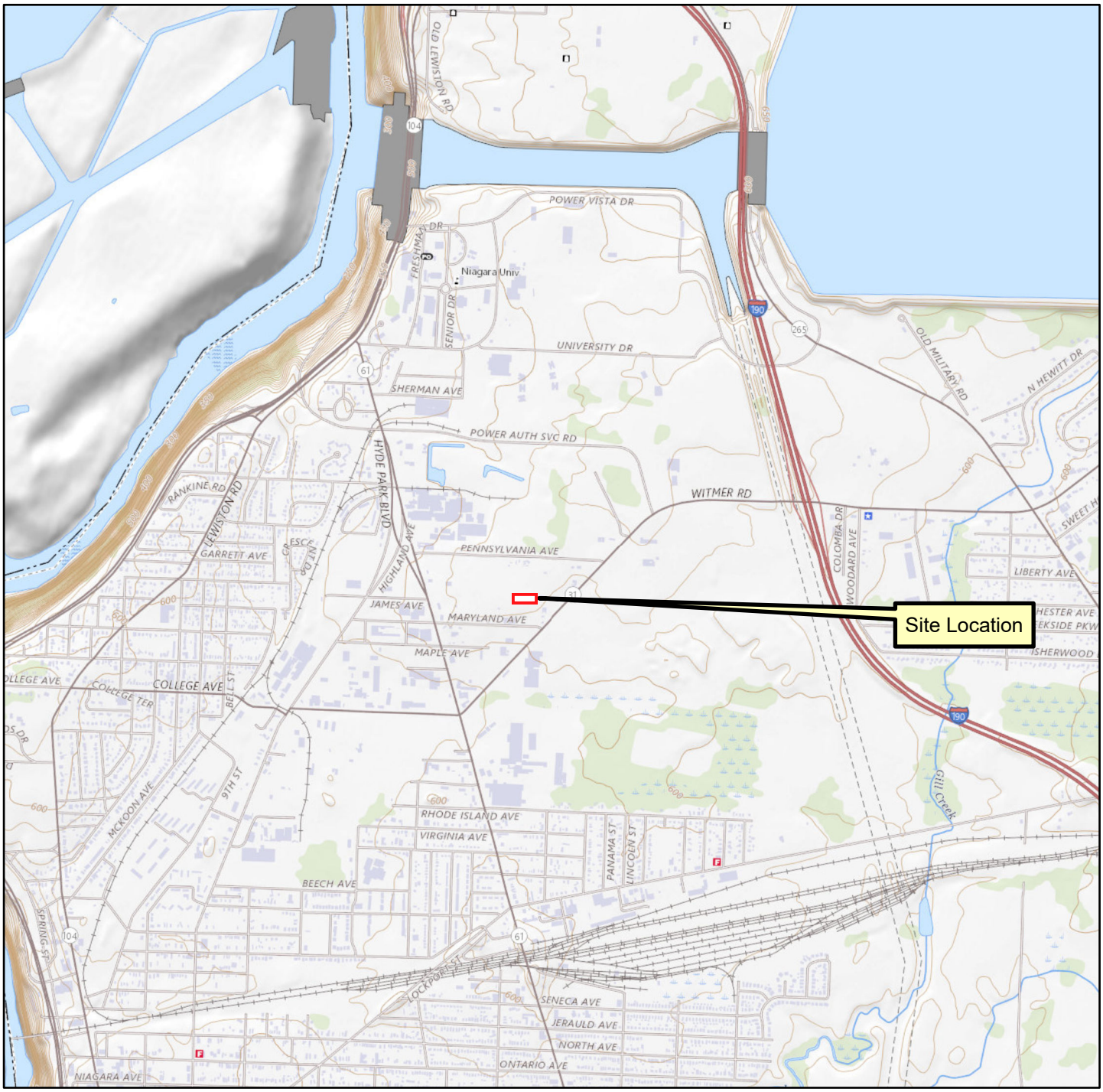

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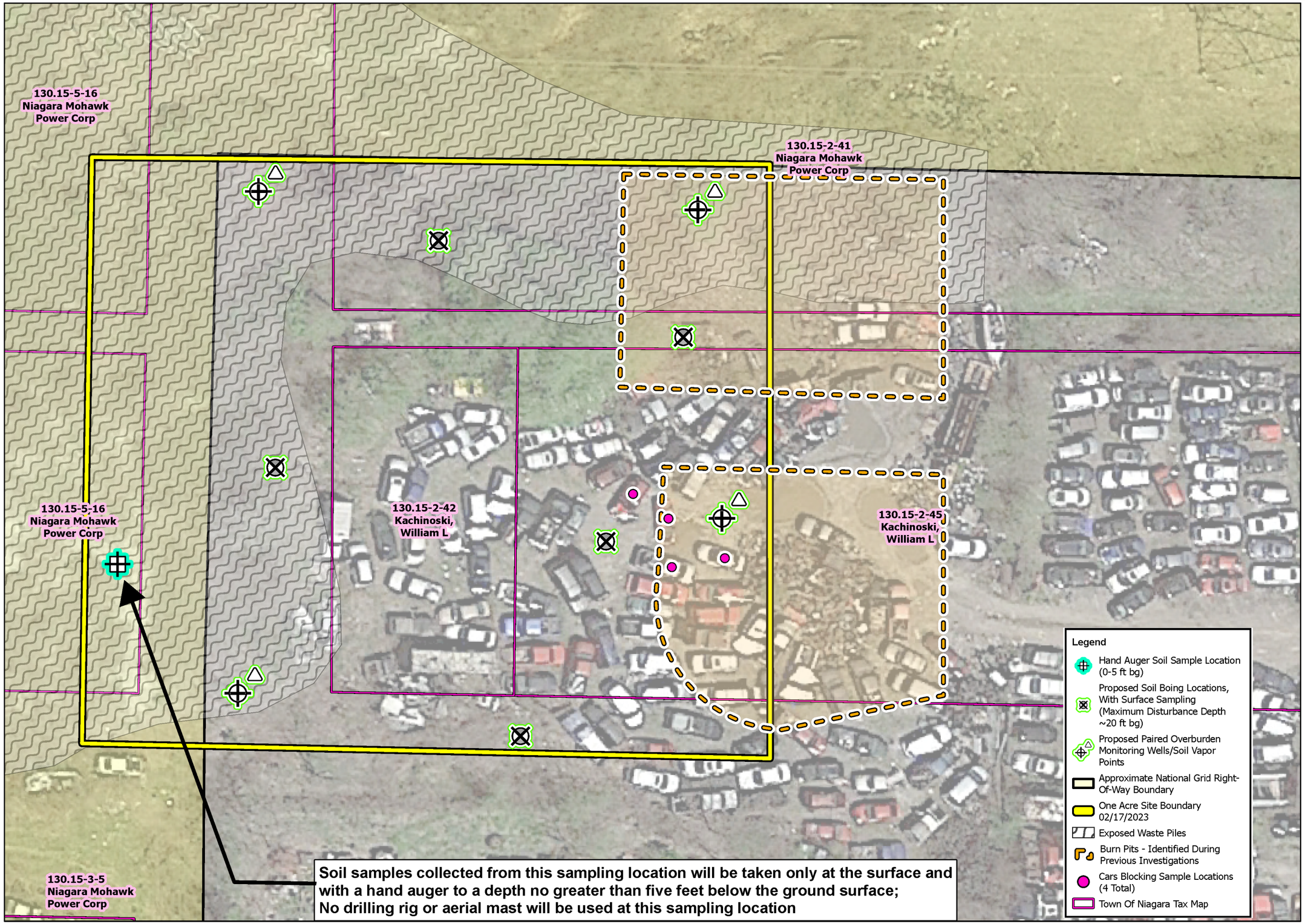
USGS Quadrangle Information
Quad ID: 43079-B1
Name: Lewiston, New York

Figure 1
Site Location
Site # 932027, Witmer Road Site
James Avenue at Witmer Road
Niagara, New York
HRP # DEC1032.P2
Scale 1" = 2,000'

HRP
MOVE YOUR ENVIRONMENT FORWARD
ONE FAIRCHILD SQUARE
SUITE 110
CLIFTON PARK, NY 12065
(518) 877-7101
HRPASSOCIATES.COM



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Date					

Designed By:	Drawn By:	Reviewed By:
CMS	EWJ	DCS

Issue Date:	Project No:	Sheet Size:
10/12/2023	DEC1032.P2	11x17

Site Plan and Proposed Investigation Locations (Basemap February 2023)

Waste Dumping Area
James Ave at Witmer road
Niagara, New York

Figure No.
2

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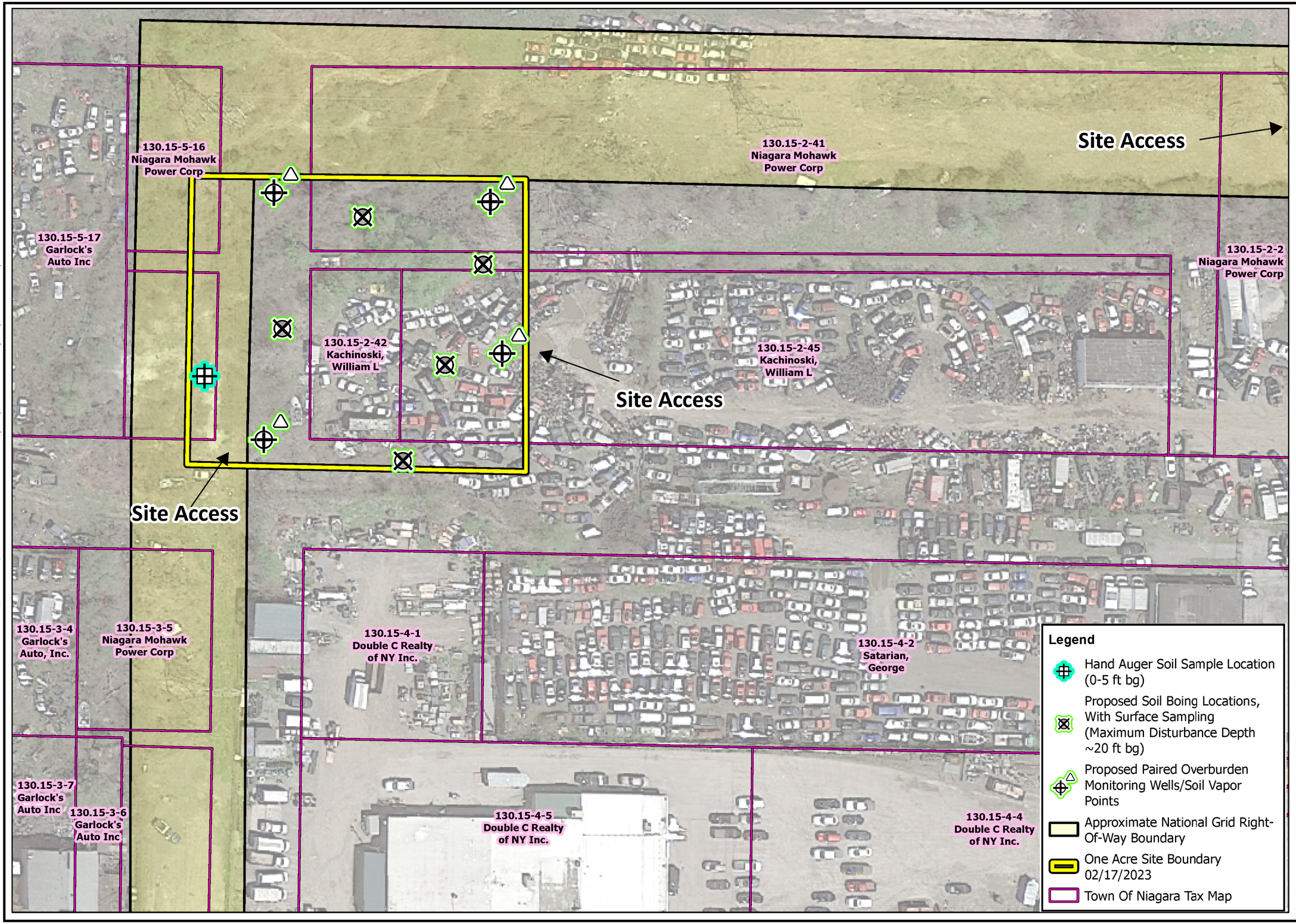

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Designed By:	Drawn By:	Reviewed By:
CMS	EWJ	DCS

Issue Date:	Project No:	Sheet Size:
10/12/2023	DEC1032.P2	11x17

Proposed Sample Locations and Tax Parcels

Car Scrap Yard
James Ave at Witmer road
Niagara, New York

Figure No.

3

TABLES

Table 1
Sample Summary
Witmer Road Site, DEC Site #932027
James Avenue at Witmer Road
Niagara, New York

Activity	Sample Locations	Matrix	Samples to be Collected	Analyses
Soil Borings	20	Soil (shallow samples/sub surface)	20	VOCs +10 by EPA Method 8260 Chloropicrin by EPA Method 8260 SVOCs +20 by EPA Method 8270 TAL metals by EPA Method 6010B Total cyanide by EPA Method 9012 Total mercury by EPA Method7471A PCBs by EPA Method 8082 Chlorinated pesticides by EPA Method 8081A PFAS Analyte list compounds by modified EPA Method 1633 1,4-dioxane by EPA Method 8270 SIM
	2 QA/QC	MS/MSD, Duplicate	6	
Monitoring Wells	4	Groundwater (Onsite)	4	VOCs +10 by EPA Method 8260 Chloropicrin by EPA Method 8011 SVOCs +20 by EPA Method 8270 TAL metals by EPA Method 6010B Total cyanide by EPA Method 9012 Total mercury by EPA Method7471A PCBs by EPA Method 8082 Chlorinated pesticides by EPA Method 8081A PFAS Analyte list compounds by modified EPA Method 1633 1,4-dioxane by EPA Method 8270 SIM
	5 QA/QC	MS/MSD, Duplicate, Field Blank, Trip Blank	5	
Soil Vapor	4	Soil Vapor	6	TO-15
	2 QA/QC	Duplicate, Ambient Air		

Acronym List:

VOCs: Volatile Organic Compounds
SVOCs: Semi-Volatile Organic Compounds
TAL: Target Analyte List
PCBs: Polychlorinated Biphenyls
PFAS: Per- and polyfluoroalkyl substances

Table 2
Analytical Methods/Quality Assurance Summary
Witmer Road Site (#932027)
James Avenue at Witmer Road
Niagara, New York

					Containers per Sample			Preservation Requirements			
Parameter	**Matrix**	**Number of Samples (including Field QC)**	**Preparation Method**	**Analytical Method***	**No.**	**Size**	**Type**	**Temp.**	**Light Sensitive**	**Chemical**	**Maximum Holding Time**
SOIL											
VOCs by GC/MS	Soil/Sediment	20	5035A	SW-846 Method 8260B	3 vials 1 jar	40 ml vials, any size jar	glass vials clear glass jar	2-6º C	No	MeOH/ Sodium bisulfate/ freezing	14 days
Chloropicrin by GC/MS	Soil/Sediment		5035A	SW-846 Method 8260	3 vials 1 jar	40 ml vials, any size jar	glass vials clear glass jar	2-6º C	No	MeOH/ Sodium bisulfate/ freezing	14 days
SVOCs by GC/MS	Soil/Sediment		3546	SW-846 Method 8270C	1	8 oz	amber glass jar	2-6º C	Yes	NA	14 days
TAL Metals (except Hg) by ICP	Soil/Sediment		3050B	SW-846 Method 6010B	1	8 oz	clear glass jar	NA	No	NA	6 months
Mercury (Hg) by CV	Soil/Sediment		7471A	SW-846 Method 7471A	1	8 oz	clear glass jar	NA	No	NA	28 days
Total Cyanide	Soil/Sediment		9012	SW-846 Method 9012	1	8 oz	plastic bottle	2-6º C	No	NA	14 days
PCBs by GC	Soil/Sediment		3546	SW-846 Method 8082	1	8 oz	clear glass jar	2-6º C	No	NA	14 days
Chlorinated Pesticides, Herbicides by GC	Soil/Sediment		3546	SW-846 Method 8081A	1	8 oz	clear glass jar	2-6º C	No	NA	14 days
PFAS	Soil/Sediment		NA	Modified Method 1633	1	8 oz	polypropylene	2-6º C	No	NA	14/28 days
1,4-Dioxane	Soil/Sediment		3546	SW-846 Method 8270	1	8 oz	amber glass jar	2-6º C	Yes	NA	14 days
GROUNDWATER											
VOCs by GC/MS	Aqueous	9	5035	SW-846 Method 8260B	3	40 ml	glass vial	2-6º C	No	HCL	14 days
Chloropicrin by GC/MS	Aqueous		5035	SW-846 Method 8011	3	40 ml	glass vial	2-6º C	No	HCL	14 days
SVOCs by GC/MS	Aqueous		3510C	SW-846 Method 8270C	2	1 liter	amber bottle	2-6º C	Yes	NA	7 days
TAL Metals (except Hg) by ICP	Aqueous		3005A	SW-846 Method 6010B	1	500 ml	plastic bottle	NA	No	Nitric Acid	6 months
Mercury (Hg) by CV	Aqueous		7470	SW-846 Method 7470A	1	250 ml	plastic bottle	NA	No	Nitric Acid	28 days
Total Cyanide	Aqueous		9010	SW-846 Method 9012A	1	250 ml	plastic bottle	2-6º C	No	NaOH	14 days
PCBs by GC	Aqueous		3510C	SW-846 Method 8082	2	liter	clear glass bottle	2-6º C	No	NA	7 days
Chlorinated Pesticides, Herbicides by GC	Aqueous		3510C	SW-846 Method 8081	2	liters	clear glass bottle	2-6º C	No	NA	7 days
PFAS	Aqueous		NA	Modified Method 537.1	2	250 ml	plastic bottle	2-6º C	No	NA	14 Days
1,4 Dioxane	Aqueous		3546	SW-846 Method 8270	2	liter	amber bottle	2-6º C	Yes	NA	14 Days
SOIL VAPOR/AMBIENT AIR											
VOCs	Soil Vapor, Air	6	NA	EPA TO-15	1	6-Liter	Summa Canister	NA	No	NA	30 days

GC: Gas Chromatography
CV: Cold Vapor
PCBs: Polychlorinated Biphenyls
ICP: Inductively Coupled Plasma
VOCs: Volatile Organic Compounds
SVOCs: Semi-Volatile Organic Compounds
MeOH: Methanol
HCL: Hydrochloric Acid
TAL: Target Analyte List

APPENDIX A

Site-Specific Health and Safety Plan

MOVE YOUR ENVIRONMENT FORWARD

SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP)

Witmer Road Site
James Avenue at Witmer Road
Niagara, New York
DEC Site ID # 932027

Prepared For:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233
Contract #D009808-32

Prepared By:

HRP Associates, Inc.
1 Fairchild Square, Suite 110
Clifton Park, NY 12065

HRP #: DEC1032.P2

Issued On: January 22, 2024

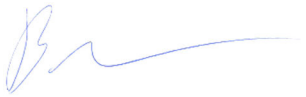
Addendum Number	Date Issued	Reason For Modification

Disclaimer

HRP Associates does not guarantee the health or safety of any person entering this site. Due to the potential hazards of this site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this site. The health and safety guidelines in this plan were prepared specifically for this site for use and should not be used on any other site.

CERTIFICATION

This Addendum to the HRP Generic Health and Safety Plan has been prepared under the supervision of, and has been reviewed by, a Certified Safety Professional (CSP).



Bryan Sherman, ASP
ASP # 31838

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Figures

Tables

Appendices

1.0 EMERGENCY CONTACTS/PLANNING

The Health and Safety Officer will coordinate the entry and exit of response personnel in the event of an emergency. The following information, including directions to the nearest hospital shall be posted at the Site. When contacting the local authorities, be sure to provide: your name, facility name, full address, telephone number, and the nature of the emergency.

Emergency Phone Numbers James Avenue at Witmer Road Niagara, New York	
Emergency Contacts	**Phone Number**
Fire, Ambulance, Police Emergency:	911
Niagara Falls Police Department (routine calls):	716-297-0755
City of Niagara Fire Department (routine calls):	716-286-4720
Niagara Falls Memorial Medical Center (Niagara Falls):	716-278-4000
Poison Control Center:	1-800-222-1222
NYDEC Spills hotline:	1-800-457-7362
National Response Center:	800-424-8802
Project Manager: David Stoll	518-877-7101 ex. 1407
Site Safety Officer: John Gorman	716-225-5545
NYSDEC Project Manager: Jasmine Stefansky	518-402-9575

Map and directions to the following medical facilities are provided in **Figure 3**:

- **NEAREST Hospital -** located at 621 10th St, Niagara Falls, NY 14301 (approximately 2.7 miles from the work site)

First Aid, Fire Protection, Emergency Response Equipment Storage Locations	
First Aid Kit:	In Vehicle
Fire Extinguisher:	In Vehicle
Eye Wash (Bottle):	In Vehicle
Spill Kit	In Vehicle
Hand Sanitizer	In Vehicle
Social distancing Caution Tape, Cones	In Vehicle

A Safety and Logistics Planning call will be held prior to conducting any intrusive activities at the site. Representatives from HRP and each subcontractor will attend the call to discuss logistical and safety challenges general to the scope of work and specific to the Site. This call is documented on the Safety and Logistics Planning Call Log in **Appendix A.**

2.0 INTRODUCTION

2.1 Purpose and Scope

This Health and Safety Plan (HASP) addresses the health and safety practices that will be employed by HRP Associates, Inc. personnel and our subcontractors participating in the Site Characterization (SC). The SC will be comprised of the following tasks to evaluate the environmental conditions of the Site and the surrounding are: drilling of soil borings, installation of monitoring wells, development of monitoring wells, sampling of monitoring wells, and disposal of wastes generated during site field activities.

This HASP has been developed in accordance with HRP's Generic Safety and Health Program as required under OSHA's Hazardous Waste Operations Standard (29 CFR 1910.120). This Plan has been developed to establish minimum standards necessary for onsite investigation activities to protect the health and safety of HRP personnel. HRP site personnel have received the required level of training and field experience as required under subpart (e) of the Standard, and have received medical examinations in accordance with HRP's medical surveillance program as required under subpart (f) of the Standard. No other personnel will be permitted in the Exclusion Zone unless they have received training and medical surveillance under the Standard.

HRP personnel and associated contractors shall be familiar with this HASP prior to conducting proposed site work. This plan must be present on site and be available for reference/inspection when the subject site work is being conducted.

2.2 Site Information and Areas of Environmental Concern

2.2.1 Site Information and Description

Site Name: Witmer Road Site

Site Address: James Avenue at Witmer Road, Niagara Falls, New York

Site Contact: Jasmine Stefansky

Site Contact Phone Number: 518-402-9575

2.3 Background and Project Description

The NYSDEC Site, located at James Avenue at Witmer Road (**Figure 1**) is the focus of this investigation. This Site is approximately 1.0 acres in size, according to the Niagara County online GIS map viewer. One building is currently present on the Site, 1800 approximately square foot building originally constructed in 1983. Site operations currently include metal scrapping. The site is connected to the municipal water supply and serviced by the municipal sanitary sewer. Surrounding land in the area of the Site is mostly industrial properties. Topography slopes generally to the west, towards Witmer Road, which is located adjacent to the property.

Environmental investigations were performed at the Site from 1986-2001, which identified a historical release of chlorinated solvents (CVOCs), polycyclic aromatic hydrocarbons (PAHs) and heavy metals that have impacted the soil and groundwater at the Site. Data from these investigations indicated that these substances are present at elevated levels on-site. The proposed site characterization to be performed in conjunction with this HASP will work to define the degree and extent of the groundwater plume, as well as characterize the soils across the Site.

2.3.1 Personnel Designations

The following personnel are designated to perform the stated project activities and to ensure that the requirements of this HASP are met. The same person may fill more than one role, and/or serve as an alternate in the absence of the designated team member.

All subcontractors must have received the required level of training and field experience as required under subpart (e) of OSHA 29 CFR 1910.120 and OSHA 29 CFR 1926.65 for Hazardous Waste Operations and Emergency Response (HAZWOPER).

Project Team Member	Responsibilities and Tasks
John Gorman (or Qualified Alternate Safety Officer)	**Health & Safety Officer – HRP Associates, Inc.** - Ensuring all site work is being performed in accordance with HRP Associates, Inc. Safety Program, as well as in accordance with local, state and federal regulations. - Directing and implementing HRP's HASP. - Reviewing the Subcontractor's HASP and being aware of the hazards detailed therein. - Conduct a job orientation meeting and routine safety meetings for HRP Associates, Inc. employees and subcontractors, as applicable. - Provide copies of these inspections, recordkeeping/personnel logs to the engineer/contractor as required. - Ensuring all project personnel have been adequately trained in the recognition and avoidance of unsafe conditions. - Authorizing Stop Work Orders that shall be executed upon the determination of an imminent health and safety concern, and will notify the appropriate contacts upon issuance of this order. - Authorizing work to resume, upon approval from the Contractor. - Directing activities, as defined in the HRP's and the Contractor's written HASP, during emergency situations. - Providing personnel monitoring where applicable. - Ensuring that adequate personal protective equipment and first aid supplies are available. - Ensure site security, to the extent practicable. - Ensure accident victims are promptly cared for, and the incident is investigated and properly reported.
David Stoll (Site Supervisor/ Project Manager) **Mark Wright (Alternate Site Supervisor)**	**Site Supervisor/Project Manager – HRP Associates, Inc.** - Monitor and assist the site Health and Safety officer. - Maintain appropriate rules, regulations and codes at the job site. - Provide advance safety planning for all activities through the use of scheduling and administrative controls. - Obtain site-specific health and safety information and communicate that information with the appropriate personnel (i.e. contractors, client, etc.) - Report all injuries, illnesses and other incidents to the Director of Safety[1]. - Ensure all HRP personnel are trained and qualified to perform site work.
Site Workers[2] (Subcontractors)	**Site Workers** - Read and work in accordance with this HASP. - Report all unsafe work practices to the HSO. - Report all incidents, including near-misses to the HSO. - Work in a safe manner. - Provide Designated Competent Person
A complete list of HRP employee and subcontractor responsibilities (as applicable) can be found in the HRP Generic Health and Safety Plan. 1 Supervisor's Investigation Report included as (**Appendix C**) 2 A list of site workers will be maintained in the Personnel Log (**Appendix B**)	

3.0 AREAS OF ENVIRONMENTAL CONCERN

3.1 Scope of Work

In general, the work to be performed by HRP and HRP's subcontractors consists of investigative methods to evaluate the environmental condition of the Site. The fieldwork for this task includes the following subtasks:

- Obtain access to the Site with Site owners, and adjacent property owners as necessary. May require access agreements between DEC and property owner be obtained;
- Call in Underground Utility Clearance through NYS Code Rule 753/Dig Safe System;
- Complete a Ground Penetrating Radar (GPR) survey to locate utilities and/or obstructions in the ground that may affect the locations of test borings and/or monitoring wells understanding the potential influence of overhead utilities;
- Complete an Electromagnetic (EM) survey to identify buried potential metal objects and to better define subsurface features at the Site. Historic reports have indicated that GPR and EM surveys were not sufficient to determine underground utilities or buried objects located on the Site. If necessary, GPR and EM surveys will not be conducted, and instead each boring will be hand cleared to a depth of 5 feet below ground surface (bgs); and
- Complete a Land Survey to identify the property boundaries of the Site.

Soil Borings

- To evaluate the condition of onsite soils, and to define the degree and extent of contamination at the Site, 15 soil borings will be installed using a direct-push rig at the locations shown on Figure 2.
- One sample from each boring will be collected for laboratory analysis. A second sample may be collected based upon field observation (staining, field instrument response).
- Approximately 3 samples are planned for collection from mounded waste piles onsite.
- A total of 36 planned soil samples (30 regular samples, 2 duplicates, 2 matrix spikes, and 2 matrix spike duplicates) will be analyzed for Target Compound List (TCL) VOCs +10 and Chloropicrin via EPA Method 8260.
- In addition to VOC analysis, 9 soil samples (6 regular samples, 1 duplicate, 1 matrix spike, and 1 matrix spike duplicate) will be analyzed for TCL SVOCs+20 via EPA Method 8270, Target Analyte List (TAL) metals, TCL PCBs by EPA Method 9012, TCL chlorinated herbicides and pesticides by EPA Method 8081B, cyanide by EPA Method 9010C/9014 and emerging contaminants (1,4-dioxane [EPA Method 8270 SIM] and PFAS [EPA Method 1633]).
- Locations will be determined in consultation with NYSDEC personnel.

Groundwater

- ***Four*** monitoring wells will be installed to an approximate depth up to 20 feet bgs. The target depth and construction of these wells will be dependent on the subsurface conditions encountered in the field. Unless significantly elevated VOC concentrations are observed (indicating that alternative materials such as stainless steel be used) monitoring wells are to be constructed of 2-inch PVC solid well pipe riser and a ten-foot PVC 10-slot screen that will be positioned to intercept the water table. The wells will be completed with flush-mounted protective casings and locking covers.

- Monitoring wells will be developed a minimum of 24 hours after their completion. Each well will be developed by pumping and surging, or until the field parameters stabilize for a minimum of three consecutive readings of 10 percent variability of less. The field parameters include: temperature, pH, oxidation-reduction potential, dissolved oxygen, and specific conductance. In addition, the turbidity of the groundwater must achieve a reading of 50 Nephelometric Turbidity Units (NTUs) or less during the field parameter readings.
- All groundwater obtained during well development and sampling will be disposed of in accordance with DER-10.
- Groundwater sampling will occur a minimum of one week after development has been completed. Groundwater samples will be collected from the three newly installed wells. A complete synoptic round of water levels will be taken prior to the start of groundwater sampling.
- A total of nine groundwater samples (4 normal, 1 duplicate, 1 field blank, 1 matrix spike, 1 matrix spike duplicate, and 1 trip blanks) will be submitted to Eurofins Test America, Inc. laboratory under chain of custody procedures and analyzed for TCL VOCs +10, chloropicrin via EPA Method 8011, TCL SVOCs+20, TAL metals, TCL PCBs, TCL chlorinated herbicides and pesticides, cyanide, and emerging contaminants (1,4-dioxane and PFAS [Method 537.1 or 1633 depending on the preferred analytical method at the time of collection]).
- Groundwater samples will be collected in accordance with low-flow groundwater sampling procedures.
- Investigation derived waste (IDW) generated (if any) from the installation of monitoring wells and the development and sampling of monitoring wells will be handled in accordance with NYSDEC DER-10. Representative samples of cuttings and spoils may have to be analyzed to determine classification, treatment, and disposal.

Data Review/ Validation and Analysis

- Review Category B data to complete Data Usability Summary Report (DUSR) in accordance with DER-10 guidance;
- Process all laboratory data obtained during the investigation through the NYSDEC EQuIS processor for validation; and
- Submit EQuIS approved EDD to the Department and DEC Project Manager.

Site Survey

- All sample locations will be marked in the field and locations will be recorded using a GPS receiver.
- A Survey contractor will complete a survey of all monitoring well casings to within an accuracy of plus or minus 0.01 feet. A notch will be etched in all interior casings, or a permanent black mark (as historically used), to provide a reference point for all future groundwater elevation measurements.
- All data received by HRP will be in GPS format for inclusion to GIS and the EQuIS database.
- Property boundaries, topography, structures, and pertinent features will marked and identified during the Survey as suggested by the WA.

Additional information is provided in the Site Specific Work Plan prepared for this Site under separate cover.

4.0 HAZARD ANALYSIS

The Site Supervisor/Project Manager shall complete the HRP Safe Work Permit in **Appendix G** prior to the start of the project. The Permit identifies hazards, conditions and materials that are known or suspected to be on-site.

Details of specific hazards associated with individual tasks will be discussed in the Daily Job Brief Record (**Appendix D**).

4.1 Hazard Analysis Summary/Minimization

HRP's Corporate Health & Safety Plan (in conjunction with this HASP) will be cross-referenced in order to obtain the safe work practice procedures for mitigating and preventing project site hazards identified in the table above. Job site hazard prevention and minimization information can be found in Section 3 of HRP's Generic Health & Safety Plan.

Confined Spaces

Only properly trained HRP personnel are authorized to enter confined spaces. Confined space entry may be performed by subcontractors who have the proper training and experience to conduct this work. Confined space entry is not anticipated during the RI.

Excavations

It is HRP's policy to ensure that for excavation projects the subcontracted environmental contractor will provide a competent person to perform daily and as needed inspections of excavation sites. This policy will be conveyed through the subcontract agreement with the environmental contractor. At a minimum HRP will provide our employees involved with construction projects with awareness level training regarding excavation hazards and notify the subcontracted firm if any obvious excavation safety hazard exists during the course of on-site activities.

Chemical Hazards

Hazardous chemicals known or suspected to be onsite are listed in **Table 1a** (follows text). **Table 1a** includes Chemical name, odor threshold OSHA PEL, ACGIH TLV, OSHA STEL, IDLH Concentrations, routes of exposure and symptoms of acute exposure. Chemicals likely to be encountered during site work are highlighted.

Physical Hazards

Physical hazards known or suspected to be onsite are listed in **Table 1b** (follows text). **Table 1b** includes description of potential hazards, methods to identify/minimize them, potential for occurrence and potentially affected tasks.

4.2 Changes in Conditions or Scope

Should conditions or the scope of work described herein change significantly; a HASP Addendum will be completed.

4.3 Monitoring Procedures

Air monitoring will be used to determine the concentrations of various chemicals while working in the exclusion zone to evaluate worker exposure to contaminated media. In order to determine potential health hazards and to determine the level of personal protection needed during sampling activities within the areas of concern, a Photoionization Detector (PID) will be periodically operated to monitor air quality for the purpose of ensuring minimal exposure to volatile organic compounds. Monitoring of atmospheres adjacent to on-going excavations and around the treatment area shall also be conducted with a PID.

The following environmental monitoring instruments/procedures shall be used on-site at the specified intervals.

Instrument/Procedure	**Sampling Interval**
Photoionization Detector (PID) in the breathing zone	Periodically as deemed by HSO

Background ambient air levels will be established outside the exclusion zone prior to commencement of site work. Ambient air sampling will occur in the breathing zone of site workers for comparison to the action levels (described below). Additionally, air sampling will be conducted in the vicinity of any intrusive exploration (i.e. near excavations, trenches, etc.) to determine if any contaminants are present.

The following *Action Levels* will be used:

Instrument	Action Level	Level of Protection or Action Required
PID	No reading above background	▪ No action required. ▪ Continue PID monitoring. ▪ (Modified) Level D protection.
PID	Up to 5 ppm above background	▪ Evacuate exclusion zone. ▪ Recheck levels after 15 minutes. ▪ If levels are sustained, reassess. ▪ Use engineering controls to lower breathing zone vapors. ▪ Level C protection (at the HSO direction).
PID	>5 ppm above background	▪ Evacuate exclusion zone. ▪ Recheck levels after 15 minutes. ▪ Use engineering controls to lower breathing zone vapors. ▪ If levels are sustained, contact Safety Manager, and re-evaluate HASP.

When an action level is equaled or exceeded, the work area should be evacuated and the area re-tested with the sampling device. If the appropriate action level continues to be exceeded, the HSO will have to assess the use of engineering controls to lower vapor levels or availability of required increased personal protection equipment before authorizing re-entry.

Calibration of all instruments will occur at least once per day, when in use. An equipment calibration log is included in **Appendix E.**

Community Air Monitoring (required by DER 10)

To ensure the protection of receptors surrounding the site HRP has developed and will implement a Community Air Monitoring Program (CAMP), which requires real time monitoring of volatile organics and dust during the remedial investigation. The CAMP, included as **Appendix F** will be implemented during all intrusive activities.

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

If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than the background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

5.0 ENGINEERING CONTROL MEASURES/GENERAL SAFETY

5.1 Air Monitoring

In order to determine potential health hazards and to determine the level of personal protection needed during drilling, excavation and sampling activities within the areas of concern, a PID will be periodically operated to monitor air quality for the purpose of ensuring minimal exposure to volatile organic compounds. Please refer to **Section 4.3** of this plan for specific air monitoring procedures/action levels.

5.2 Protective Zones

Prior to commencement of work in area of suspected contamination, protective zones specific for each phase of the Plan will be established by the HSO if necessary prior to the start of field work. These zones will be defined during the Daily Job Brief.

The purpose of the protective zones is to prevent potential cross-contamination of adjacent areas as well as to protect project personnel from exposure to contaminated areas.

Protective zones shall be delineated as follows:

- **Exclusion Zone:** This is the contaminated area in which intrusive activities are performed. The "Area of Environmental Concern" (AOEC) is located within this area. A single access point for entrance and exit should be established and maintained, if possible. This zone should be delineated from the Contaminant Reduction Zone via perimeter cones or caution tape, or other applicable method. Work areas are shown on **Figure 2**. The Exclusion Zone delineation and any necessary modifications will be based on site conditions.

- **Contaminant Reduction Zone:** This zone is a transition zone located between the Exclusion Zone and the Support Zone and is utilized to decontaminate personnel and equipment.

- **Support Zone:** This zone will be utilized by equipment and vehicle storage and will be kept free of contaminated material. The HSO will determine the location of this zone. In the event of a site evacuation, the rally point will be the entrance to James Avenue off Witmer Road.

  The designated rally point may be relocated by the HSO based on project or site conditions. All site workers will be notified of any relocation prior to implementation.

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

6.1 Level of Protection

As identified in Section 4.0, the overall health and safety risk associated with chemical hazards for HRP and associated contractors is considered significant. This is primarily due to the moderate concentrations of chemical contaminants expected based on minimal contact personnel will have with any potentially contaminated media. Therefore, the minimal level of protection for HRP personnel during the conduct of all the environmental work performed at the site will be Level D PPE, and will generally consist of the PPE listed below:

- Steel toe/shank work boots
- Hard hat, as necessary
- Safety vest, as necessary
- Coveralls/tyvek, as necessary
- Safety glasses/goggles/face shield, as necessary
- Hearing protection, as necessary

If site conditions warrant, an upgrade to Level C PPE may be required (refer to Section 4.2 for the appropriate *Action Levels*) then the contractors will make Level C personal protective equipment (PPE) readily available. Level C PPE generally includes:

- Full face, air purifying respirator with organic vapor cartridges
- Same as Level D, but also includes tyvek taped pant/boot and glove/shirt

If the Daily Job Briefing determines that protection beyond Level C is required, HRP will re-evaluate the HASP as well as the site conditions, and will revise the HASP as required.

The following table provides a summary of the minimum level of PPE required on site:

Description	Level of Protection [1]	
	D	C
Body		
Work Clothes	R	R
Chemical Protective Suit (Tyvek)	O	R
Visibility Vest	O [2]	O [2]
Apron	O	O
Fall Protection	O [2]	O [2]
Head		
Hard Hat	R	R
Head Warmer	O	O
Eyes & Face		
Safety Glasses	R	R
Goggles (based on hazard)	O	R
Face Shield	O	O
Ears		
Plugs or Muffs	R [2]	R [2]
Hands & Arms		
Work Gloves	R	O [2]

Description	Level of Protection [1]	
	D	C
Chemical Resistant Gloves (Nitrile)	O	R
Insulated Gloves	O	O
Foot		
Work Boots/Steel Toe Boots	R	R
Chemical Resistant Boots	O	O
Disposable Boot Covers	O	O
Respiratory Protection [3]		
½ Mask Air Purifying Respirator (APR) or Full face APR	NA	R
Dust Protection	O	NA
Powered APR	NA	NA
SCBA/Supplied Air Respirator	NA	NA

R = Required, **O** = Optional, **NA** = Not Applicable

[1] The level of protection identified here does not include the necessary equipment for entering confined spaces. Refer to Moran Environmental Recovery's Safety Manual Confined Space Program for atmospheric sampling protocols and breathing and rescue equipment necessary for those operations.

[2] The use of this PPE may or may not be required depending on site conditions/location and will be addressed at the time of task assignment by the HSO.

[3] Respiratory protection necessary to protect against VOC, dusts/particulates and not oxygen deficient atmospheres.

The following table provides a general description of potential field activity tasks to be performed and associated (recommended) PPE. The use of this PPE may or may not vary depending on site conditions and will be addressed at the time of task assignment by the HSO.

Task Description	Invasive (Y/N)	Protection Level
Site Mobilization - Surveying, fence and barrier installation, hay bale installation, decon and work zone set up, soil staging areas preparation	N	Level D
Soil and Water Sampling - Drilling, sampling, soil moving as needed.	Y	Modified Level D or Level C – Respirator as needed based on monitoring. Eye protection required during collection of any liquid sample
Soil Boring, Staging and Load-Out	Y	Modified Level D – or Upgrade to Level C dependent on monitoring
Decontamination - Truck dry sweeping, decon pressure wash of equipment, PPE change out	Y	Modified Level D – or Upgrade to Level C dependent on monitoring
Waste Management - Soil load-out for off-site disposal, water removal for disposal, PPE disposal	Y	Modified Level D – or Upgrade to Level C dependent on monitoring
Site Control (Exclusion, Decontamination, Support Zones)	N	Modified Level D – or Upgrade to Level C dependent on monitoring
Communications - Use of hand signals, backup alarms, and voice	N	NA

7.0 DECONTAMINATION

7.1 Decontamination Procedures

All personnel and equipment leaving the exclusion zone must be properly cleaned and decontaminated. When there is evidence of chemical contamination during the site operations, all personnel will be decontaminated under the direction of the HSO. Clean-up and/or decontamination of personnel shall consist of washing off excessively soiled PPE with a disinfectant detergent scrub and water. At the very least, all personnel should wash their hands and face before leaving the exclusion zone. After washing, all disposable clothing (tyvek, gloves, etc.) will be removed and placed in a double lined plastic bag.

Sampling tools and any other non-disposable items will be decontaminated between sampling points, and at the direction of HRP personnel, to prevent cross-contamination of work areas or environmental samples, as applicable.

7.2 Emergency Decontamination

If immediate medical attention is required in an emergency, decontamination will be performed after the victim has been stabilized. If a worker has been exposed to an extremely toxic or corrosive material, then emergency decontamination will consist of flushing with copious amounts of water. If the victim cannot be decontaminated because it will interfere with emergency medical aid being administered, then the victim should be wrapped with plastic or other available items (i.e. an uncontaminated coverall) to reduce potential contamination of other personnel or medical equipment.

If a site worker has been overcome by heat related illness, then any protective clothing should be removed immediately. In the case of non-medical emergency evacuation, decontamination should be performed as quickly as possible, unless instant evacuation is necessary to save life or prevent injury.

7.3 Personal Hygiene

All employees will be required to wash hands and face prior to eating, smoking, drinking and going to the bathroom. Workers will be required to remove contaminated PPE and clothing prior to leaving the Contaminant Reduction Zone. All field personnel should avoid contact with potentially contaminated substances such as puddles, pools, mud, etc.

8.0 EMERGENCY ACTION PLAN/SPILL RESPONSE

In the event of a worker injury, fire, explosion, spill, flood, or other emergency that threatens the safety and health of site workers, the following procedure will be followed:

1. If the emergency originates within the work area covered by this Plan, the HRP HSO shall act as the Emergency Coordinator. The emergency evacuation signal is an air horn or a loud yell. All emergency situations (including worker injuries, no matter how small) will be reported to the HSO, who will determine the appropriate emergency response, up to and including evacuation. Only the HSO may initiate evacuation of the work area. The HSO will be responsible for reporting any emergency situation to the appropriate authorities, using a telephone or other appropriate method.

2. In the case of an evacuation, site workers will exit the site along the safest route(s) and assemble with team members at a safe rally point. Those workers in the Exclusion Zone will follow the emergency decontamination procedures outlined in Section 7.2. Accounting of all site personnel will be conducted by the HSO using the personnel log at a location determined by the HSO.

3. HRP personnel are not permitted to participate in handling the emergency. Fire and medical emergencies will be handled by the local fire department and ambulance service. In the case of a spill of hazardous materials the NYSDEC will be contacted.

   In addition, the HSO/Project Manager must advise the site contact that the New York Spill Hotline should be contacted and, if the spill quantity is greater than the Reportable Quantity (RQ) under CERCLA and/or SARA, the National Response Center (NRC) and Local Emergency Planning Committee should also be contacted. If the spill begins to flow overland and threatens to contaminate a storm drain or surface water, HRP personnel may attempt to contain and isolate the spill using any available resources, but only if, in the judgment of the HSO, such action will not expose the workers to dangerous levels of hazardous substances and is necessary to preserve life or property. In the event that a spill of material of any amount threatens to reach navigable waters, the NRC shall be contacted.

4. Once initial emergency procedures to protect worker safety and health have been addressed, and control of emergency has been completed, the HSO will complete an Investigation Report and submit this form to the appropriate personnel (HRP and/or client contact).

5. All site workers will be familiarized with the above procedures during the pre-entry briefing to be conducted before site work begins.

9.0 TRAINING/MEDICAL SURVEILLANCE

9.1 Training Requirements

All HRP and HRP subcontractor personnel who enter the work zone and/or Exclusion Zone must have successfully completed the 40-hour or 24-hour training requirement outlined in 29 CFR 1910(e). If the 40-hour or 24-hour training of any person occurred more than 12 months prior to commencement of work, then that person must have attended an 8-hour refresher course within the 12 months prior to commencement of work. If respirators are in use in the Exclusion Zone, then all personnel must have undergone respirator training and a fit test within the last 12 months. Training certificates and records for HRP employee(s) are on file at HRP. All other contractors will be required to supply written proof of training before being allowed into the Exclusion Zone.

9.2 Pre-Entry Briefing

Prior to commencement of work in an area of suspected contamination, HRP's Health and Safety Officer will conduct a pre-entry briefing with on-site contractors, which will include the following:

- Name of the HSO and person responsible for the visitor log.
- Description of the parcel as well as location of emergency telephones and the location/boundaries of the Exclusion Zone, Contamination Reduction Zone, and Support Zone, if established.
- Review of hospital locations and directions.
- Review of tasks to be conducted within the parcel by the site workers.
- Review of the Emergency Action Plan and rally point, including the nearest emergency communications and telephone numbers.
- The nature, level, and degree of anticipated hazards (physical and chemical) involved in the site work.
- Required personal protective equipment.
- Decontamination procedures.

The HSO should also, at this time, ensure that all on-site HRP and HRP subcontractor personnel have read the HASP and signed the last page of the original (Section 11.0). If additional information on the site becomes available, the HSO will call additional briefings as necessary.

9.3 Morning Safety (Tailgate) Meeting

The HRP HSO will conduct a safety overview meeting at the beginning of each workday on the site. The meeting will be given in addition to any tailgate meetings that the subcontractor conducts. A summary of the meeting topics signed by the personnel attending the meeting is included in **Appendix D**.

9.4 Medical Surveillance

All HRP and HRP subcontractor personnel entering the Exclusion Zone must have had a physical within the 12 months prior to commencement of site work. A physician's written opinion regarding fitness for work for each employee including work limitations, if any, is on file at HRP, as applicable. A written opinion for all other site personnel must be supplied prior to commencement of site work to the HRP HSO. Any work limitations for site personnel, or relevant medical information (i.e. allergic reactions to medication) should be included in this Plan.

10.0 AUTHORIZATIONS

Personnel authorized to enter the Exclusion Zone include the personnel listed in Section 2.4. Persons not listed in Section 2.4 may enter the Exclusion Zone only if the appropriate training and medical fitness certifications have been supplied to either the HRP Project Manager or Health and Safety Manager and the HSO or his/her designee on site has approved site entry. All personnel entering or leaving the Exclusion Zone must sign in and sign out with the recordkeeper.

11.0 FIELD TEAM REVIEW

All HRP personnel shall sign below after reading this HASP and shall agree with the following statement:

"I have read and understand this site specific Health and Safety Plan.
I will comply with the provisions set forth therein."

Printed Name	Signature	Date

12.0 APPROVALS

This plan meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1929.65 and has been written for specified site conditions, dates, and personnel, and must be amended if conditions change. By their signature, the undersigned certify that this HASP is approved and will be utilized during activities at the project.

_____ _____

John Gorman Date
On-Site Health and Safety Officer

_____ _____

David Stoll, PG Date
Project Manager

_____ _____

Bryan Sherman, ASP Date
Office Health and Safety Manager

Subcontractor:

I have been provided a copy of this HASP for review.

_____ _____

[Name] Date

Representing _____

The Designated Competent person representing [subcontractor] at the site will be

_____.

Any alternate Competent Person will be noted in the Daily Job Brief Record (**Appendix D**).

ADDITIONAL APPROVALS (or Re-Approvals)	
Name:	**Date:**

13.0 RECORDKEEPING

By the completion of the Project this Site-Specific HASP Document, and all associated records (completed Safe Work Permit Forms, Daily Briefs Forms, Monitoring data, etc.) must be provided to the Office Administrative Assistant at the Office that implemented the Project. The Administrative Assistant will then electronically store these records into the project folder. It is expected that some scanning will be necessary.

FIGURES

Figure 1: Site Location Map

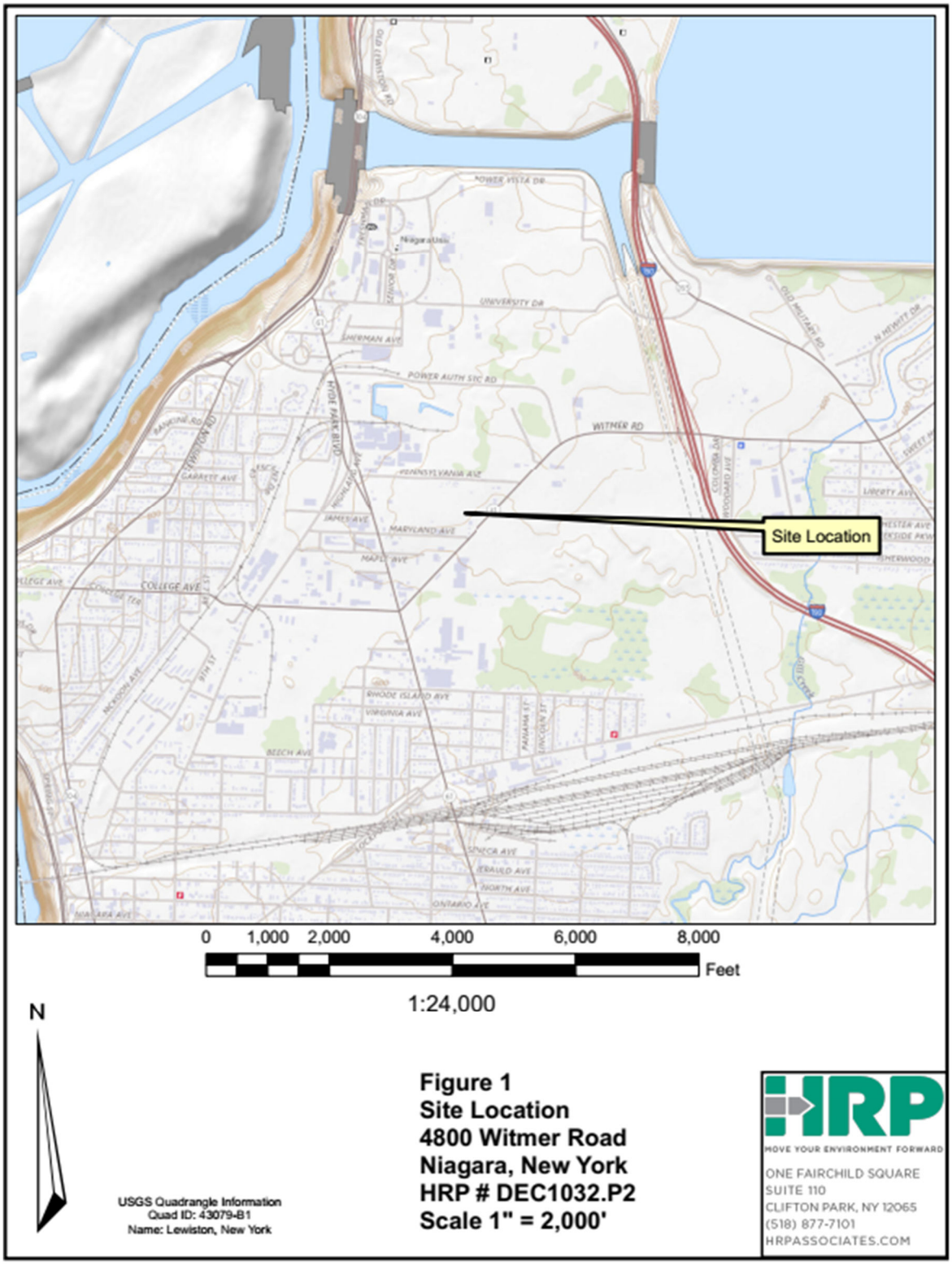


Figure 2: Site Plan with Areas of Environmental Concern

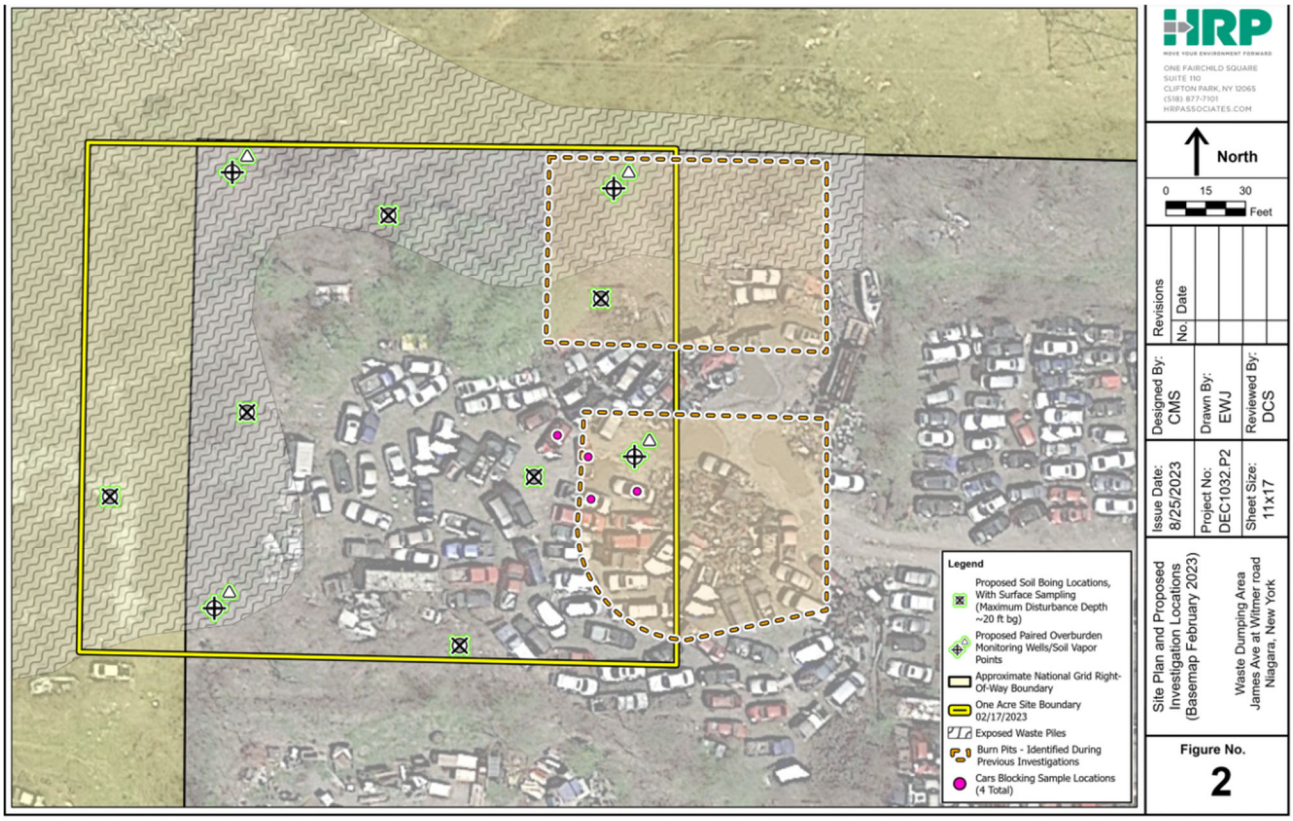
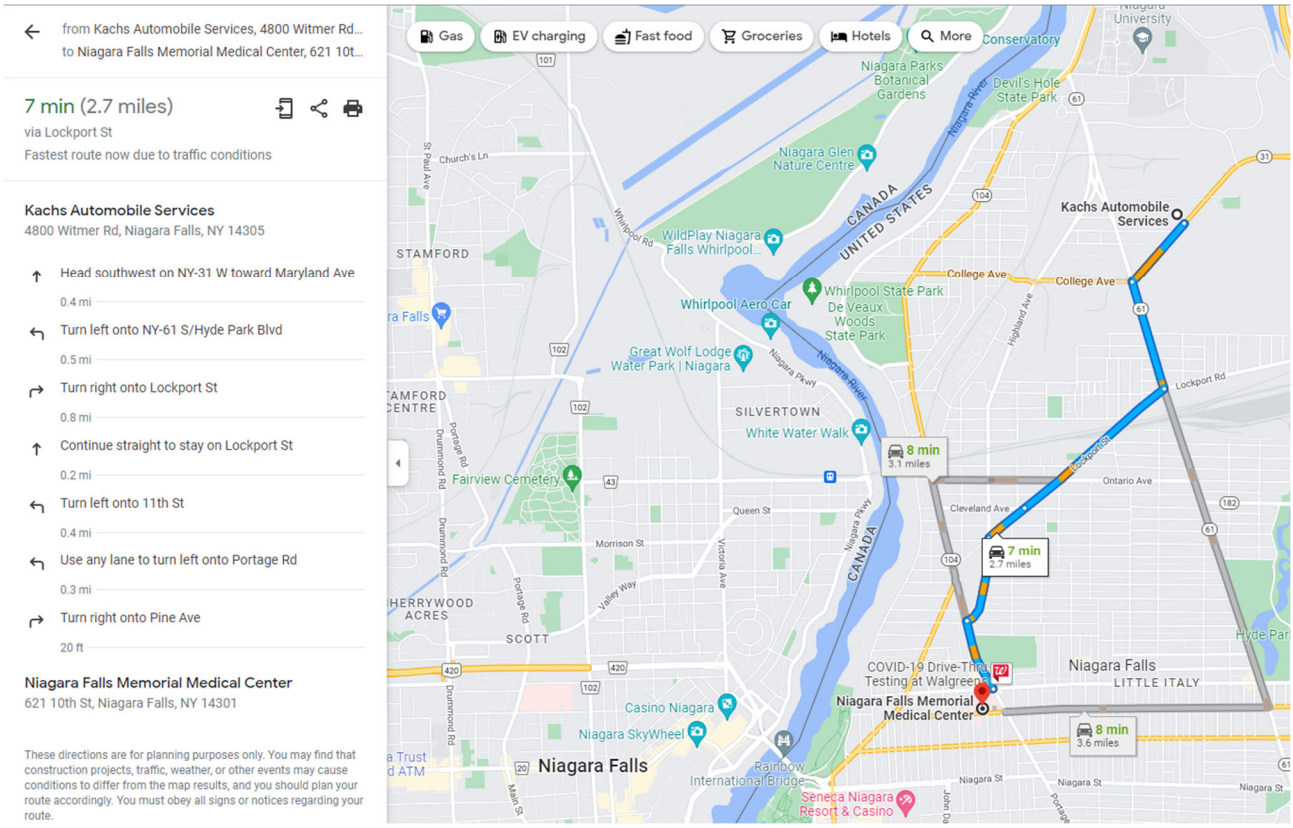


Figure 3: Route and Map to Nearest Hospital

Directions to Niagara Falls Memorial Medical Center

Total Estimated Time: 7 minutes
Total Estimated Distance: 2.7 miles

End at Niagara Falls Memorial Medical Center
621 10th St, Niagara Falls, NY 14301



TABLES

TABLE 1a: Chemical Hazards Known or Suspected On-Site

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
1,1,1 Trichloroethane	44 ppm	350 ppm	350 ppm	---	700 ppm	Inh, Ing, Con	Head, Lass, CNS, Derm
1,1,2-Trichloroethane	---	10 ppm	10 ppm	----	[100 ppm]	Inh, Ing, Abs, Con	Eyes, Nose Irrit, Resp Irrit, CNS, Liver, Kidney Damage, Derm, [Carc]
1,2,4 Trimethylbenzene 1,3,5 Trimethylbenzene		25 mg/m^3	25 ppm	25 mg/m^3	ND	Inh, Ing, Con	Irrit Eyes, Skin, Nose, Throat, Resp Sys, Bron, Hyprochronic Anemia, Head, Drow, Ftg, Dizz, Nau, Inco, Vomit, Conf, Chemical Pneu (aspir lig)
1,1' Biphenyl	0.0062 mg/m^3	0.2 ppm	0.2 ppm	---	100 mg/m^3	Inh	
1,1-Dichloroethane	120 ppm	100 ppm	100 ppm	---	3,000 ppm	Inh, Ing, Con	CNS Depres, Skin Irrit, Liver, Lung and Kidney Damage
1,1-Dichloroethylene***	500 ppm	---	5 ppm	---	---	Inh, Con	CNS depress, Resp, [Carc]
1,2-Dichlorobenzene	50 ppm	50 ppm	25 ppm		200 ppm	Inh, Ing, Abs, Con	Irrit, Resp
1,2-Dichloroethylene	26-87 ppm	200 ppm	200 ppm	---	1,000 ppm	Inh, Ing, Con	Vomit, Irrit Eyes, Resp Sys; CNS Depres
1,2-Dichloropropane	130-190 ppm	75 ppm	75 ppm	---	[400 ppm]	Inh, Con, Ing	Eye irritation, Drow, light-headedness; irritated skin, [Carc]
1,3-Dichlorobenzene	---	----	---	----	---	----	----
1,4-Dichlorobenzene	20 ppm	75 ppm	10 ppm	----	[150 ppm]	Inh, Ing	[Carc], Eye Irrit, swelling around eye, headache, nausea, vomiting
1-Methylnaphthalene	0.02 ppm	---	---	---	---	---	---
2,4-Dichlorophenol	1.4007 mg/m^3	---	---	---	---	---	---
2,4-Dimethylphenol	0.001 mg/m^3	---	---	---	---	---	---
2-Methylnaphthalene	0.01 ppm	---	---	---	---	---	---
2-Methylphenol (o-cresol) [skin]	1.4 mg/L	5 ppm	5 ppm	---	250 ppm	Inh, Abs, Ing, Con	Confusion, depression, Resp Fail; difficulty breathing, irregular rapid respiration, weak pulse; skin, eye burns; dermatitis

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
3, 3'-Dichlorobenzidine	---	None	**---**	---	---	Inh, Abs, Ing, Con	Sens, Derm, Head, Dizz, Burns, GI Upset, [Carc]
4-Isopropyltoluene	---	---	---	---	---	Con, Inh, Ing	Defat, Eryt
Acenephthene	0.5048 mg/m^3	---	---	---	---	---	---
Acenaphthylene	---	---	---	---	---	---	---
Acetone	47.5 mg/m^3	1,000 ppm	500 ppm		2,500 ppm	Ing, Inh, Con	Head, Dizz; Irrit Eyes, Nose, Throat; Derm, CNS, Depress, Derm
Acetonitrile	70 mg/m^3	40 ppm	20 ppm	---	500 ppm	Inh, Ing, Abs, Con	Asphy; Nau, Vomit; Chest Pain; Weak, Stupor, Convuls; Eye Irrit
Aldrin	---	0.25 mg/m^3	0.25 mg/m^3	---	25 mg/m^3	Inh, Abs, Ing, Con	Head, Dizz, Nau, Vomit, Mal, Myo, [Carc]
Anthracene (Coal Tar Pitch)	---	0.2 mg/m^3			[80 mg/m^3]	Inh, Con	Derm, bron, [carc]
Antifreeze		50 ppm	100 mg/m^3 (aerosol)	---	ND	Inh, Ing, Con	Irrit Eyes, Skin, Nose, Throat, Nau, Vomit, Abdom Pain, Lass, Dizz, Stup, Conv, CNS, Depres, Skin Sen
Arsenic	----	0.010 mg/m^3	0.01 mg/m^3	----	[5 mg/m^3]	Abs, Inh, Con, Ing	Derm; GI; Resp Irrit; ulceration of nasal septum; Resp, Irrit, Hyper Pig of Skin, [Carc]
Barium (elemental)	---	0.5 mg/m^3	0.5 mg/m^3		50 mg/m^3 (barium components)	Inh, Ing, Con	Resp. Irrit, GI, Muscle Spasm, Eye Irrit, Slow Pulse; skin burns
Benzene*	4.7 ppm	1 ppm	0.5 ppm	5 ppm	[500 ppm]	Inh, Ing, Abs, Con	Irrit Eyes, Nose, Throat; Head, Nau, Derm, Ftg, Anor, Lass, [Carc]
Benzo(a)anthracene (coal tar pitch)	---	0.2 mg/m^3			[80 mg/m^3]	Inh, Con	[Carc], Derm, Bron
Benzo(a)pyrene (coal tar pitch)	---	0.2 mg/m^3	---		[80 mg/m^3]	Inh, Con	[Carc], Derm, Bron
Benzo(b)fluoranthene (coal tar pitch)	---	0.2 mg/m^3	---		[80 mg/m^3]	Inh, Con	[Carc], Derm, Bron

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Benzo(g,h,i)perylene (coal tar pitch)	---	0.2 mg/m^3			[80 mg/m^3]	Inh, Con	[Carc], Derm, Bron
Benzo(k)fluoranthene (coal tar pitch)	---	0.2 mg/m^3			[80 mg/m^3]	Inh, Con	[Carc], Derm, Bron
Bis (2-ethylhexyl) Phthalate**	N/A	5 mg/m^3	5 mg/m^3	10 mg/m^3	[5,000 mg/m^3]	Inh, Ing, Con	[Carc], Irrit Eyes
Cadmium (dust)	---	0.005 mg/m^3	Lowest concentration feasible 0.01 mg/m^3	---	[9 mg/m^3]	Inh, Ing	CNS, Resp, Irrit, Vomit, Cough, Head, Chills, Nau, Diarr, Pulm Edema, Dysp, Chest Tight, [Carc]
Carbazole	---	---	---	---	---	Inh	---
Carbon disulfide	0.1-0.2 ppm	20 ppm	1 ppm	30 ppm	500 ppm	Inh, Abs, Ing, Con	Diz, Head,Ftg, Ner, anorexia, trembling hands, loss of fine motor coord, gastritis, eye, skin burns, Derm
Carbon Tetrachloride***	21.4 ppm	10 ppm	5 ppm	25 ppm	[200 ppm]	Inh, Abs, Con, Ing	CNS Depres, Nau, Vomit, Irrit, Irrit Eyes, Skin, Drow, Dizz, [Carc]
Chlorobenzene***	0.98 mg/m^3	75 ppm	10 ppm	---	1,000 ppm	Inh, Ing, Con	Irrit, Drow, CNS, Depres, Eyes, Skin, Nose, Inco.
Chloroform***	85 ppm	50 ppm	10 ppm	50 ppm	[500 ppm]	Inh, Ing. Con, Abs	Dizz, Dullness, Nau, Head, Ftg, Irrit Eyes, Skin, Conf, [Carc]
Chromium	---	1 mg/m^3	0.5 mg/m^3	---	250 mg/m^3	Inh, Ing, Con	Irrit Eyes, Sens Derm
Chrysene (coal tar pitch)		0.2 mg/m^3	---		[80 mg/m^3]	Inh, Con	Derm, Bron, [Carc]
Cis-1-2-Dichloroethylene	---	200 ppm	200 ppm	----	1000 ppm	Inh, Con, Ing	Irrit Eyes, Resp, CNS Depress
Copper (dusts and mists) (fumes)		1 mg/m^3 0.1 mg/m^3	1 mg/m^3 0.2 mg/m^3	----	100 mg/m^3	Inh, Ing, Con	Vomit, Derm, CNS, Irrit, Derm, Nau, Taste (metallic)
Cyanide	0.9 mg/m^3	5 mg/m^3	5 mg/m^3 (10 min)	5 mg/m^3	25 mg/m^3	Inh, Ing, Abs, Con	Weak, Head, Nau, Conf, Cyan
Dibenzo(a,h)anthracene						Inh, Ing	

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Dichloromethane	540 mg/m^3	25 ppm	50 ppm	125 ppm	[2,300 ppm]	Inh, Abs, Ing, Con	Irrit Eyes, Skin, lass, drow, dizz, Numb, tingl, Nau, [Carc]
Diethylphthalate**	---	None	5 mg/m^3	---	N.D.	Inh, Ing, Con	Irrit Eyes, Skin, Nose, Throat, Head, Dizz, Nau, Lac, Possible Polyneur, Vestibular Dysfunc, Pain, Numb, lass, Spasms in Arms and Legs
Di-n-octylphthalate	---	---	---	---	---	Inh, Ing, Con	---
Dimethylpthalate	---	5 mg/m^3	5 mg/m^3	---	2,000 mg/m^3	Inh, Ing, Con	Irrit, Resp, Abdom
Ethyl Benzene*	8.7 mg/m^3	100 ppm	100 ppm	125 ppm	700 ppm	Inh, Abs, Con	Head. Irrit, Derm, Narc., Irrit Eyes, Skin; Coma
Fluoranthene		0.2 mg/m^3	0.2 mg/m^3			Ing, Inh	[Carc]
Fluorine*	6 mg/m^3	0.1 ppm	1 ppm	2 ppm	25 ppm	Inh, Con	
Fuel Oil/#2	----	----	300 ppm	----		Inh, Abs, Ins, Con	Irrit Eyes, Skin, Derm, Head, Ftg, Blurred Vision, Dizz, Conf
Ideno(1,2,3-cd)pyrene		0.2 mg/m^3				Ing, Inh	
Lead (inorganic forms and dust as Pb)****		0.05 mg/m^3	0.05 mg/m^3		100 mg/m^3	Inh, Ing, Con	Irrit, Cns, Vomit, Narco, Weak, Pall, Insom, Lass, Abdom, Constip
Mercury (organic alkyl compounds) [skin]		0.01 mg/m^3	0.01 mg/m^3	0.03 mg/m^3	2 mg/m^3	Inh, Abs, Ing, Con	Irrit Eyes, Skin; Cough & Chest Pain, Bron Pneu, Tremor, Insom, Irrty, Indecision, Head, Ftg, Weak, Stomatitis, Salv, GI Dist, Anor, Low-wgt, Ataxia
Mercury (compounds)	----	0.1 mg/m^3	0.025 mg/m^3	0.1 mg/m^3	10 mg/m^3	Inh, Abs, Ing, Con	Irrit Eyes, Skin; Cough & Chest Pain, Bron Pneu, Tremor, Insom, Irrty, Indecision, Head, Ftg, Weak, Stomatitis, Salv, GI Dist, Anor, Low-wgt, Ataxia
Methanol	13.1150 mg/m^3	200 ppm	200 ppm	---	6,000 ppm	Inh, Abs, Ing, Con	Irrit Eyes, Skin, Resp, Head, drow, dizz, Nau, Vomit, vis dist, Optic, derm

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Methyl Ether	----	----	---	----	---	Inh	Poison
Methyl Ethyl Ketone (2-Butanone)***	0.7375 mg/m^3	200 ppm	200 ppm	300 ppm	3,000 ppm	Inh, Con, Ing	Irrit Eyes, Skin, Nose, Throat, Head, Dizz, Vomit, Derm
Methylene Chloride	540 mg/m^3	25 ppm	50 ppm	125 ppm	[2,300 ppm]	Inh, Ing, Con, Abs	Ftg, Weak, dizz, drow, Numb, Tingle [carc], Irrit Eyes, Skin, Nau
Mineral Spirit	20 ppm	500 ppm	100 ppm	---	20,000 mg/m^3	Inh, Ing, Con	Irrit Eyes, Nose, Throat, Dizz, Derm, Chemical pneu
Methyl tert butyl ether (MTBE)	---	---	50 ppm	---		Inh, Abs	
Naphtha	0.86 ppm	100 ppm	400 ppm	---	1,000 ppm	Inh, Con, Ing	Light Head, Drow, Irrit, Derm, Irrit Eyes, Skin, Nose
Naphthalene*	0.084 ppm	10 ppm	10 ppm	15 ppm	250 ppm	Inh, Abs, Ing, Con	Eye irritation; headache; confusion, excitement, malaise (vague feeling of ill-being); nausea, vomiting, abdominal pain; irritated bladder; profuse sweating; renal shutdown; dermatitis
Nickel (metal)	---	1 mg/m^3	1.5 mg/m^3	---	[10 mg/m^3]	Inh, Ing, Con	Head, Verti, Nau, Vomit, Pain, Cough, Weak, Convuls, Delirium, Pneu, ,[Carc]
Nitrobenzene	0.0235 mg/m^3	1 ppm	1 ppm	---	200 ppm	Inh, Abs, Ing, Con	Irrit Eyes, Skin, Anoxia, Derm, Anem, Methem
n-Butylbenzene	---	---	---	---	---	---	---
n-Propylbenzene	---	---	---	---	---	---	---
PCBs 42% chlorine (Aroclor 1242)	---	1 mg/m^3 (skin)	1 mg/m^3 (skin)	---	[5 mg/m^3]	Inh, Abs, Ing, Con	Irrit Eyes, Chloracne, Liver Damage [carc]
PCBs 54% chlorine (Aroclor 1254)	---	0.5 mg/m^3 (skin)	0.5 mg/m^3 (skin)	---	[5 mg/m^3]	Inh, Abs, Ing, Con	Irrit Eyes; Chloracne, Liver Damage [carc]

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Petroleum Distillates	---	500 ppm	100 ppm		[1,100 ppm]	Inh, Ing, Con	Dizz, Drow, Head, Dry Skin, Nau, Irrit Eyes, Nose, Throat, [Carc]
Phenanthrene (Coal Tar Pitch)		0.2 mg/m^3	0.2 mg/m^3		[80 mg/m^3]	Inh, Con	Derm, bron, (carc)
Phenol**	0.1786 mg/m^3	5 ppm	5 ppm	---	250 ppm	Inh, Abs, Ing, Con	Irrit Eyes, Nose, Throat, Anor, Low Wgt, Weak Musc Ache, Pain, Dark Urine, Cyan, Liver, Kidney Damage, Skin, Burns, Derm, Ochronosis, Tremor, Convuls, Twitch
Pyrene		0.2 mg/m^3			[80 mg/m^3]	Inh, Con	[Carc]
Sec-Butylbenzene	---	---	---	---	---	---	---
Selenium	N/A	0.2 mg/m^3	0.2 mg/m^3	Unknown	1 mg/m^3	Inh, Ing, Con	Irrit, Head, Fever, Chills, Skin/Eye Burns, Metallic Taste, GI, Dysp, Bron
Silver (metal and soluble compounds as Ag)	----	0.01 mg/m^3	Metal = 0.1 mg/m^3 Soluble 0.01 mg/m^3		10 mg/m^3	Inh, Ing, Con	Blue-gray Eyes, Nasal Septum, Throat, Skin; Irrit, Ulcer, Skin, GI Dist
Tetrachloroethylene (a.k.a. perchloroethylene)***	4.68 ppm	100 ppm	25 ppm	200 ppm	[150 ppm]	Inh, Ing, Con, Abs	Irrit Eyes, Skin, Nose, throat, Resp. Nau, flush face, Neck, dizz, inco, head, drow, eryth, [Carc]
Toluene*	2.14 ppm	200 ppm	50 ppm	300 ppm	500 ppm	Inh, Abs, Ins, Con	Resp, Irrit, Ftg, Conf, Dizz, Head, Derm, Euph, Head, Dilated Pupils, Lac, Ner, Musc FTg, Insom, Pares, Derm, lass
Petroleum Distillates (naphtha)	10 ppm	100 ppm	400 ppm	---	1,000 ppm	Con, Inh, Ing	---
Trans 1,2-Dichloroethylene	0.3357 mg/m^3	200 ppm	200 ppm	---	1,000 ppm	Inh, Con	Irrit, Resp, CNS depress
Trichloroethylene***	21.4 ppm	100 ppm	50 ppm	200 ppm	[1,000 ppm]	Inh, Con, Abs, Ing	Head, Vert, Nau, Vomit, Derm, Vis Dist, Tremors, Som, Nau, Irrit Eyes, Skin, Card Acc., Ftg, [Carc]

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Trichlorofluoromethane	28 mg/m^3	1,000 ppm	1,000 ppm		2,000 ppm	Inh, Con, Ing	Inco, trem, derm, card, asph, frost
Trichlorotrifluoroethane	45 ppm	1,000 ppm	1,000 ppm	1,250 ppm	2,000 ppm	Inh, Con, Ing	Irrit Skin, throat, Drow, Derm, CSN, Depress
Vinyl Chloride***	10-20 ppm	1 ppm	1 ppm	5 ppm	ND	Inh, Con	Lass, Abdom, Gi Bleeding; Hepatomegaly; Pallor or Cyan of Extremities; Liq: Frostbite; [Carc]
VM&P Naphtha (petroleum naphtha)	---	---	300 ppm	---	ND	Con, Ing, Inh	Irrit Eyes, Nose, Throat, Dizz, drow, head, nau, dry skin, chem. Pneumonitis
Xylene*	4.5 mg/m^3	100 ppm	100 ppm	150 ppm	900 ppm	Inh, Ing, Abs, Con	Dizz, Drow, Irrit, Excite, Nau, Vomit, Eyes, Skin, Nose, Throat
Zinc (oxide)	---	5 mg/m^3	2 mg/m^3	---	500 mg/m^3	Inh	Dry Throat, Cough, Chills, Tight Chest, Blurred Vision
4,4' DDD	---	---	---	---	---	Ing, Inh, Con	---
4,4' DDE	---	---	---	---	---	Ing, Inh, Con	---
4,4' DDT	5.0725 mg/m^3	1 mg/m^3	1 mg/m^3	---	[500 mg/m^3]	Inh, Abs, Ing, Con	Irrit Eyes, Skin, Pares, Tongue, Lips, Face, Trem, Anxi, Dizz, Conf, Mal, Head, Lass, Conv, Paresi Hands, Vomit, [Carc]
Aldrin		0.25 mg/m^3	0.25 mg/m^3	---	[25 mg/m^3]	Inh, Abs, Ing, Con	Head, Dizz, Nau, Vomit, Mal, Myo [Carc]
Chlordane [skin]	0.0084 mg/m^3	0.5 mg/m^3	0.5 mg/m^3		[100 mg/m^3]	Inh, Abs, Ing, Con	Blurred vision, confusion, delirium, cough; abdominal pian, nausea, vomiting diarrhea; irritability, tremor, convulsions [Carc]
EDB	76.8 mg/m^3	20 ppm		30 ppm	[100 ppm]	Inh, Abs	Resp. Irr, Eye Irr. [Carc]
Endosulfan I Endosulfan II	---	0.1 mg/m^3	0.1 mg/m^3	---	N.D.	Inh, Abs, Ing, Con	Irrit, Skin, Nau, Conf, Agit, Flush, Dry, Trem, Conv, Head
Endosulfan Sulfate		---	0.1 mg/m^3	---	---	Ing, Con	---

TABLE 1a

CHEMICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Highlight those that apply

CONTAMINANT	ODOR THRESHOLD	OSHA PEL[1]	TLV (ACGIH)	OSHA CEILING[2] /STEL	IDLH CONC.	ROUTES OF EXPOSURE	SYMPTOMS OF ACUTE EXPOSURE[3]
Endrin	1.8×10^{-2} ppm	0.1 mg/m^3	0.1 mg/m^{-3}	---	2 mg/m^3	Inh, Abs, Ing, Con	Epil Conv, Stup, Head, Dizz, Abdom, Nau, Vomit, Insom, Agress, Conf, Drow, Lass, Anor
Endrin Aldehyde	1.8×10^{-2} ppm	---	---	---	---	Inh, Con	---
Endrin Ketone	---	---	---	---	---	---	---
Heptachlor	0.02 ppm	0.5 mg/m^3	0.05 mg/m^3	---	[35 mg/m^3]	Inh, Abs, Ing, Con	In animals, Trem, Conv, [Carc]
Heptachlor epoxide	0.02 ppm	---	0.05 mg/m^3	---	---	Ing, Inh	Trem, Conv, [Carc]
Hydrogen Cyanide(Hydrocyanic Acid)	0.9 mg/m^3	10 ppm (11 mg/m^3)	4.7 ppm	4.7 ppm	50 ppm	Con, Inh, Ing, Abs	Asphy & death at high levels; Weak, Head, Conf, Nau, Vomit, Incr. Rate and Depth of Respiration or Respiration Slow and Gasping

NOTES

* = Constituent found in ETPH

**=Constituent found in Acid/Base/Neutral Extractable Compounds

***=Constituent found in Volatile Organic Compounds

****=Constituent found in Leaching Lead

[1]PEL = Permissible Exposure Limit. If no PEL is available, then the NIOSH Threshold Limit Value (TLV) should be used, if available.

[2]Ceiling limit or Short Term Exposure Limit (STEL), if available. Again, the NIOSH TLV may be used if no OSHA standard exists.

[3]Abbreviations are contained on the next page

[ ] = Potential Occupational Carcinogen

ND = Not Been Determined

ABBREVIATIONS

abdom = Abdominal
abs = Absorption
aggress = Aggressiveness
agit = Agitation
anor = Anorexia
anos = Anosmia (loss of the sense of smell)
Anxi = anxiety
anem – Anemia
aspir = Aspiration
asph – asphyxia
bron = Bronchitis
bron pneu = Bronchitis pneumonitis
[carc] = Potential occupational carcinogen
Card = Cardiac arrhythmias
CNS = Central nervous system
conf = Confusion
constip = Constipation
con = Skin and/or eye contact
conv = Convulsions
corn = Corneal
cyan = Cyanosis
defat = Defatting
depres = Depressant/Depression
derm = Dermatitis
diarr = Diarrhea
dist = Disturbance
dizz = Dizziness
drow = Drowsiness
dry = Dry mouth
dysp = Dyspnea (breathing difficulty)
emphy = Emphysema
epil-conv = Epileptiform convulsions
eryth = Erythema
euph = Euphoria
fib = Fibrosis
frost = frostbite
ftg = Fatigue
flush = Flushing
GI = Gastrointestinal
head = Headache
hyperpig = Hyperpigmentation
inco = Incoordination
ing = Ingestion
inh = Inhalation
inj = Injury
insom = Insomnia
irrit = Irritation
irrty = Irritability
lac = Lacrimination (discharge of tears)
lass = Lassitude (weakness, exhaustion)
li-head = Lightheadedness
liq = Liquid
low-wgt = Weight loss
mal = Malaise (vague feeling of discomfort)
malnut = Malnutrition
methem = Methemoglobinemia
myo = Myochonic (jerks of limbs)
mg/m = milligrams/cubic meter
muc memb = Mucous membrane
mus ftg = Muscle fatigue
narco = Narcosis
nau = Nausea
ner = Nervousness
numb = Numbness
optic = Optic nerve damage (blindness)
pall = Facial pallor
parap = Paralysis
ppm = Parts per million
pares = Paresthesia
paresi = Paresis
peri neur = Peripheral neuropathy
pneu = Pneumonitis
prot = Proteinuria
pulm = Pulmonary
peri neur = Peripheral neuropathy
pneu = Pneumonia
prot = Proteinuria
pulm = Pulmonary
repro = Reproductive
resp = Respiratory
skin sen = skin sensitization
salv = Salvation
som = Somnolence (sleepiness unnatural drowsiness)
subs = Substernal (occurring beneath the sternum)
stup = Stupor
sys = System
tingle = tingle limbs
trem – Tremors
verti = Vertigo
vis dist = Visual disturbance
vomit = Vomiting
weak = Weakness

TABLE 1b: Physical Hazards Known or Suspected On-Site

TABLE 1b

PHYSICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Description of Hazard	Methods to Identify and Minimize	Potential for Occurrence	Potentially Affected Tasks
1. Operating Heavy Equipment	• Utilizing proper equipment operation methods • Maintain safe clearance distances • Wear appropriate eye/ear protection according to manufacturer's recommendations	Moderate	Observation of Drilling Soil and Groundwater Sampling
2. Inclement weather	• Determine probable weather conditions prior to arrival at site • Avoid working during hurricanes, blizzards, persistent heavy rain or snow, close thunderstorms	Moderate	Observation of Drilling Soil and Groundwater Sampling
3. Heat/cold Stress	• Determine probable weather conditions prior to arrival at site • Wear proper clothing • Monitoring of yourself and team mates • Drink plenty of fluids • Utilize work breaks as often as necessary • Avoid working in extreme cold conditions	Moderate	Observation of Drilling Soil and Groundwater Sampling
4. Slip, trip, and fall hazards caused by irregular and loose rocky topography	• Wear appropriate footwear to increase traction when possible • Be aware of surroundings	Low	Observation of Drilling Soil and Groundwater Sampling

TABLE 1b

PHYSICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Description of Hazard	Methods to Identify and Minimize	Potential for Occurrence	Potentially Affected Tasks
5. Utilities	• Complete a Call Before You Dig markout prior to the work start date • Obtain buried private lines information from and clear sampling locations with Site Contact • Avoid using heavy equipment or drill rig in close proximity to overhead utilities • Inspect sampling areas for Call Before You Dig markings; inspect catch basins and manholes to determine buried pipeline directions prior to sampling • Avoid sampling within area of pavement cuts that may be indicative of buried lines	Moderate	Observation of Drilling Soil and Groundwater Sampling
6. Falling into Test Pit or other Fall Hazards	• Wear appropriate footwear to increase traction • Be aware of surroundings • Do not stand too close to the edge of the test pit	N/A	N/A
7. Cave in of Test Pit	• Be aware of surroundings • Do not enter a Test Pit over three feet deep	N/A	N/A
8. Inhalation of Volatiles	• Implement and adhere to action levels stipulated in air monitoring program for volatile organics • Wear appropriate protective equipment • Report potential exposure symptoms immediately • Utilize engineering controls such as fans	N/A	N/A

TABLE 1b

PHYSICAL HAZARDS KNOWN OR SUSPECTED ON-SITE

Description of Hazard	Methods to Identify and Minimize	Potential for Occurrence	Potentially Affected Tasks
9. Skin contact with volatile organic compounds, semi volatile organic compounds, metals, TPHs, PCBs, pesticides, cyanide	• Wear appropriate protective clothing • Follow proper decontamination procedures • Report potential exposure symptoms immediately	Low	Observation of Drilling Soil and Groundwater Sampling

APPENDIX A

Safety and Logistics Planning Call Log

Safety and Logistics Call Log
DEC932027

Date of Call

Work Assignment Number / Task

DEC Site Name and Number

Names of Attendees (and phone #s):

HRP
- HRP PM
- HRP SSO
- HRP Other
- HRP Other
- HRP Other

DEC
- DEC PM
- DEC Other

Subcontractors
- Driller Contact
- Utility Survey
- Surveyor
- Construction
- Other

Other

Brief Description Scope of Work (Task Specific) Use additional forms for additional tasks

Logistics:

Date of Work:

Time to Meet:

Site Contact (phone)

Notification of Site Contact made by:

Describe any unusual site specific conditions/logistics here (if any):

Notes below as needed:

Water Needed? Source Confirmed?	Y / N
Electricity Needed? Source Confirmed?	Y / N
Water Storage Needed?	Y / N
Water Discharges? Permits Needed/Attained?	Y / N
Air Monitoring – CAMP?	Y / N

Will there be intrusive work? Y / N

Locations marked in the field? Y / N

NYS Code Rule 753/Dig Safe System: Ticket Number:

Confirmed that mark-out complete? Y / N

Anticipated Subsurface Conditions (Geology, Utilities, etc.):

Anticipated Depth to Groundwater:

Will NAPL/Product be Present: Y / N Describe:

Safety and Logistics Call Log
DEC932027

Will there be any other parties entering the work zones? Describe control measures:

Lab and Equipment:

Equipment: Y / N PID IP Water Level Indicator CAMP Pumps Controllers Survey Eq. GSP
Other: _____

Lab Analytical Required: Y / N VOCs SVOCs Metals PFAS 1,4D PCBs Pest/Herb
Other: _____

Media Tested: Soil Sediment Groundwater Surface Water Sub-slab[soil] Vapor Indoor Air
Notes of sample collection methods: _____

Bottle Order Received/Checked? Y / N
How will samples be conveyed to lab? _____
Sample TAT? Standard 24 hr TAT 48 hr TAT Other: _____

Review Site – Specific Hazards (per Site-Specific HASP to be provided prior to all parties):

Site Constituents of Concern: VOCs SVOCs PFAS 1,4-Dioxane
(circle) HVOCs
AVOCs
Metals pesticides herbicides
Asbestos PCBs
Lead Other: _____
Biologicals

Site Setting:

Urban	Suburban	Unoccupied
Traffic	Bystanders	Crime Plants Animals Vectors
Overhead Utilities		Underground Utilities Large Equipment
High Voltage		Flood/Tidal Limited Access
Confined Space		

Task-Specific Chemicals and Hazards (describe): _____
PPE Level (circle): D C B A Modifications: _____
Glove Types: _____ Face covering needed? Y / N
Other specialty PPE: _____

Safe to Work Alone: Y / N
Other Precautions: Y / N Describe: _____

Waste Containment:
How/where will materials be contained, labelled, stored, or disposed?

Miscellaneous:

APPENDIX B
Personnel Log

PERSONNEL LOG

Name	Representing	Date	Time In	Time Out

APPENDIX C
Supervisor's Investigation Report

INCIDENT REPORT

Section 1.0: Complete By Employee and Project Manager

(provide to Human Resources Manager) Incident Case No. _____

Employee Name: Employee Title/Position:	Age: Sex: ☐ Female ☐ Male	Time employee began work: Date of Incident: Time of Incident:	Weather Conditions: Date of Report: Time Report Completed:
Department: Office Location: Supervisor:			
Employee Address: Street: City/Town: Zip Code: Phone Number:	Location of Incident: Address: City/Town: State:		

Type of Incident:

☐ Motor Vehicle Accident ☐ Other Accident or Injury ☐ Near Miss (no actual accident or injury occurred)

- Did the incident or near miss occur during business hours and/or travel to and from a client location? Yes / No
- If a motor vehicle accident, was it a personal vehicle or company vehicle? Yes / No / Not Applicable
- Did the incident result in first aid treatment (either during or outside of business hours? Yes / No (if yes, add details below)
- Did the incident result in medical treatment beyond first aid? Yes / No (if yes, add details below)
- Did the incident result in lost time or days away from work? Yes/No (lost time begins the day after incident/injury)
  - If yes, provide number of days away from work:_____

Notes/Details:

_____

_____

If injuries occurred, list names and describe nature, degree, and body part injured: Number of injured:_____

1.

2.

Complete Section 3.0

WITNESS STATEMENT: WHAT HAPPENED AND WHAT WAS THE EMPLOYEE DOING BEFORE THE INCIDENT OCCURRED? WHAT WAS THE EMPLOYEE DOING WHEN THE INCIDENT OCCURRED? WHAT WAS THE EMPLOYEE DOING AFTER THE INCIDENT OCCURRED?	Describe what took place? Who was at fault for vehicle accidents, citation? Was power equipment involved, if so, describe?

WHAT WAS THE NATURE OF THE INJURY OR ILLNESS?	Tell us the body part that was affected and how it was affected – be specific Examples: strained lower back; chemical burn on hand
WHAT WAS THE ROOT CAUSE OF THE INCIDENT? List other individual involved in Section 3. COULD INCIDENT HAVE BEEN AVOIDED? HOW?	Get all the facts by studying the Job and situation involved. Question by use of WHY - WHAT – WHERE – WHEN – WHO – HOW Were there other factors (e.g., noise, ventilation, illumination, fatigue, age, medical conditions) that contributed to the accident?
WAS TRAINING FOR THE WORK ACTIVITY PROVIDED: TYPE: DATES:	WERE WARNING SIGNS OR LABELS POSTED:
WHAT SHOULD BE DONE? HOW CAN INCIDENT BE AVOIDED IN THE FUTURE?	WAS PERSONAL PROTECTIVE EQUIPMENT USED? NEEDED: AVAILABLE: CONTRIBUTED TO INJURY:
WHAT HAVE YOU DONE THUS FAR?	Take or recommend action, depending upon your authority. Follow up – was action effective?
HOW WILL THIS IMPROVE OPERATIONS?	OBJECTIVE Eliminate job hindrances

Completed by:	Reviewed by:	Date

Section 2.0: Complete By Supervisor or Human Resources Manager

Name: Role (witness, observer, injured, participant, etc.):	Address: Phone Number
Name: Role:	Address: Phone Number
Name: Role:	Address: Phone Number
Name: Role:	Address: Phone Number
Name: Role:	Address: Phone Number
Name: Role:	Address: Phone Number

Section 3.0: Corrective Actions (To be Completed by OHSM and CHSO)

Are corrective actions warranted? ☐ Yes ☐ No If so, proceed with corrective action list

Corrective Actions. List long term actions to be taken as a result of incident (use additional sheets if needed)	How was the corrective action implemented?	Target date of completion

OHSM Name:	CHSO Name:
OHSM Signature:	CHSO Signature:

End of incident report. Section 4.0 is to be completed and maintained by the Human Resources Department.

Section 4.0: Complete By Human Resources Manager

Incident Report Case No. _____

The information on this page is considered CONFIDENTIAL and must be treated as such. This page will only be available to Human Resources Department or the employee's supervisor.

Insured Name:	Employee Hire Dates: Start at Company: Current Position:
Policy Number:	Is employee a company: Owner, Officer, Neither.
Employee Soc. Sec. No.:	Marital Status: Spouse Name:
Was Employee Pay Interrupted, or paid in full for time:	Employee Pay Period: Weekly, Bi-Weekly, Monthly, Other (specify)
Employee Compensated by hourly or salary? Wage Information: (tips, bonuses, commission)	Typical No. of hours worked per day____, hours per week____. Typical Start of day time_____, end of day time_____.
Date of Stop Work: Date Returned to Work:	How often has employee visited doctor/hospital?
Doctor: Authorized by Co.: Y / N Street: City/Town: Zip Code: Phone Number: Authorized by Co.: Y / N	Hospital: Street: City/Town: Zip Code: Phone Number: Authorized by Co.: Y /N
Was the employee treated in an emergency room? ☐ Yes ☐ No	Was employee hospitalized overnight as an in-patient? ☐ Yes ☐ No If so, for how many days? _____

APPENDIX D
Daily Job Brief Record

DAILY JOB BRIEF RECORD

Person Conducting	Witmer Road Site Site Name/Address	DEC1032.P2 HRP Client Name/Job #
Jasmine Stefansky - 518-402-9575 Client Contact/Phone	HRP H&S Rep.	David Stoll HRP Supervisor
Date/Time	Number Attending	Weather

Designated Competent Person: _____

Description of Work: _____

Attendees (use additional sheets as needed):

Name	Company	Signature

Emergency Telephone Numbers FIRE / POLICE / AMBULANCE: 911

Hospital Name & Location: Niagara Falls Memorial Medical Center - 621 10th St, Niagara Falls, NY 14301

NYSDEC Spill Line: 1-518-457-7362 National Response Center: 800-424-8802 CBYD: 800-922-4455

Health & Safety Manager: Bryan Sherman – 518-877-7101 ext. 1416

HAZARDS

☐ Toxic	☐ Extreme Cold/Heat	☐ Soil Excavation	☐ Vehicle Traffic	☐ Powerwashing
☐ Corrosive	☐ Drains/Sumps	☐ Tank Excavation	☐ Hot Work	☐ Elevated Work Area
☐ Flammable	☐ Sharp Objects	☐ Trenching	☐ Vac Truck	☐ Live Electrical Circuits
☐ Combustible	☐ Drilling in Soil	☐ Floor Holes	☐ Ladders	☐ Pneumatic Tools
☐ Reactive	☐ Lighting	☐ Working on/near Water	☐ Noise	☐ Drum Handling
☐ Path Waste	☒ Slips/Trips/Falls	☐ Underground/Overhead Utilities	☐ Lifting	☐ Abrasive Blasting
☐ Asbestos	☐ Lead			

PERSONAL SAFETY

☐ Supplied Air Respirator	☐ SAR w/Egress Bottle	☐ SCBA	☐ Air Purifying Respirator Cartridge: _____	
☐ Fully Encapsulating Suit	☐ Flash Suit	☐ NOMEX (flam resistant)	☐ Protected Coveralls, Type: _____	
☐ Overboots	☐ Lifebelt/Lanyard	☐ Hardhats	☐ Outer Gloves, Type: _____	
☒ Safety Glasses	☐ Chemical Goggles	☐ Face Shield	☐ Inner Gloves, Type: _____	
☐ Reflective Vests	☐ Eye Wash	☐ Safety Shower	☐ First Aid Kit	☐ PFD's
☐ Hearing Protection	☐ Evacuation Plan	☐ Communications	☐ Properly Sloped Excavation/ Trench	☐ Ventilation

FIRE SAFETY

- ☒ Fire Extinguishers
- ☐ Hot Work Permit
- ☐ Fire Blanket
- ☐ Explosion-Proof Equipment
- ☐ Equipment Grounded & Bonded
- ☐ Non-Sparking Tools
- ☐ Eliminate Ignition Sources
- ☐ Area Kept Wet
- ☐ Smoking Area Designated Location: _____
- ☐ Alarm Box in Area, Location: _____
- ☐ Fire Hose Laid Out

ISOLATE EQUIPMENT

- ☐ Establish Exclusion Zone/Traffic Cones
- ☐ Work Signs
- ☐ Stop Transfers
- ☐ Caution Tape Area
- ☐ GFCIS
- ☐ Temporary Fencing

ELECTRICAL EQUIPMENT

- ☐ LockOut/TagOut
- ☐ Non-Conductive Tools
- ☐ Equipment Grounded
- ☐ FR Suits/Coveralls

AIR MONITORING

Type of Meter: _____ Date last calibrated: _____

SUBSTANCE	LEVEL B MAX.	ACTION LEVEL/LEVEL C MAX.	LEVEL D MAX.

Health & Safety Comments / Topics & Safety Rules Reviewed / Questions / Concerns:

_____

_____

_____

_____

_____

_____

_____

Contaminants of Concern: _____

HEALTH & SAFETY SIGNATURE: _____ Date: _____

Is there a Site-Specific or Generic Health & Safety Plan available on-site? Yes ☐ No ☐

☐ HAZARD ZONES NOT APPLICABLE, GENERAL WORK AREA

Level D ☐ Modified Level D ☐ Level C ☐

Anything above Level C, foreman should use a Confined Space Permit/Form.

Note: HOT WORK requires a hot work permit and minimum 20# fire extinguisher. Foreman or HSM must record at least one contaminant of concern above. Toxic plants may be considered a COC if no chemical hazards are expected.

LEVEL C
Respirator Type: _____

Name	Zone	Time In	Time Out	Decon Type

Before performing Level C work, ALL employees must review HRP's Respiratory Protection Program - a copy of which must be on-site along with a HASP.

APPENDIX E
Equipment Calibration Log

EQUIPMENT CALIBRATION LOG		
Instrument	**Calibration Date**	**Calibrated By**

APPENDIX F
Community Air Monitoring Plan

Community Air Monitoring Plan

James Avenue at Witner Road, Niagara Falls, New York

This 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 during remedial activities at the site. The CAMP is not intended for use in establishing action levels for workers 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.

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

Depending on the nature of known or potential contaminants at the site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be required for all ground intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and groundwater samples. "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, continuing monitoring may be required during sampling activities.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will 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 the background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures

and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

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

VOC Monitoring, Response Levels, and Actions

VOCs will 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 will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using a photo ionization detector (PID) equipped with a 10.2 eV bulb. The PID will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 will be halted, the source of the 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 will be shutdown.

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

APPENDIX G
HRP Safe Work Permit

General Information:		
Project Description: Environmental Site Characterization	**Project Location: James Avenue at Witmer Road**	
Client: NYSDEC	**Jasmine Stefansky**	**518-402-9575**
	Contact Name	**Contact Phone**
Summary of Work:		
Drilling, soil sampling, groundwater monitoring		

Created By:	**Elliott Jackson**	**Approved by:**	**David Stoll**
Reviewed with affected employee	**Signature**		**Date**

Check if Project Involves:	**Yes**	**No**	**Initial to Verify Completion**	**Criteria**
Hot Work *(Welding, Grinding, etc.)*	☐	☒		Hot Work Permit Issued – Fire Watch Required
Electrical Work	☐	☒		LOTO, confirm zero energy
Rigging or Heavy Lifting	☐	☒		Load Ratings, Employee Certification
Scaffolds	☐	☒		Competent Person Inspection Required
Confined Space Entry	☐	☒		Permit or Reclassification Form Required
Hazardous Chemicals	☐ ☐	☒ ☒		Chemical Names and SDS review with Employees Spill kit available, Secondary containment provided
Ladders	☐	☒		Proper Rating, No Metal Ladders, Current Inspection
Work at Heights	☐	☒		Training (verified), Approved Anchor Pts. or Fall Protection
Lockout Tagout	☐	☒		Training (verified), site first lock on
Excavation/Ground Penetration	☒	☐		Line Locate performed
Roof Work	☐	☒		Fall protection within 6 feet of edge
Portable Electrical Tools, cords	☐	☒		GFCI used, No damaged cords, Inspected
Fire System Impairment	☐	☒		External notifications made
Blocked Exits	☐	☒		Post signs and alternate exits
Other *(list)*:	☐	☒		

Required Permits		**PPE Required for Job or Required by Client**	
☒ None	☐ Ground Disturbance	☒ Safety Glasses	☒ Hearing Protection
☐ Confined Space	☐ Scaffold Inspection	☒ Safety Toe Shoes	☒ Hard Hats
☐ Hot Work	☐ Working At Heights	☐ Metatarsal Guards	☐ Other:
☐ Emergency Medical Care Provisions		☐ Cut Resistant Gloves/Sleeves	☐ Other:
☐ Other Permits:		☐ Respirator	

Special Considerations				
☐ Chemical	☐ Tight/Crowded Area	☐ Laceration/Abrasion	☐ Struck By	☐ Press
☐ Explosion	☐ Fire	☐ Falling Debris/Loads	☐ Struck Against	☐ Security
☒ Slip/Trip/Fall	☐ High Pressure	☒ Noise	☐ Automated Equip.	☐ Other:
☐ Exposed Movement	☐ Lighting	☐ Caught in/on	☐ Conveyors	☐ Other:
☐ Ergonomics	☐ Animals, bees, pests	☐ poisonous plants	☐ PCBs, Pb, asbestos	

REVISION APPROVAL LOG			
REV. #	**PREPARED BY**	**REVIEWED BY**	**APPROVED BY**
00	Date: 1/18/2021 Name: Scot Frost Sign: L. Scot Frost	Date: 1/20/2021 Name: Jackie Baxley Sign: Jackie Baxley	Date: 1/20/2021 Name: Tad Goetcheus Sign: Tad A Goetcheus
01	Date: Name: Sign:	Date: Name: Sign:	Date: Name: Sign:
02	Date: Name: Sign:	Date: Name: Sign:	Date: Name: Sign:

CHANGE / REVIEW RECORDS			
REVISION DATE	**REVISION LEVEL**	**REASON / REVISION DESCRIPTION**	**APPROVED BY**

APPENDIX H
Safety Data Sheets
(for chemicals brought to the site)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

1 Identification of the substance/mixture and of the supplier

1.1 Product identifier

Trade Name: Alconox
Synonyms:
Product number: Alconox

1.2 Application of the substance / the mixture : Cleaning material/Detergent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer	**Supplier**
Alconox, Inc. 30 Glenn Street White Plains, NY 10603 1-914-948-4040	Not Applicable

Emergency telephone number:
ChemTel Inc
North America: 1-800-255-3924
International: 01-813-248-0585

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:
Tetrasodium Pyrophosphate
Sodium tripolyphosphate
Sodium Alkylbenzene Sulfonate

2.2 Label elements:

Skin irritation, category 2.
Eye irritation, category 2A.

Hazard pictograms:

Signal word: Warning

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): None

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization : None

3.2 Description : None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
CAS number: 7722-88-5	Tetrasodium Pyrophosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	2-16

3.4 Additional Information : None.

4 First aid measures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.

Remove contact lens(es) if able to do so during rinsing.

Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.

Seek medical attention if irritation, discomfort, or vomiting persists.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None

5.2 Special hazards arising from the substance or mixture :

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing.
Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.
Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures :

Ensure adequate ventilation.
Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.
Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None

7 Handling and storage

7.1 Precautions for safe handling :

Avoid breathing mist or vapor.
Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities :

Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

8 Exposure controls/personal protection

8.1 Control parameters :

7722-88-5, Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work.
Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	White and cream colored flakes - powder	**Explosion limit lower:** **Explosion limit upper:**	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	**Vapor pressure at 20°C:**	Not determined or not available.
Odor threshold:	Not determined or not available.	**Vapor density:**	Not determined or not available.
pH-value:	9.5 (aqueous solution)	**Relative density:**	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	**Solubilities:**	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	**Partition coefficient (n-octanol/water):**	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	**Auto/Self-ignition temperature:**	Not determined or not available.
Evaporation rate:	Not determined or not available.	**Decomposition temperature:**	Not determined or not available.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Flammability (solid, gaseous):	Not determined or not available.	**Viscosity**:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
Density at 20°C:	Not determined or not available.		

10 Stability and reactivity

10.1 Reactivity : None

10.2 Chemical stability : None

10.3 Possibility hazardous reactions : None

10.4 Conditions to avoid : None

10.5 Incompatible materials : None

10.6 Hazardous decomposition products : None

11 Toxicological information

11.1 Information on toxicological effects :

Acute Toxicity:

Oral:

: LD50 > 5000 mg/kg oral rat - Product .

Chronic Toxicity: No additional information.

Skin corrosion/irritation:

Sodium Alkylbenzene Sulfonate: Causes skin irritation. .

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation .

Tetrasodium Pyrophosphate: Rabbit - Risk of serious damage to eyes .

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

12 Ecological information

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.
Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours.
Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
Tetrasodium Pyrophosphate: Fish, LC50 - other fish - 1,380 mg/l - 96 h.
Tetrasodium Pyrophosphate: Aquatic invertebrates, EC50 - Daphnia magna (Water flea) - 391 mg/l - 48 h.

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1	**UN Number:** ADR, ADN, DOT, IMDG, IATA	None
14.2	**UN Proper shipping name:** ADR, ADN, DOT, IMDG, IATA	None
14.3	**Transport hazard classes:** ADR, ADN, DOT, IMDG, IATA	**Class:** None **Label:** None **LTD. QTY:** None

US DOT

Limited Quantity Exception: None

Bulk:	**Non Bulk:**
RQ (if applicable): None	**RQ (if applicable):** None
Proper shipping Name: None	**Proper shipping Name:** None
Hazard Class: None	**Hazard Class:** None
Packing Group: None	**Packing Group:** None
Marine Pollutant (if applicable): No additional information.	**Marine Pollutant (if applicable):** No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

	Comments: None	**Comments:** None
14.4	**Packing group:** ADR, ADN, DOT, IMDG, IATA	None
14.5	**Environmental hazards** :	None
14.6	**Special precautions for user:**	None
	Danger code (Kemler):	None
	EMS number:	None
	Segregation groups:	None
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.	
14.8	**Transport/Additional information:**	
	Transport category:	None
	Tunnel restriction code:	None
	UN "Model Regulation":	None

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed.
Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable

Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed.
Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):
All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Germany MAK: Not classified.

Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

NFPA: 1-0-0

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

HMIS: 1-0-0

SAFETY DATA SHEET

Version 5.2
Revision Date 02/24/2014
Print Date 11/13/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Distilled water

Product Number : 07-6061
Brand : Katayama OEM Partner
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No. : 7732-18-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : H2O H_2O
Molecular Weight : 18.02 g/mol
CAS-No. : 7732-18-5
EC-No. : 231-791-2

No ingredients are hazardous according to OSHA criteria.
No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled
If not breathing give artificial respiration

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture
no data available

5.3 Advice for firefighters
no data available

5.4 Further information
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
no data available

6.3 Methods and materials for containment and cleaning up
Wipe up with absorbent material (e.g. cloth, fleece).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
No special storage conditions required.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice.

Personal protective equipment

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Respiratory protection
No special protective equipment required.

Control of environmental exposure
Prevent product from entering drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	6.0 - 8.0 at 25 °C (77 °F)
e)	Melting point/freezing point	0.0 °C (32.0 °F)
f)	Initial boiling point and boiling range	100 °C (212 °F) - lit.
g)	Flash point	not applicable
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	1.000 g/cm3 at 3.98 °C (39.16 °F)
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
no data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: ZC0110000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
not applicable

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Taking into account local regulations the product may be disposed of as waste water after neutralisation.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 02/24/2014 Print Date: 11/13/2016

SAFETY DATA SHEET

1. Identification

Product identifier: SODIUM BISULFATE

Other means of identification
Product No.: 7432, 3534

Recommended use and restriction on use

Recommended use: Not available.
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company Name:	Avantor Performance Materials, Inc.
Address:	3477 Corporate Parkway, Suite 200 Center Valley, PA 18034
Telephone:	Customer Service: 855-282-6867
Fax:	
Contact Person:	Environmental Health & Safety
e-mail:	info@avantormaterials.com

Emergency telephone number:
24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard classification

Health hazards

Serious eye damage/eye irritation Category 1

Label elements

Hazard symbol:

Signal word: Danger

Hazard statement: Causes serious eye damage.

Precautionary statement

Prevention: Wear eye protection/face protection.

Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
SODIUM BISULFATE (HYDRATED FORM)		10034-88-5	90 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Rinse mouth thoroughly. Get medical attention if symptoms occur.

Inhalation: Move to fresh air. Get medical attention if symptoms occur.

Skin contact: Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

Eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed

Symptoms: Causes serious eye damage.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. Fire-fighting measures

General fire hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.
Methods and material for containment and cleaning up:	Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
Notification Procedures:	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
Environmental precautions:	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:	Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling.
Conditions for safe storage, including any incompatibilities:	Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None of the components have assigned exposure limits.

Appropriate engineering controls	No data available.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Eye/face protection:	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection:	Use suitable protective gloves if risk of skin contact.
Other:	Wear suitable protective clothing.
Respiratory protection:	In case of inadequate ventilation, use respiratory protection.
Hygiene measures:	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Crystals or powder.
Color:	Colorless
Odor:	Odorless
Odor threshold:	No data available.
pH:	1.4
Melting point/freezing point:	58 °C
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	2.1 (20 °C)
Solubility(ies)	
Solubility in water:	670 g/l
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

Other information

Molecular weight:	138.08 g/mol

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical stability:	Material is unstable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid:	Contact with incompatible materials. Moisture. Avoid conditions which create dust.
Incompatible materials:	Strong bases.
Hazardous decomposition products:	Sulfur dioxide gas may be liberated from the product.

11. Toxicological information

Information on likely routes of exposure

Ingestion:	May cause irritation of the gastrointestinal tract.

Inhalation: May cause irritation to the respiratory system.

Skin contact: May cause irritation.

Eye contact: Causes serious eye damage.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: No data available.

Dermal
Product: No data available.

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin corrosion/irritation
Product: May cause skin irritation.

Serious eye damage/eye irritation
Product: Causes serious eye damage.

Respiratory or skin sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ cell mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific target organ toxicity - single exposure
Product: No data available.

Specific target organ toxicity - repeated exposure
Product: No data available.

Aspiration hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and degradability

Biodegradation
Product: There are no data on the degradability of this product.

BOD/COD ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration factor (BCF)
Product: No data available on bioaccumulation.

Partition coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number:	UN 3260
UN proper shipping name:	Corrosive solid, acidic, inorganic, n.o.s.(SODIUM BISULFATE)
Transport hazard class(es)	
Class(es):	8
Label(s):	8
Packing group:	III
Marine Pollutant:	No

IMDG

UN number:	UN 3260
UN proper shipping name:	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.(SODIUM BISULFATE)
Transport hazard class(es)	
Class(es):	8
Label(s):	8
EmS No.:	F-A, S-B
Packing group:	III
Marine Pollutant:	No

IATA

UN number:	UN 3260
Proper Shipping Name:	Corrosive solid, acidic, inorganic, n.o.s.(SODIUM BISULFATE)
Transport hazard class(es):	
Class(es):	8
Label(s):	8
Marine Pollutant:	No
Packing group:	III

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund amendments and reauthorization act of 1986 (SARA)

Hazard categories

X	Acute (Immediate)		Chronic (Delayed)		Fire		Reactive		Pressure Generating

SARA 302 Extremely hazardous substance

None present or none present in regulated quantities.

SARA 304 Emergency release notification

None present or none present in regulated quantities.

SARA 311/312 Hazardous chemical

Chemical identity	Threshold Planning Quantity

SARA 313 (TRI reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US state regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

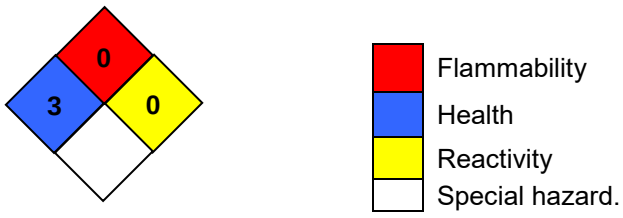
No ingredient regulated by RI Right-to-Know Law present.

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16.Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue date: 05-16-2014

Revision date:	No data available.
Version #:	1.0
Further information:	No data available.
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APPENDIX B

Community Air Monitoring Program (CAMP)

Community Air Monitoring Plan

James Avenue at Witner Road, Niagara Falls, New York

This 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 during remedial activities at the site. The CAMP is not intended for use in establishing action levels for workers 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.

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

Depending on the nature of known or potential contaminants at the site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be required for all ground intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and groundwater samples. "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, continuing monitoring may be required during sampling activities.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will 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 the background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures

and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

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

VOC Monitoring, Response Levels, and Actions

VOCs will 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 will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using a photo ionization detector (PID) equipped with a 10.2 eV bulb. The PID will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 will be halted, the source of the 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 will be shutdown.

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

APPENDIX C

DER-10 Air Monitoring Guidance

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

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 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 DEC/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, particularly if wind direction changes. 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.

1. 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.

2. 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.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.