

PROPOSED WORK PLAN
SUPPLEMENTAL INTERIM REMEDIAL MEASURES
FORMER AFMC, INC. PETROLEUM
BULK STORAGE FACILITY
OPERATIONAL UNIT #2-NORTH TERMINAL

NYSDEC ERP Site Number E623014

Ambrose Street
Sackets Harbor, Jefferson County, New York

September 14, 2012

SE Project No. 09-761



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PROPOSED WORK PLAN SUPPLEMENTAL INTERIM REMEDIAL MEASURES

FORMER AFMC, INC. PETROLEUM BULK STORAGE FACILITY – NORTH TERMINAL

NYSDEC ERP Site Number E623014

1.0 INTRODUCTION

The Former AFMC Bulk Petroleum Storage Terminal ERP Site (Site No. E623014) is located in the Village of Sackets Harbor, New York (Figure 1). The site consists of two separate parcels: one north of Ambrose Street (the North Terminal), and one south of Ambrose Street (the South Terminal). A Remedial Investigation (RI) of both parcels was previously completed by Strategic Environmental, LLC (SE) and an RI Report was prepared. The RI identified only two limited areas on the North Terminal parcel with petroleum contamination in soil above NYSDEC Unrestricted Use Soil Cleanup Objectives (SCOs), which were subsequently addressed through an initial phase of Interim Remedial Measure (IRM) work in November 2009. However, two (2) additional areas were identified as having grossly contaminated soils which exhibited petroleum-type odors, visible staining, and/or significantly elevated PID headspace screening values. Based on the identification of these grossly contaminated soils, these two other areas are considered to represent potential contaminant source material and will need to be addressed. The purpose of this Work Plan is to propose completion of a supplemental IRM action to excavate the grossly contaminated soils.

1.1 Site Description

The subject property is located in the northwest section of the Village of Sackets Harbor, near the southern shore of Lake Ontario, and is a portion of a larger property of approximately 113 acres in land area that had historically served as a petroleum bulk storage and distribution facility under several ownerships dating to the mid 1920s. The subject property was previously subdivided from the larger parent parcel, and consists of two (2) separate parcels that are separated by Ambrose Street. The parcel situated on the north side of Ambrose Street has, for the purposes of the remedial investigation, been identified as Operational Unit #2 or “The North Terminal”. This parcel is comprised of 14.80 acres of land area and is the focus of the supplemental Interim Remedial Measure work described herein. The other parcel, situated south of Ambrose Street, is comprised of 4.75 acres of land area and has been identified as Operational Unit #1 or “The South Terminal” for purposes of the remedial investigation. No

interim remedial measures or other work are proposed for the South Terminal under this work plan.

A Site Layout drawing, depicting the relationship of the two parcels to one another, and the relationship of each to existing streets, Lake Ontario, and neighboring development is attached as Figure 2.

1.2 Previous Petroleum-Impacted Soil Removal Activities – The North Terminal

Three (3) areas of petroleum-impacted soil have been removed from the North Terminal site to date.

The first soil removal occurred in November 1999, prior to the site entering the Environmental Restoration Program. At that time, 1,483.28 tons of petroleum-impacted soil was removed from the area corresponding to historic Loading Rack #1. This area was located near Ambrose Street on the southeast portion of the North Terminal parcel. During this process, the bedrock surface was exposed and scraped clean across all areas encompassed by the excavation. Bedrock, of limestone/dolostone in nature, was encountered at depths ranging from approximately 5.5 to 7.7 feet below grade. The overburden soil generally consisted of sands and silts, underlain by a deposit of silts and clays. A shallow layer of glacial till existed between the silt and clay stratum and the surface of the underlying bedrock formation.

The intent of the excavation was to remove grossly impacted soil, such that concentrations of VOC and SVOC, if any, remaining along the walls of the excavation did not exceed the corresponding TCLP Alternative Guidance Values (AGVs) published in the NYSDEC's *Spill Technology and Remediation Series Memorandum No. 1: Petroleum-Contaminated Soil Guidance Policy (STARS No. 1)*, published in August 1992/reprinted July 1993. These values were identified as the target cleanup goals, as the AGVs represented generally accepted soil cleanup guidance levels recognized by the NYSDEC at that time for the management of sites impacted by petroleum products.

The soil removal resulted in an excavation of approximately 75 feet by 120 feet in dimension, encompassing the area around and north of Loading Rack #1. At the conclusion of the soil removal, post-excavation samples collected from the walls of the final excavation detected a limited number of individual volatile organic compounds at concentrations that do not exceed Unrestricted Use SCOs that are established in *6NYCRR Part 375*, which represent the target soil

cleanup objectives for the North Terminal parcel under the Environmental Restoration Program Agreement for the site. Soil along the south side of the 1999 excavation, however, was noted as having petroleum odors and elevated field PID screening values. As such, the grossly contaminated soil is considered to be potential source material and is therefore planned to be removed under the IRM activities proposed herein.

The second and third areas of impacted soil on the North Terminal were removed in November 2009, following completion of the Remedial Investigation. These Interim Remedial Measures were conducted in accordance with procedures established in a Proposed IRM Work Plan submitted to the NYSDEC on July 6, 2009. The IRM work performed at the North Terminal consisted of the excavation, handling, characterization, and off-site disposal of a total of 1,487.82 tons of petroleum-contaminated soil identified in two (2) separate source area "hotspots" having concentrations of petroleum constituents exceeding the Unrestricted SCOs established in *6NYCRR Part 375*. These hotspots included an area along the southeast side of the former pump and pipe storage building in which an abandoned 1,000-gallon underground gasoline storage tank was encountered, and an area at the southeast edge of the North Terminal parcel, generally corresponding to the point at which an aboveground pipeline passed beneath Ambrose Street between the North and South Terminals.

The removed soil was transported to the Development Authority of the North Country Solid Waste Management Facility in Rodman, New York. The IRM work also included the closure (by removal) of the abandoned 1,000-gallon underground storage tank that was discovered adjacent to the pump and pipe storage building.

The lateral extent of the final excavation near the pump and pipe storage building encompassed a foot print of approximately 2500 square feet, extending approximately 85 feet in the northeast-southwest direction and 45 feet in the northwest-southeast direction. The excavation near the pipeline route encompassed an area of approximately 3000 square feet. The excavation measured approximately 68 feet in the northwest-southeast direction and 60 feet in the northeast-southwest direction.

During soil excavation work at the North Terminal, an abandoned underground storage tank was encountered approximately fifteen feet southeast of the pump and pipe storage building, situated generally parallel with Ambrose Street. This location corresponded to the approximate center of the final impacted soil excavation in this area. Approximately 750 gallons of liquid having an

apparent gasoline odor remained in the tank. The liquid was evacuated from the tank and delivered to the City of Ogdensburg waste water treatment facility for disposal.

2.0 REMEDIAL INVESTIGATION ACTIVITIES

The Remedial Investigation Work Plan presented a discussion of potential areas of concern organized by Parcel. The soil investigation was conducted in two phases. The first phase was completed in November and December 2007 and the second phase was completed in December 2008 through February 2009.

The investigation included drilling of a total of 185 borings by direct-push methods. A Geoprobe® Model 5400 was used to advance Macro-Core soil samplers, in 4-foot lengths, to refusal at the bedrock surface. The Macro-core samplers allow collection of continuous soil samples. The soil samples were then classified by an SE scientist, retained in two foot intervals for possible laboratory analysis and then screened with a photo-ionization detector (PID). A PID equipped with a 10.6 eV lamp was used to perform the headspace screening. Samples submitted for laboratory analysis were selected to help define areas of impact based on PID readings and also to confirm the absence of impacts in areas where PID screening and visual observation did not detect potential contamination of concern.

Samples submitted for laboratory analysis during the first phase of investigation (2007) were submitted to Environmental Laboratory Services, Inc. (ELS) of North Syracuse, New York, a NYSDOH ELAP certified laboratory. Samples from the second phase (2008-2009) were submitted for analysis to Life Science Laboratories of East Syracuse, NY (LSL), a NYSDOH ELAP certified laboratory. Soil samples submitted for laboratory analysis were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and lead by EPA Methods 8260, 8270 and 418.1, respectively. Those portions of each sample which were analyzed by EPA Methods 8260 and 8270 were also checked for the presence of tentatively identified compounds, or TICs, and only compounds on the NYSDEC STARS Memo #1 list were reported for the SVOC analyses.

3.0 NATURE AND EXTENT OF CONTAMINATION – NORTH TERMINAL

The remedial investigation performed at the site identified two (2) areas of petroleum impact on the North Terminal in which concentrations of petroleum constituents (volatile organic compounds or VOC) exceeded the target soil cleanup objectives established under the ERP Agreement for the site (6NYCRR Part 375 Unrestricted Soil Cleanup Objectives). These two areas were later addressed in the initial phase of IRM activity performed in November 2009, as detailed in the *Remedial Investigation and Interim Remedial Measure Report* dated June 7, 2012.

In addition to these two areas of soil impact exceeding the target soil cleanup objectives, two (2) additional areas of grossly contaminated soil exhibiting petroleum odors, staining, and elevated PID headspace screening values, were identified by the remedial investigation. The first area is positioned in the approximate center of the North Terminal Parcel, beneath the route of two former above-grade pipelines that passed from northeast to southwest across the site, extending from an historic offshore delivery point in Black River Bay to the two historic bulk storage terminals. The second corresponds to the area southeast of former loading rack #1, where impacted soil was left behind following excavation in 1999. Both areas are identified on attached Figure 2.

Although individual petroleum constituent concentrations in these areas were reported by laboratory analysis to be below the target soil cleanup objectives, the grossly contaminated soils are considered a potential contaminant source material and must be addressed. The actions proposed to address these areas are detailed below.

4.0 PROPOSED INTERIM REMEDIAL MEASURE

4.1 Soil Excavation

SE proposes to excavate all grossly contaminated soils (notable petroleum-type odors, visible staining, or elevated PID headspace screening results) in each of the two identified source areas and dispose of these soils at an approved off-site disposal facility. Estimated areas of excavation are shown on Figure 2. An SE scientist will screen soils with a PID during excavation activities. It is anticipated that the soil will be disposed of at the Development Authority of the

North Country (DANC) landfill in Rodman, New York. A PID will be used to screen soil to determine the potential for re-use as excavation backfill, subject to suitable analytical results.

Excavation will begin in the center of each of the two AOCs and proceed outward until PID readings in the impacted soil layer no longer exceed 50 parts-per-million. Soil designated for off-site disposal will be temporarily staged on polyethylene sheeting adjacent to each excavation area, or alternatively directly loading to suitable transport vehicle for delivery to the landfill. If staged on site, the soil piles would be covered with polyethylene sheeting at the end of each excavation day and remain covered until loaded onto trucks for transport and disposal.

Excavation areas will be backfilled to grade with segregated clean soils and clean off-site borrow material. Such proposed backfill material will be sampled and laboratory analyzed in accordance with the requirements of NYSDEC DER-10 prior to placement, to confirm that the concentrations of compounds listed in Table 375-6.8(a) of *6NYCRR Part 375* do not exceed the corresponding soil cleanup objectives. In the event that the concentrations reported in the samples of proposed backfill material exceed the Table 375-6.8(a) soil cleanup objectives, such material will not be used as backfill and will be removed from the site for off-site disposal at the solid waste management facility at which the impacted soils are disposed.

Air monitoring during excavation activities will be performed in accordance with the Community Air Monitoring Plan (CAMP) included as Appendix A.

4.2 Post-Excavation Soil Sampling

Post-excavation verification soil samples will be collected from depths corresponding to the contaminated soil horizon in each area at the limits of the excavation prior to backfilling. Soil samples will be collected at a frequency of one sample for every 30 feet of excavation sidewall. Based on the conditions observed in previous soil borings and test pits in these areas, it is anticipated that the impacted soil extends to the bedrock/overburden contact and that related soil excavation will therefore remove all overburden to the bedrock surface. If such is the case, no soil samples will be collected from the excavation floor. If excavation is terminated prior to reaching the bedrock surface, soil samples from the excavation floor will be collected on a frequency of one sample per 900 square feet of floor area. Sampling will be biased toward areas with higher PID readings, if any.

Soil samples will be submitted for laboratory analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds by EPA Method 8270 (SVOCs), Priority Pollutant Metals by EPA Method 200.7, Poly Chlorinated Biphenyls (PCBs) by EPA Method 8082A, and pesticides by EPA Method 1699. Samples will be submitted to a NYSDOH certified laboratory. NYSDEC ASP Category B deliverables will be provided and the data will be reviewed by an independent data validator.

4.3 IRM Report

SE will prepare an IRM Report documenting excavation activities and presenting the results of post-excavation soil sampling.

5.0 SCHEDULE

With approval of this IRM Work Plan, SE will solicit proposals from qualified contractors for site excavation activities, transportation and disposal of contaminated soil, and placement of site backfill and general site restoration. This selection will follow a public bid process. At the discretion of the Village of Sackets Harbor, excavation may be performed by qualified contractor or by properly trained (40-hour HAZWOPER certified) municipal personnel. The goal is to complete excavation in late October or November 2012. The IRM report will be completed within 45 days of submission of post-excavation soil samples to the laboratory.

Figure 1

Site Overview



VILLAGE OF SACKETS HARBOR

*Proposed Work Plan, Supplemental Interim Remedial Measures, Operational Unit #2-The North Terminal
Former AFMC Petroleum Bulk Storage and Distribution Facility
Ambrose Street, Sackets Harbor, Jefferson Co., New York*

Figure 2

Proposed Excavation Areas-North Terminal



VILLAGE OF SACKETS HARBOR

*Proposed Work Plan, Supplemental Interim Remedial Measures, Operational Unit #2-The North Terminal
Former AFMC Petroleum Bulk Storage and Distribution Facility
Ambrose Street, Sackets Harbor, Jefferson Co., New York*



TEST PIT LOCATIONS

FORMER AFMC BULK STORAGE FACILITY
AMBROSE STREET
SACKETTS HARBOR, JEFFERSON COUNTY, NY

FIGURE

DATE:	August 6, 2012
SCALE:	1:50
DRAWN BY:	JRP
REVISIONS:	
PROJECT NO:	09-761

It is a violation of New York State Education Law Article 130, Section 3020a(1)(ii) for any person acting under the direction of a New York State Licensed Engineer, to alter this drawing in any way, if an item bearing the seal of an engineer is altered, the altering engineer shall affix his/her seal, signature and the date of such alteration, and a specific description of the alteration.

STRATEGIC
ENVIRONMENTAL, LLC.
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Appendix A

Community Air Monitoring Plan



VILLAGE OF SACKETS HARBOR
*Proposed Work Plan, Supplemental Interim Remedial Measures, Operational Unit #2-The North Terminal
Former AFMC Petroleum Bulk Storage and Distribution Facility
Ambrose Street, Sackets Harbor, Jefferson Co., New York*

**COMMUNITY AIR MONITORING PLAN
INTERIM REMEDIAL MEASURES
FORMER AFMC, INC. PETROLEUM BULK STORAGE FACILITY
AMBROSE STREET, SACKETS HARBOR, NEW YORK

NYSDEC ENVIRONMENTAL RESTORATION PROJECT
SITE NUMBER E-623014**

The following establishes the air monitoring and action levels that are proposed to be incorporated into Strategic Environmental, LLC's Interim Remedial Measures (IRM) activities at the former AFMC, Inc. petroleum bulk storage terminal facilities located on Ambrose Street in the Village of Sackets Harbor, Jefferson County, New York. These provisions are intended to monitor and document concentrations of target contaminants in air within and downwind of the work site during IRM activities, and are intended to be incorporated into the Proposed Remedial Work Plan by reference.

Although it is not expected that the proposed IRM activities will create a significant threat of exposure to the local community, given the minimal degree of contamination documented during the remedial investigation; the limited nature of proposed excavation activities; and the considerable distance between the proposed work area and neighboring receptors; monitoring of air quality at the downwind perimeter of the work zones will be conducted, to confirm and document that the investigation activities do not result in migration of target airborne contaminants to the off-site downwind community.

A. IRM Excavations – North Terminal

During excavation activities, the worker breathing zones will be continuously monitored for airborne VOC and particulate matter, using a portable PID equipped with a 10.6 lamp (VOC) and a real-time aerosol monitoring (particulates). Concentrations of these analytes will also be recorded at an upwind location prior to and at periodic times during the excavation work, to establish local background levels.

In the event that VOC concentrations in the breathing zones are recorded to be sustained at or above 5 ppm for a period of 5 minutes or more, if measurable airborne particulates less than 10 microns in size are recorded at average concentrations at or above 100 micrograms per cubic meter (mg/m^3) more than upwind background levels over a fifteen (15) minute period, or if visible airborne dust is observed leaving the work area, work will be discontinued and provisions for upgrades of personal protective equipment and/or other site controls will be evaluated and implemented, as warranted.

In addition to worker breathing zone monitoring, VOC and particulate concentrations at the downwind fringe of the work zone, will be performed on a

real-time basis throughout the work periods. VOC monitoring will be conducted with the portable PID, and particulate monitoring will be performed using a real-time aerosol monitor.

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 will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

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

Appendix B

Site-Specific Health and Safety Plan



VILLAGE OF SACKETS HARBOR

*Proposed Work Plan, Supplemental Interim Remedial Measures, Operational Unit #2-The North Terminal
Former AFMC Petroleum Bulk Storage and Distribution Facility
Ambrose Street, Sackets Harbor, Jefferson Co., New York*

SITE-SPECIFIC HEALTH AND SAFETY PLAN
Remedial Site Investigation and Interim Remedial Activities
Former AFMC, Inc. Petroleum Bulk Storage Terminal
Ambrose Street, Sackets Harbor, Jefferson County, New York

NYSDEC Environmental Restoration Program
Site Number E-623014

January 19, 2007 (Revised)

May 3, 2007 (Revised)

September 11, 2012 (Revised)

I. Introduction

The following Health and Safety Plan (HASP) has been developed to establish site-specific personnel protection procedures and mandatory safety practices to be followed by personnel of Strategic Environmental, LLC (SE) that are involved in field investigation activities and interim remedial measures to be conducted at the former AFMC petroleum bulk storage and distribution terminal located on Ambrose Street in the Village of Sackets Harbor, Jefferson County, New York.

This HASP identifies the parties to be involved with the investigation and their respective responsibilities, and includes an assessment of health risks and hazards that may be expected, based on known and available information regarding the nature of site contaminants, and given the nature of the work tasks to be conducted during the investigation activities. The HASP also establishes provisions for selecting and utilizing personnel protective equipment, and methods to be employed in monitoring potential worker and community exposure during the field work. Finally, the Plan documents emergency contact numbers and delineates emergency response and evacuation procedures and routes.

The subject site has historically operated as a bulk petroleum storage and distribution terminal. Such activities were reportedly ceased and the storage and handling equipment associated with the operation was reportedly dismantled in or about 1988. A previous investigation has identified impact to overburden soils and groundwater by volatile and semi-volatile organic compounds/petroleum constituents. No other contaminants are known to exist at this time.

II. Implementation

Implementation of the provisions of this HASP shall be the responsibility of all personnel involved with the project. As such, all personnel visiting the site and/or engaged in site investigation activities will be required to read this HASP, and acknowledge such review by signing the form attached hereto as Attachment 1. The HASP shall also be maintained and readily available at the site during field activities, for reference by field personnel.

Daily "tailgate" safety meetings will be conducted by the Field Safety Officer and shall be attended by all personnel prior to the start of work on each day. Sign-in sheets acknowledging and documenting attendance will be maintained, on the form attached hereto as Attachment 2.

Monitoring of the day-to-day implementation of and adherence to the HASP by the field crews during the site activities shall be the responsibility of the Field Safety Officer, under delegation and oversight by the site Health and Safety Manager. Any and all safety and health concerns or incidents shall be immediately communicated to the Field Safety Officer, who shall, in turn, immediately notify the Health and Safety Manager.

The HASP shall be continually evaluated throughout the duration of the project by the Health and Safety Manager, and any and all procedural changes and/or other modifications, if necessary, shall be reviewed and approved by the Health and Safety Manager.

All personnel engaged in field activities on the project shall have been trained through the OSHA 40-hour Hazardous Waste Operations training course and the associated 8-hour refresher update(s), pursuant to 29CFR 1910-120 and 29CFR 1926.65. The Health and Safety Manager shall have also completed the corresponding Supervisory Training Course. Further, all site personnel shall have been subjected to current medical monitoring, pursuant to the requirements of 29CFR 1910-120.

III. Nature of Work

In general, the investigation work to be conducted at the subject site will involve the excavation of exploratory test pits, and the collection and field examination and screening of soil samples from specified areas in which impact by petroleum products and/or petroleum constituents has been documented or may potentially exist. Overburden groundwater monitoring wells will also be installed and sampled, to allow documentation of petroleum constituent concentrations. The intent of the investigation is to further evaluate the extent and levels/concentration of petroleum impact that had been documented to exist in overburden soils and groundwater. The exploratory test pits will also serve to allow examination of areas in which subsurface piping or other structures are known or suspected to have existed to determine whether such items remain and to determine whether evidence of petroleum impact exists on the surrounding soil. Limited soil excavations may also be created to facilitate the removal of petroleum-impacted soil as interim remedial measures.

The soil sampling and well installations will be conducted utilizing Geoprobe® direct-push sampling technologies, which involve the advancement of steel sampling equipment through the application of hydraulic pressure and percussion action. The direct-push unit is mounted in the rear of a heavy-duty four-wheel drive truck (Ford Model F250).

The recovered soil samples will be field logged, examined, and subjected to headspace screening, utilizing a portable photo-ionization detector (PID). Additionally, select samples will be retained and subjected to laboratory analysis, to document concentrations of individual petroleum constituents.

The wells installed during the Geoprobe investigation, as well as several existing wells, will be evacuated and sampled, to document dissolved-phase concentrations of individual petroleum constituents.

The specific work tasks associated with the project are more thoroughly defined in SE's *Proposed Investigation Work Plan*, dated October 17, 2006, and *Proposed Work Plan-Supplemental Interim Remedial Measures-North Terminal*, dated September 11, 2012, to which this HASP has been appended.

IV. Project Parties and Personnel

The investigation activities will be conducted by SE, on behalf of the Environmental Restoration Program. The respective contacts are as follows:

Regulatory: New York State Department of Environmental Conservation
Region 6
Dulles State Office Building
317 Washington Street
Watertown, New York 13601
Contact: Mr. Peter Ouderkirk, Project Manager/Engineer
Telephone: (315)785-2513

Consultant: Strategic Environmental, LLC
25 ½ Water Street
Baldwinsville, New York 13027
Telephone: (315) 635-8936
Field Contact Nos.: (315) 529-0482 or (315) 657-5797

- Project Manager and Health and
Safety Manager: Mr. Nevin Bradford
- Site Contact and Field
Safety Supervisor: Mr. Jamie Pentland

Owner : Village of Sackets Harbor
112 North Broad Street
Sackets Harbor, New York 13685
Contact: Mr. Eric Constance, Mayor
Telephone: (315) 646-3548

V. Health Risk and Hazard Assessment

A. PHYSICAL HAZARDS

1. Buried Utilities

The performance of intrusive subsurface investigation such as that proposed at the subject site presents the potential for damage to buried utilities during the excavation of test pits and advancement of the sampling tools. Therefore, Dig Safely New York (formerly the Underground Facilities Protection Organization or UFPO) shall be contacted a minimum of three business days prior to initiating the field activities, to arrange for the identification and markout of buried utilities at the site. The contact number for Dig Safely New York is **1-800-962-7962**.

Information regarding the nature and location of known private/unregistered site utilities shall be obtained from the Environmental Restoration Program prior to initiating the investigation.

In the event of inadvertent damage to buried utilities, all work shall cease, and the situation shall be evaluated by the Health and Safety Manager.

2. Geoprobe Operation and Test Pit Excavation

The methods to be employed in the execution of the investigation involve the use of heavy equipment, which, by its nature, presents certain physical hazards. The hazards inherent to the direct-push and excavation equipment to be utilized during the investigation of the subject site includes:

- i.) pinch points resultant of the movement of the hydraulic components of the equipment, and associated with the handling of the steel sampling barrels and equipment;
- ii.) noise created by the operation of the excavation equipment, truck unit and the percussion action of the probe;
- iii.) eye hazards associated with percussion of steel-on-steel;
- iv.) strike hazards inherent to the operation and movement of the excavation equipment and truck unit; and
- v.) lifting and bending motions associated with the operation of the direct-push unit.

The pinch, strike, lifting, and bending hazards can be primarily managed through reasonable and prudent care, and through experience in operating the sampling unit. The operator(s) that will work on the project shall have been trained in the operation and safety considerations of the equipment, and be significantly experienced in executing investigation

activities similar to those to be employed at the subject site, and familiar with the safety guidelines published by the equipment manufacturer. Copies of the Safety Instructions provided by the manufacturer of the direct-push sampling unit are attached hereto and incorporated herein as Attachment 3.

Exposure to noise by the equipment operators shall be minimized/managed through the use of hearing protection. Other activities involved with the field work (i.e., soil logging and screening) shall be conducted at a distance from the equipment that is sufficient to minimize excessive noise exposure.

All personnel conducting field activities shall be equipped with and required to wear hard hats, steel-toed safety shoes, and safety glasses that conform to *ANSI Z87.1-1968* standards, at all times while on site.

3. Other Physical Hazards

Other physical hazards that may be associated with field investigation activities such as those proposed for the subject site include slip/trip/fall hazards. Management of slip/trip/fall hazards shall be promoted by maintaining a neat and orderly work area, and in exercising reasonable care during site work. Additionally, prior to undertaking the investigation, existing vegetation will be cleared by a bulldozer or similar equipment.

The operation of the Geoprobe unit in areas of grass and vegetation also presents a potential fire hazard from exposure of vegetation to the exhaust system components present beneath the truck, particularly during dry periods. As such, a fire extinguisher shall be readily available and accessible at the site at all times during field activities. In the event that the fire is not extinguished with the on-site fire extinguisher, field personnel shall immediately evacuate the area of the fire, and contact the local fire department **(315-782-6298)** or Jefferson County Emergency Services **(911)**.

B. CHEMICAL HAZARDS

The investigative and interim remedial work to be conducted at the site will involve the sampling and handling of soil and groundwater that is or may potentially be impacted by petroleum product and/or volatile and semi-volatile petroleum constituent contamination. No other contaminants have been documented to exist at the site to date.

Based on the nature of the contaminants and work to be performed, the primary exposure pathways to site personnel would be expected to include:

- i.) inhalation of airborne volatile organic compounds resultant of release from the soil or groundwater recovered from the sampling locations;
- ii.) inhalation and/or skin, eye, and/or mucous membrane contact with airborne dust and particulates to which volatile and/or semi-volatile organic petroleum constituents may be absorbed;

iii.) skin contact and adsorption resultant of direct contact with impacted soil, groundwater, or decontamination fluids;

iv.) ingestion through introduction of residual material on skin or clothing, as a result of eating, smoking, gum or tobacco chewing, or similar activity; and/or

v.) adsorption through the eyes and mucus membranes by direct contact with residual material on skin or clothing as a result of itching, rubbing, or other contact, or through exposure to significant airborne concentrations of volatile petroleum constituents.

Management of potential worker exposures will be accomplished through the use of personnel protective equipment, the performance of real-time air monitoring, and through personal decontamination procedures outlined below.

In that large masses or areas of impacted soil or groundwater will not be disturbed or exposed during the investigation activities, and considering the considerable distance between the study area and the nearest neighboring properties in any direction, the potential for migration of airborne contaminants released by the sampling process, if any, and the potential for exposure to off-site receptors is not likely significant. However, as a means of monitoring for migration of airborne contaminants from the work site during test pit excavation activities, a Community Air Monitoring Program will be implemented, as provided in Attachment 4.

C. ENVIRONMENTAL HAZARDS

Environmental hazards that should be considered in connection with the investigation effort would be expected to include insects, wildlife, and weather. The primary insect hazards that would be expected to be posed by the site activities would consist of ticks and bees, as there is no known species of poisonous spiders or other insect species inherent to the area.

Potential exposure to ticks shall be minimized by the requirement that all field staff wear long pants and safety shoes. Further, field personnel are advised to change clothing and carefully examine for evidence of insects and ticks upon undressing, immediately following return from the site.

Wildlife hazards that may be encountered at the site would be expected to be limited to rabid animals, the occurrence of which has been historically recorded throughout northern New York State. As such, field personnel are advised to avoid contact with any animals, either wild or domestic, that may be encountered while conducting the field activities, and to notify the local office of the New York State Department of Health (NYSDOH) in the event that animals are observed to elicit strange behavior. In the event of contact with an animal that is behaving in a strange manner, the NYSDOH should be contacted immediately.

The concerns posed by weather conditions may include lightning, overhead hazards (i.e., falling tree limbs, etc.) created by high winds, and slip hazards created by wet conditions. Excessively hot conditions may also contribute to heat stress. Therefore, work will be ceased

and conditions will be monitored in the event that lightning is observed or suspected in the area, or in the event that other weather conditions pose a health hazard.

Potential heat exposure and stress shall be monitored through the “buddy system” of frequent communication between site personnel, and managed through scheduled breaks and the availability of potable fluids at the site. In the event that personnel are observed to exhibit dizziness, disorientation, heat rash, slurred speech, dry mouth, heat cramps, or other symptoms of heat stress, work shall be immediately discontinued, and the affected person(s) shall be immediately moved to a location that is free of direct sunlight. Following the personal decontamination procedures outlined herein (Section IX of this HASP), the affected person(s) shall be provided fluids (preferably “Gatorade” or similar product that will replenish electrolytes), and be monitored during a subsequent period of rest, to evaluate whether there is notable improvement in their condition. The liquid refreshment shall be maintained on ice in a cooler that is stored at the rest and eating location to be designated by the Field Safety Officer.

In the event that a notable improvement is not observed, further treatment shall be sought through contacting Jefferson County Emergency Services **(911)**.

VI. Exposure/Air Monitoring

A. OVERVIEW

Protection for workers from air borne contamination originating at the site is the primary objective of this section of the HASP. Although the work is not expected to generate large quantities of air borne contaminants, as the work will involve direct push sampling methods and limited small sized excavations, real-time monitoring of the work zones will be conducted to ensure that airborne contaminants are not present in the work areas. Also, the plan will allow appropriate mitigative measures to be implemented in the event that action levels established in this HASP are exceeded.

This plan is not intended to establish air monitoring that will be performed for local residents under the Community Air Monitoring Plan (CAMP), but rather for the protection of the employees doing the investigative work, from potentially harmful contaminants.

Potential exposure to airborne volatile petroleum constituents (VOC) and particulate matter will be monitored through real-time, periodic/routine screening of the worker breathing zones (i.e., above waist level). Monitoring of VOC will be performed using portable photo-ionization detectors (PIDs), and monitoring of particulate concentrations will be conducted with aerosol monitors. The screening shall be performed periodically (i.e., at a minimum frequency of once during each fifteen minutes) by the Field Safety Officer, and shall encompass the breathing zone of the direct-push unit operator, and the geologist that is logging and examining the soil samples.

In the event that sustained elevated levels of VOC are recorded in the worker breathing zone(s), such conditions will be evaluated, and the level of personnel protection utilized by the field crew

will be modified, as warranted. Specific action levels and evaluation and mitigation procedures are described in the following sections of this HASP.

B. COMPOUNDS OF CONCERN

Total VOC, ethylene dibromide (EDB), tetraethyl lead (TEL) and airborne particulates have been identified as contaminants of concern for this project. In addition to previous site investigations, SE determined which compounds would be of concern from how the site was historically used.

1. Total VOC

Throughout the course of site investigation, the total amount of Volatile Organic Compounds (VOC) will be monitored using photoionization detectors (PIDs). The type of PID to be used will be the MiniRae Model 2000, which will be equipped with the 10.6 eV ultra violet lamp. This unit will be programmed to sound its alarm when the concentration of VOCs exceed a limit of 5 ppm.

2. Tetraethyl lead

The two threshold limits published by OSHA concerning exposure of humans to TEL are the IDLH (immediately dangerous to life and health) level and the exposure limit for skin. The values for these two limits are 40 mg/m³ and 0.075 mg/m³, respectively. Odors for TEL have been described as either being musty or pleasant and sweet, according to NIOSH and OSHA, respectively.

According to manufacturer's literature, measurements for levels of TEL can be obtained using a MiniRae Model 2000 PID, equipped with an 11.7 eV lamp. Since the ionization energy of TEL is 11.10 eV, it was necessary to choose a lamp with an ionizing potential greater than the standard 10.6 eV lamp. Due to its inherent toxicity, a tetraethyl lead calibration standard is not available for direct calibration of the instrument to this gas. Therefore, the PID unit will be calibrated with isobutylene gas (100 ppm), and read using a conversion factor of 0.2. This corresponds to the correction factor that is published by Rae Systems in their Technical Note 106, for an 11.7 eV PID calibrated to 100 ppm isobutylene. A copy of this technical report is attached in Attachment 5 of this plan.

Real time monitoring will provide concentration levels in parts per million. In order to obtain data in milligrams per cubic meters, allow comparison to the OSHA exposure limits, a conversion equation will be employed. The molecular weight data was acquired from the NIOSH website. The generic conversion equation that will be applied is as follows:

mg/m³ to ppm:

$$\frac{\text{Concentration}\left(\frac{\text{mg}}{\text{m}^3}\right) \bullet \text{Molar Gas Volume}\left(\frac{\text{L}}{\text{mol}}\right)}{\text{Molecular Weight}\left(\frac{\text{g}}{\text{mol}}\right)} = \text{Concentration}(\text{ppm})$$

Specifically, for TEL the conversion equations will be;

$$\text{TEL: } \frac{40 \frac{\text{mg}}{\text{m}^3} \bullet 24.4 \frac{\text{L}}{\text{mol}}}{323.5 \frac{\text{g}}{\text{mol}}} = 3 \text{ ppm}$$

This equation was derived from a formula given by Rae Systems, the PID manufacturer, and is included as Attachment 5. The IDLH level for TEL is therefore 3ppm, which corresponds to a reading of 15 ppm on a PID equipped with an 11.7eV lamp and calibrated to isobutylene, using the 0.2 correction factor.

3. Ethylene dibromide

Limits of exposure for EDB are set by OSHA and published by NIOSH in the "Pocket Guide to Chemical Hazards". A time weighted average (TWA) of 20 ppm is the limit set by OSHA, with a ceiling limit of 30 ppm. EDB can be observed by humans in concentrations greater than 10 ppm and is reported as having a chloroform like odor.

Ethylene dibromide(EDB) has a lower ionization level (10.37 eV, Attachment 6) than that of TEL and can be detected using a PID with a 10.6 eV lamp. For this project, EDB will be measured using a PID equipped with a 10.6 eV lamp. This type of unit was selected as it is generally more "sensitive" than a PID having an 11.7 eV lamp. To approximate the concentration of EDB using the PID, a correction factor will be utilized. For the PID equipped with a 10.6 eV lamp and calibrated with isobutylene, a correction factor of 1.7 will be used (Attachment 7).

The OSHA time weighted average, when determined using the correction factor, will be 11 ppm for EDB.

4. Particulates

Guidance values of acceptable limits for particulate matter released from a remedial or investigative activity have been set by the NYS DEC in their *Technical and Administrative Guidance Memorandum (4031): Fugitive Dust Suppression and Particulate Monitoring Program*. The publication places a limit of 150 ug/m³ on airborne particles having a diameter of greater than 10 microns, existing on site. This limit represents the maximum 24 hour average at a site.

The type of dust monitor to be used during this investigation will be the TSI DustTRAK Aerosol Monitor, which has the capability of continuous data logging. These dust monitors will be able to detect the PM-10 particles and integrate the data over a fifteen (15) minute period, allowing for immediate knowledge of average particulate concentrations.

C. WORK ZONE MONITORING

Work zones will be continually monitored throughout this remedial investigation project. A set of two PIDs, one equipped with a 10.6 eV lamp and another with an 11.7 eV lamp, will be located at each worker zone. These zones will also each have a dust monitor, to measure for airborne particulates. The monitoring equipment will be kept, as closely as possible, to five feet above the surface on which work is being conducted, which is the approximate height at which humans breathe.

Once in place, the PIDs will be set to continuously record total VOC readings. Alarms will be programmed on each PID (both the 11.7 eV and 10.6 eV) to sound upon registering a value of 5 ppm or greater. This value was chosen as it is conservative with respect to both the TEL IDLH level (15 ppm on 11.7 eV PID) and the TWA for EDB (11 ppm on 10.6 eV PID). The time weighted average for EDB will never be exceeded since an alarm will sound before this value is even reached once. Alarms will also be set on the dust monitors, to a value of 150 ug/m³.

VII. Action Levels and Mitigation

The following action levels and resultant mitigative actions will apply for various contaminants included under this HASP.

A. TOTAL VOC, TEL, EDB

The action level for Total VOC, TEL and EDB for this project will be 5 ppm. The value of 5 ppm has been chosen based on the regulatory exposure limits of each contaminant mentioned above. With correction factors taken into consideration, the lowest level of VOC permissible by the OSHA standards would be 11 ppm (not including the skin exposure limit for TEL). Applying a safety factor of 2 to this value yields an acceptable exposure limit of 5 ppm, which is the value used in this plan.

OSHA has set a 40 hour time weighted average limit of 0.075 mg/m³ for skin exposure to TEL. It will not be possible to attain this degree of real time accuracy in the field. A conversion of this number to an equivalent ppm value yields a result of 0.005 ppm. This value must now be corrected using the conversion factor for TEL. Converting between measurements recorded on the PID and equivalent TEL values requires that the correction factor of 0.2 be applied. A reading of about 0.03 ppm ($0.03 \times 0.2 = 0.006$) on the PID is equivalent to OSHA's 0.005 ppm threshold. Accuracy to this extent can be

achieved only using laboratory methods; however, this would be of little use on this project as real time data is required.

If the action level of 5 ppm is recorded on any of the PID instruments, employees will move to a location upwind of that area until readings decrease below this level. Additionally, if any odors are observed that indicate the presence of either EDB or TEL, work will be ceased and workers will move to an upwind location. Published guidance by OSHA indicates that EDB can be detected by humans in concentrations above 10 ppm and has a mild chloroform like odor. No odor human detection limits are published for TEL, however, it has been published that it exhibits a pleasant sweet odor, according to OSHA, or a musty odor, according to NIOSH.

Air purifying respirators equipped with organic vapor cartridges will be worn by each working individual in the event that the 5 ppm threshold is exceeded or odors are detected. This precaution will continue until work in this location is finished, with vapor cartridges being changed every 4 hours.

In the event that either of the PIDs registers a value of greater than 10 ppm, work will immediately be halted and employees will relocate to a distant upwind location. The use of vapor suppressants in this area will be evaluated and in no instance shall work begin until levels drop and remain, for at least a half hour, below the 5 ppm threshold.

B. AIRBORNE PARTICULATES

If, during any fifteen minute period, dust monitors record a value of greater than 150 micrograms per cubic meter, work will be halted. At this time, the upwind background levels will be immediately measured using the same dust monitor. If the site's particulate measurement is greater than 100 ug/m³ above background levels, additional dust suppression techniques shall be employed. After the dust suppression techniques have been implemented and are determined to be functioning adequately, work may resume at the site. If the action level of 150 ug/m³ is exceeded at any time, the Division of Air Resources will be notified within five working days. A description of the control measures implemented at the time of the action level breach will be provided to help prevent further exceedences. An upgrade to PPE may be necessary and will depend on the type and concentration of encountered contaminants. A chart illustrating the various levels of PPE and corresponding equipment requirements have been attached as Attachment 8.

VIII. Personnel Protective Equipment

The various physical and chemical hazards inherent to the site and the proposed activities warrant the use of personnel protective equipment (PPE) during the execution of the field activities.

Based on the nature of the sampling process, the nature of contaminants known or suspected to exist at the site, it is expected that the use of level D PPE would be appropriate to prevent against chemical exposure, and to safeguard against the likely physical hazards. Such equipment shall be worn by all field personnel at all times while on-site. The level D PPE shall include:

- Hard Hat
- Steel-toed safety shoes
- Safety glasses conforming to *ANSI Z87.1* standards
- Hearing protection for direct-push unit operator, and/or as warranted by site noise levels
- Nitrile gloves

The use of contact lenses by field personnel will not be allowed during the investigation. In the event that prescription eyewear is necessary, such personnel shall utilize prescription safety glasses, or goggles adequate to cover prescription glasses.

In addition to the above, field personnel shall be equipped with and medically capable (as deemed through medical surveillance program) of wearing appropriate respiratory protection, in the event that significant concentrations of airborne volatile organic compounds are documented to exist in the worker breathing zones. The respiratory protection shall, at a minimum, provide for filtration of airborne dust and organic vapors.

An upgrade of PPE to include respiratory protection shall occur in the event that sustained concentrations of VOC in excess of five (5) ppm are recorded in the worker breathing zone (i.e., above waist level), through the air monitoring with the portable PID, for a period of five minutes or more.

The need for further upgrades to PPE will be evaluated throughout the course of the investigation, based on field conditions encountered at that time. PPE may be upgraded based on the results of the air monitoring described above, and/or at the discretion of the Health and Safety Manager. No decrease in PPE (below level D) will be allowed.

In the event that the Field Safety Officer or Health and Safety Manager determine that field conditions suggest a potential for exposure or hazard beyond which is afforded by the PPE or monitoring procedures, work will be ceased, and field personnel will evacuate the area until such time as the conditions are evaluated by the Health and Safety Manager.

IX. Safe Work Practices

Additional safety precautions that shall be obeyed while working at the site include:

- Eating, drinking, smoking, chewing gum or tobacco, or any other practice that increases the likelihood of hand to mouth contact shall be prohibited in the work zones. Such activities will be allowed in a location outside of the work zones to be

designated by the Field Safety Officer, following adequate personal decontamination procedures (glove cleaning and removal, hand and face cleaning).

- Hands, face, forearms, and other exposed skin areas should be thoroughly washed upon leaving work zone, and prior to eating or drinking.
- Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud, or other wet or discolored surfaces; kneeling on ground; and placing equipment, materials, or food on ground or other potentially contaminated surface.
- Medicine and alcohol may mask and/or enhance the effects of exposure to chemicals or environmental hazards. The Health and Safety Manager shall be advised of employees that are utilizing prescription or over the counter medications. No consumption of or work under the influence of alcohol or drugs will be allowed.
- The use of the "Buddy System" shall be employed at all times while conducting work at the site. Each employee shall frequently monitor other workers for signs of heat stress, chemical exposure or fatigue; periodically examine others PPE for signs of wear or damage; routinely communicate with others; and notify others in the case of an emergency.

Personal decontamination will be achieved by washing the outer nitrile gloves through the equipment decontamination sequence, and discarding the inner nitrile gloves. The outer nitrile gloves will be discarded at the conclusion of each day, or on a more frequent basis, if damaged.

Following the removal of the nitrile gloves, all field personnel shall wash hands, forearms, face and any other exposed area at the site, using hand cleaner and tap water wash and rinse.

X. Equipment Decontamination

Sampling equipment employed in the course of the investigation will be decontaminated between samples and at the conclusion of each work day through the following sequence:

- Initial tap water rinse, to remove gross soil or contaminants
- Tap water and alconox wash
- Tap water rinse
- Distilled water rinse on those items that will or may directly contact the samples

The rinsing and washing processes will be conducted in five-gallon pails that are staged on a layer of polyethylene sheeting. The sheeting will be positioned such that personnel are not required to walk on the sheeting, to avoid a potential slip hazard. The perimeter of the sheeting will be elevated using 2" by 4" dimensional lumber, to prevent runoff from the decontamination process from draining to the site surficial soils.

XI. Investigation-Derived Waste Management

Waste soils generated through the sampling activities will be placed in a double layer polyethylene bag, secured, and remain at the site, pending receipt and evaluation of the laboratory analysis results. Such soils shall be managed with remaining site soils, in connection with future site remediation activities, if warranted.

The equipment wash/decontamination water will be passed through a carbon filter, comprised of a five-gallon pail having a perforated bottom that has lined with steel wool and filled with granular activated carbon. The water that has passed through the filter will be discharged to the ground surface at the respective investigation area.

XII. Site Control and Communications

Access to the investigation areas of the site is presently restricted by existing chain link fencing, with locked access gates located along either side of Ambrose Street. During the execution of the investigation, access to the work areas will be controlled by the Field Safety Officer, and will be restricted to adequately trained personnel that are familiar with the provisions of this HASP, and that are equipped with sufficient PPE, as outlined herein. The restricted work area shall consist of space within a 100 feet radius outside the perimeter of the area in which intrusive sampling and sample handling is being conducted.

The site will be secured via the existing chain link fencing and locked gates at the conclusion of each work day.

Any persons visiting the site shall immediately contact the Field Safety Officer, Mr. Pentland, prior to entering the work areas.

Communications with and by site personnel will be accomplished through the use of cellular phones that will be positioned at the site. The primary field contact is Mr. Pentland, at (315) 657-5797.

XIII. Emergency Response, Evacuation Routes, and Contact Numbers

A. PERSONAL INJURY OR EMERGENCY

In the event of a personal injury, the injured person or other crew member shall immediately notify the Field Safety Officer. The Safety Officer will assess the seriousness of the injury, give first aid treatment if appropriate, and arrange for appropriate emergency response from outside emergency services, if warranted. Further, such incident shall be reported to the Health and Safety Officer at the earliest convenient time (following emergency care).

A fire extinguisher (ABC class extinguisher) and a first aid kit shall be maintained and made readily accessible at the site at all times, for use in controlling small fires, and providing preliminary and/or small scale treatment of injuries, as appropriate.

If soiled clothing cannot be removed, the injured person will be wrapped in a blanket while transported from the site.

The Safety Officer shall also monitor the affected person to determine whether there are symptoms resulting from the exposure or injury. If there is a visible manifestation of exposure such as skin irritation, the affected party shall be referred to a medical facility for treatment and evaluation as to whether the manifestation may be indicative of a delayed or acute exposure, a secondary response to exposure such as skin infection, or occupational dermatitis. All incidents of injuries and/or obvious chemical exposure shall be evaluated by the Safety Officer and the Health and Safety Manager, to determine whether modifications to work practices and/or protective provisions are warranted.

B. OUTSIDE EMERGENCY SERVICES AND EVACUATION

The primary mechanism for responding to site emergencies shall be by contact with/notification of Jefferson County Emergency Services, through dialing **911**.

The closest medical facilities/hospitals are located in the City of Watertown, approximately 11 miles east of the site, and include the Genesis Healthcare of New York facility and the Samaritan Medical Center. The contact numbers for these facilities are as follows:

- Genesis Healthcare of New York Facility
Address: 218 Stone Street, Watertown, New York 13601
Telephone: (315)782-7400
- Samaritan Medical Center
Address: 830 Washington Street, Watertown, New York 13601
Telephone: (315)785-4100 (Emergency Room)
(315)785-4000 (Main Number)

Maps depicting the most direct route of travel between the site and these facilities are attached as Attachment 9.

Additional emergency contact numbers that may be appropriate are as follows:

- Sackets Harbor Volunteer Fire Department
Sulphur Springs Road, Watertown, New York
Telephone: (315)782-6298
- Village of Sackets Harbor Police Department
112 North Broad Street, Sackets Harbor, New York
Telephone: (315)646-3548
If No Answer: (315)788-1441

- Jefferson County Sheriff's Department
753 Waterman Drive, Watertown, New York
Telephone: (315)786-2700 (General)
(315)788-1441 (Emergency)
(315)786-2601 (Emergency)
- New York State Police Department
Watertown, New York
Telephone: (315)782-2112
- New York State Department of Environmental Conservation
State Office Building, 317 Washington Street, Watertown, New York
Telephone: (315)785-2513
- New York State Department of Health
State Office Building, 317 Washington Street, Watertown, New York
Telephone: (315)785-2277
- Village of Sackets Harbor Department of Public Works
112 North Broad Street, Sackets Harbor, New York
Telephone: (315)646-3548
- Division of Air Resources
Telephone: (315)785-2513
- Niagara Mohawk Natural Gas Emergency
Telephone: 1-800-892-2345
- Poison Control Center
Telephone: 1-800-282-3171
- Chemical Emergency Advise (CHEMTREC)
Telephone: 1-800-424-9300

A master list of pertinent telephone numbers is attached as Attachment 10, and shall be maintained in a readily accessible location at the site.

XIV. Employee Acknowledgement and Daily Logs

All employees of SE involved in field activities on the project are required to be familiar with and to abide by the provisions of this plan, and acknowledge such familiarity by signing the acknowledgement form attached hereto as Attachment 1.

Further, personnel present at the daily safety meetings and therefore involved with site activities shall sign daily safety meeting rosters, on the form attached as Appendix 2, which shall be incorporated as part of this HASP.

Daily logs documenting the personnel present at the site during each day; arrival and departure times of field staff and other visitors; description of work completed on each day of activity and area of same; notation of weather conditions during each day of work; documentation of safety and health incidents, unusual observations, equipment failures, and other issues; and a summary of daily air monitoring results shall be maintained by the Field Safety Officer, and incorporated herein.

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Attachments:

1. Acknowledgments of HASP Review
2. Safety Meeting Attendance Log
3. Geoprobe® Safety Protocols
4. Community Air Monitoring Program
5. NIOSH Manual for Analytical Methods (Tetraethyl lead)
6. NIOSH Manual for Analytical Methods (Ethylene dibromide)
7. Rae Systems Inc. (Technical Note 106)
8. Personal Protective Equipment (PPE) Chart
9. Direction to Hospitals
10. Master Telephone List

